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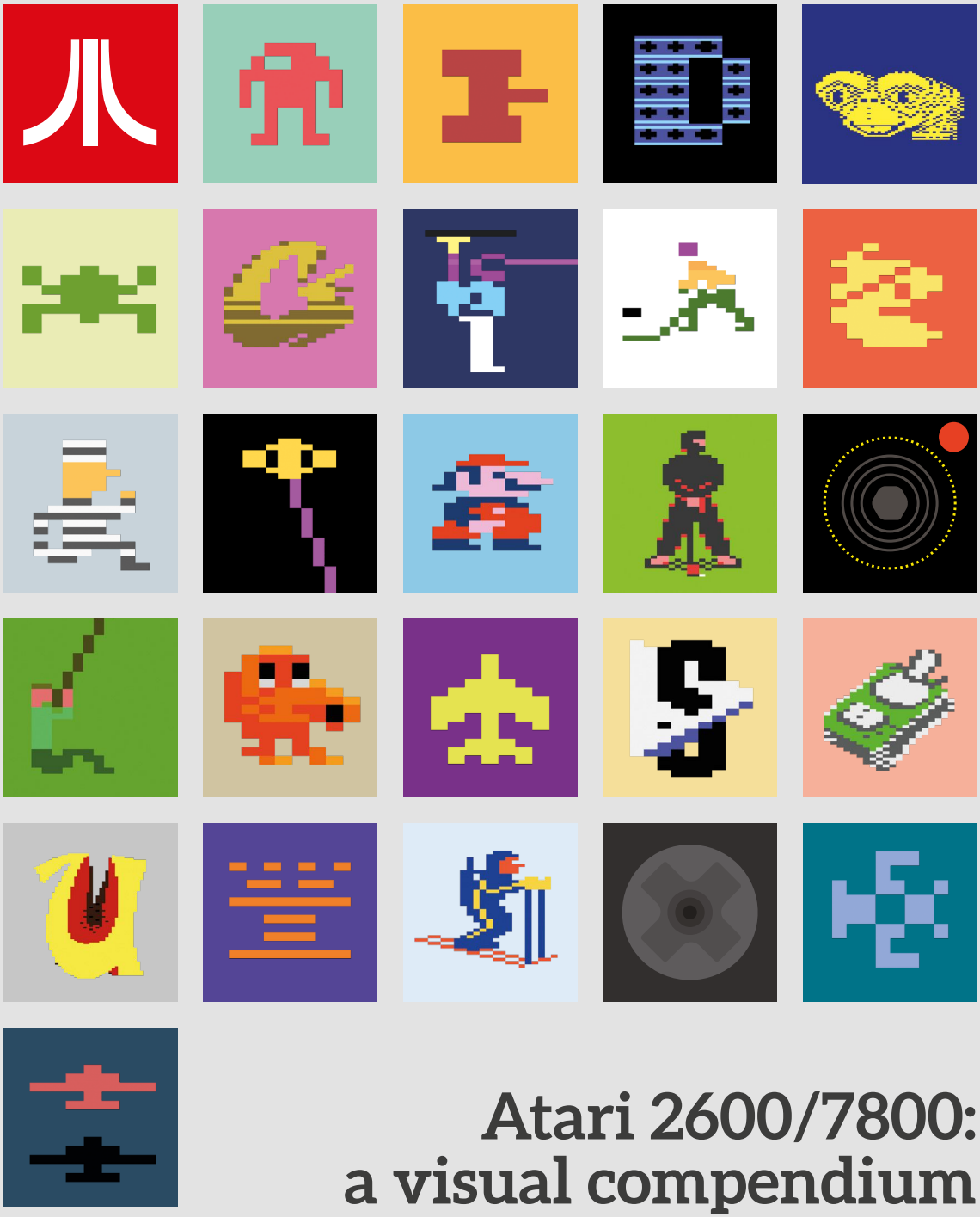

Atari 2600/7800: a visual compendium

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

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Atari 2600/7800: a visual compendium

WELCOME

Welcome to the seventh entry in our Visual Compendium series, and yes, we know what you're thinking: why did it take us so long to cover Atari? Hopefully, the book you're holding in your hands will atone for the delay, as it not only contains exclusive features and in-depth information on one of gaming's early pioneers, but also covers some of the other companies that made their fortunes on Atari's hardware – as well as a generous helping of interviews, artwork, game descriptions and much more besides.

Atari's early tenure as the video game industry's leading light oversaw seismic change in what was still a very young and evolving sector. Not only was Atari's VCS/2600 system the first piece of gaming equipment to truly dominate the living room, it also played host to some of the most iconic titles of all time, including *Asteroids*, *Space Invaders*, *Pac-Man*, *Defender*, *Joust*, *Pitfall!*, *River Raid* and many, many more. These were games which, despite their relatively simplistic presentation, embodied the focus on tight, compelling gameplay over all else.

At its height, Atari's name became synonymous with video gaming in the same way that Nintendo's would a few years later, but the company – and the industry – fell just as swiftly, thanks to the infamous North American video game crash of 1983. Even when faced with this catastrophic event, Atari soldiered on and, the following year, produced the powerful 7800 console – its a machine that could easily have returned the firm to its former glory had its launch in 1984 gone to plan. A delayed full-scale release, following Atari's sale to former Commodore boss Jack Tramiel, robbed this oft-overlooked platform of its momentum, and, by the time that it made it to market – accompanied by some astonishingly accurate coin-op ports – Nintendo had swept in to gobble up the North American audience that Atari so badly coveted. This book aims to cover the highs and lows of what was a truly tumultuous period in video game history; an era which laid down the foundations for what has, today, become one of the world's most popular forms of entertainment.

Bitmap Books, 2020

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My road to designing games for the Atari consoles was certainly a road less travelled. But first, a little history…

The Atari 2600, released in September of 1977 for $199, would ultimately become the first commercially successful video game console to use plug-in ROM cartridges for individual games (the Fairchild Channel F, released a year before the Atari 2600, also had swappable game cartridges, but the console never caught on).

But, to be honest, the 2600 started off slowly. It quickly became apparent that, at $199, while the Atari 2600 was amazing for its time, there had better be a darn good reason to buy one. In fact, for people to spend $200 on a toy, when the average car cost about $4,000, there was going to have to be a game so great that people would be willing to buy the machine just to be able to play that game at home.

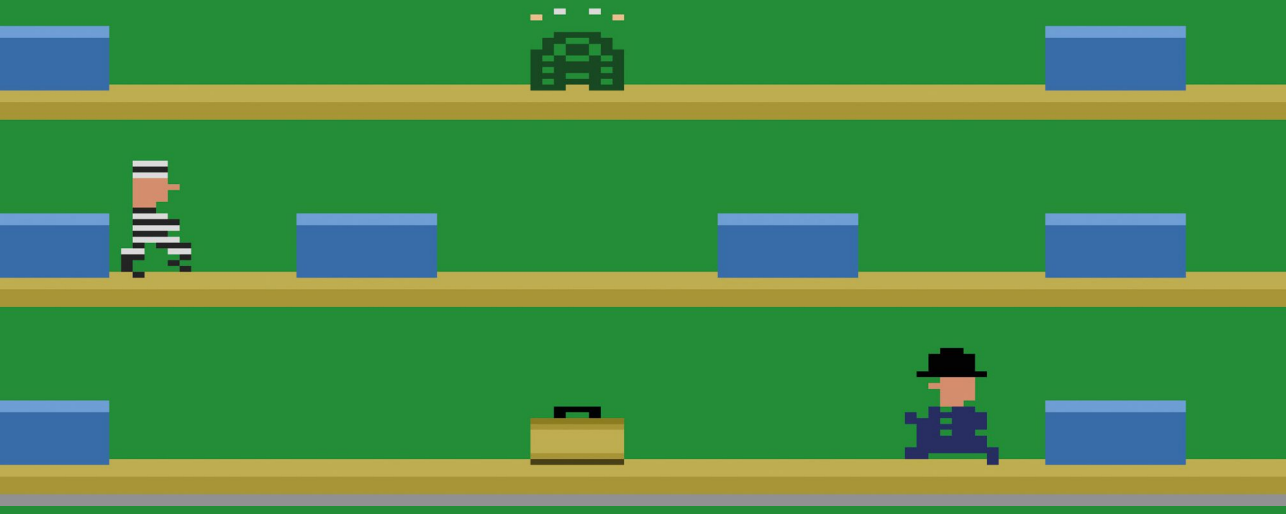
This has always been true for game consoles and computers alike. If you think about it, what good is a computer if there is no good software to run on it? The Apple II computer didn't start selling like wildfire until businesses found out that it was the only way to run VisiCalc, the first electronic spreadsheet. Later, in the mid-1980s, shoppers would step on their grandmothers to grab an NES just to take home a copy of *Super Mario Bros.*

In the biz, there's a name for these types of software titles, products that are so good that they drive people to buy the hardware just to be able to run that 'must-have' piece of software. That name is the 'killer app'. VisiCalc and *Super Mario Bros.* were killer apps that drove sales of the Apple II and the Nintendo NES, respectively. The Atari 2600 had a good start, but, for it to take off, it needed its own 'killer app'.

Enter Tomohiro Nishikado.

At about the same time that Atari (in California) was developing and launching the Atari 2600, over 5,000 miles away, Nishikado-san, a game designer at Taito in Japan, was working on his own video game project. This game, unlike any video game that came before it, featured a compelling storyline, complex animated character graphics, a tense soundtrack and the most addictive game play. Nishikado's game, called *Space Invaders*, launched in game arcades in 1978, and quickly grew into a worldwide phenomenon. Recognising an opportunity, Atari quickly licensed the exclusive home console rights to the game from Taito in order to sell a version for the Atari 2600. And, thankfully, Rick Maurer, a talented Atari engineer, did a fabulous job of bringing *Space Invaders* to the Atari platform.

In *Space Invaders*, the Atari 2600 now had its killer app. Once people found out that they could play *Space Invaders* at home if they had an Atari, sales of the 2600 console quadrupled.



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FOREWORD

With *Space Invaders* acting as the wind in its sails (and its sales), the 2600 took off, creating the foundation on which the now 140-billion-dollar video game industry was born.

On the East Coast, all this excitement about the new Atari 2600 machine caught my eye. As an electrical engineering student at the time, and an aspiring artist/illustrator, I wanted to make a home video game. But the 2600 was a 'closed' system, meaning that the technical specifications of what electronics were inside the console, and how they worked, were confidential. There was no manual that you could buy that explained how to program games on the Atari 2600. If you worked for Atari, you had access to the information, of course. If you didn't work for Atari, and you were 2,500 miles from Atari's headquarters in California, like I was, you had to take another path.

In my case, that path, and my only choice at the time, was to tear the Atari 2600 apart and figure out how it worked (a process known as 'reverse-engineering'). With a burning desire to write games for the system, I embarked on that route. Not only was I taking my own path, I had to 'pave my own road', as it were. My efforts were successful, and I shipped my first of four Atari 2600 games in early 1982.

As the 2600 audience increased at an astronomical rate, the growth was fed by groundbreaking game content from brilliant engineers and designers, such as David Crane (*Pitfall!*), Carol Shaw (*River Raid*), Doug Neubauer (*Solaris*), Howard Scott Warshaw (*Yars' Revenge*), Rob Fulop (*Demon Attack*), Warren Robinett (*Adventure*), and hosts of other creative geniuses, too many to name here but ably covered throughout this book.

The Atari 2600 had a tremendous run from 1977 to 1983. Unfortunately, the Atari 7800, the 2600's heir apparent, was initially announced in 1984, but did not actually ship in quantity until 1986, due to the sale of Atari by Warner Communications.

This two-year delay hurt the commercial success of the Atari 7800 as it allowed Nintendo to gain a foothold in North America through its release of the Nintendo Entertainment System (NES).

I personally really liked the 7800. It had improved graphic capabilities, compared with the original Atari. The 7800 could display 30 sprites on a scan line, versus two on the 2600. The 7800 could also display a full screen, high-resolution background. It was backwards-compatible with the Atari 2600, meaning that it could play all of the old game cartridges. And, for purists, the 2600 games could be played with the original Atari single-button joystick.

While the Atari 7800 didn't thrive commercially, there were some great games on it. *Galaga*, *Joust*, *Pole Position II* and *Centipede* were all great ports of the arcade hits. While I didn't personally write any 7800 games, my company at the time, Absolute Entertainment, developed about a dozen games for the platform. Out of those, my favourites were *Crossbow*, *Pete Rose Baseball* and *F-14 Tomcat*, the latter designed by my talented brother, Dan Kitchen.

The Atari 2600/7800 ended up launching my career in video games. As a former art student turned electrical engineer, video gaming's combination of technology and computer graphics turned out to be the perfect outlet for my left brain/right brain skillset. Of course, at the time, I don't think any of us consciously knew that we were living, and creating, a part of the illustrious history of video games.

I am honoured to have shared my recollections of a bygone era, quite possibly the Golden Age of Video Games. I hope you enjoy this wonderful book as much as I enjoyed making a few of the great games memorialised within its pages.

Good times!

Garry Kitchen, 2019

Keystone Kapers / *2600 / 1983*

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Atari 2600 console */ 1977*

> “Atari always was a technology-driven company, and we were very keen on keeping the technological edge on everything.”

Nolan Bushnell, Atari co-founder

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It's not hyperbole to say that, without Nolan Bushnell, the video game industry as we know it today simply wouldn't exist. While Bushnell didn't invent the video game, his efforts at Atari did much to shape the way they were played during the '70s and '80s, and the industry owes a tremendous amount to the man they call 'the Godfather of video gaming'.

But the story of Atari *really* begins with Steve Russell's pioneering video game *Spacewar!*, which was created at the Massachusetts Institute of Technology on a DEC PDP-1 computer, and which Bushnell played extensively during his time at the University of Utah. After Bushnell graduated, he accepted a job at the California firm Ampex Corporation, where he met electrical engineer Ted Dabney. Together, they created *Computer Space*, a coin-operated clone of *Spacewar!* Clad in a fancy fibreglass cabinet, it was eye-catching but commercially unsuccessful.

However, the project gave Bushnell some much-needed experience. He decided that he wanted to build a company around *Computer Space* – something that his boss at Ampex thought was crazy. *"Ampex were leaders,"* says Allan Alcorn, who worked with Bushnell at the firm. *"They invented videotape recording. They were leaders in engineering. That was a very secure, great job to have. It was, indeed, a career that Nolan left to pursue* Computer Space*, which was arguably the first coin-operated arcade video game. The president of Ampex sat him down and said, 'Son, you're making a big mistake here. Throwing away a career at this young age to do this risky, risky thing.' Entrepreneurism wasn't a word that was in use at the time, and people didn't do that sort of thing."*

Bushnell founded Syzygy with Dabney and fellow engineer Larry Bryan. When they found that Syzygy was already in use at another company, the name was changed to Atari – a term from the Japanese board game *Go*, which is roughly the equivalent of 'check' in chess. An early hire at the company was Alcorn himself. *"I'm really driven by technology, and I really enjoy the magic you can do with it,"* he says. *"For me, the chance to go and make a video game was really exciting because I wasn't sure exactly how you did that. The format for a book is pretty well established; the number of pages and so on. But going off and doing something for which there aren't any rules can be a little daunting."* Alcorn was soon tasked by Bushnell to recreate the video game version of table tennis, which he'd seen being demoed on a Magnavox Odyssey console.

This was merely intended as an exercise to get Alcorn familiar with the process of game creation, but it resulted in Atari's first commercial smash hit. The pathfinding undertaken by Alcorn and Bushnell during this time cannot be understated. *"The format was to use all-digital circuits to create an analogue signal that generated a video game,"* Alcorn explains. *"That was pretty exciting. Chips were never meant to do that, and television was never meant to do that. It was fun hacking these two technologies together."*

The story of the *Pong* prototype being installed in Andy Capp's Tavern in 1972 has gone down in video game folklore; it was apparently so successful that it stopped working because it was jammed with coins. *Pong* was followed by coin-op hits including *Breakout*, *Gran Trak 10*, *Gotcha*, *Space Race* and *Stunt Cycle*. Atari soon ruled the arcades, but its charismatic leader had a hunch that, by claiming the living room, even greater success could be assured. *"In the early '70s, I knew that games were going to migrate from the arcade into the home,"* says Bushnell today. The company produced 'home' *Pong* in 1975, and it was an instant smash, but the fact that it was relentlessly cloned by rivals – and that, once a household purchased one 'home' *Pong* device, it didn't need another – made this approach seem like something of a dead end. The arrival of the Fairchild Channel F in 1976 – the first home console with interchangeable game cartridges, which meant that money would continue to roll in long after the initial purchase of the machine – marked a new era in the history of home entertainment.

Atari had actually begun working on its own home console in 1975 via a group called Cyan Engineering, based in Grass Valley, California. The development team included the likes of Jay Miner, Steve Mayer, Larry Wagner and Joe Decuir. Based around a MOS Technology 6507 general purpose microprocessor, the new console was code-named Stella after Decuir's bicycle, which he continued to use for many years afterwards. The device was capable of throwing fast-moving images onto the screen

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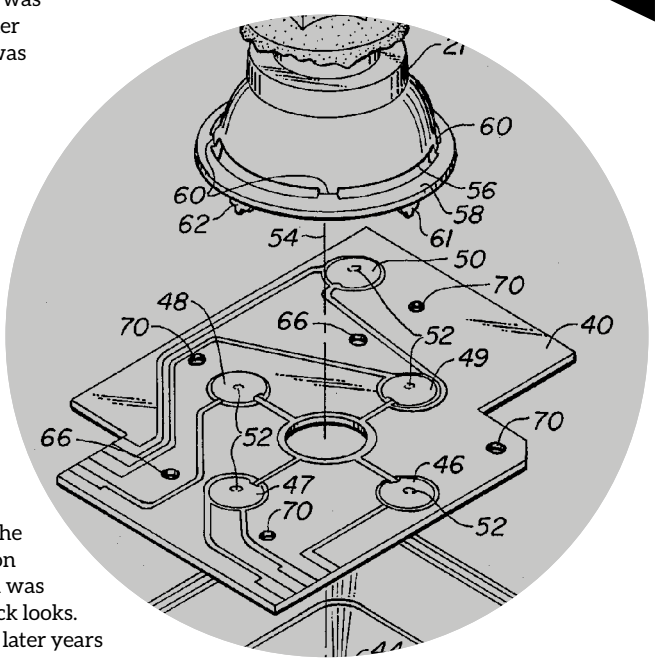
with astonishing speed for the time. This was the Atari Video Computer System, also known as the VCS and (later) the 2600. *"In those days, it was very expensive to create a new game, so, when we designed Stella, our intention was to save money,"* Decuir explained in Rusel DeMaria and Johnny L. Wilson's book *High Score!* in 2004. *"We were able to move significant functions out of hardware and into software. In doing so, the unintended consequence was to create a far more open system, to put the functionality in the hands of creative people who went way beyond what we, as the original designers, had expected."* This approach saw the final console host games that even its designers never imagined it was capable of when they were creating it.

> *"The VCS's look was one thing, but the player's main interface with the console was its joystick, whose design would endure while the original system underwent a series of case redesigns."*

Of course, while what's inside a console is of vital importance, its outward appearance also plays a big factor in its ultimate success as a piece of consumer electronics – and the Atari VCS was blessed with both looks *and* charm. Designed by Fred Thompson and Doug Hardy – the latter of whom had designed the Fairchild Channel F console and was integral in that system's unique cartridge-based software delivery system – the VCS's case design was intended to resemble a piece of consumer electronics rather than a child's toy; it was intended for the living room, and Atari wanted it to slot in elegantly alongside other key devices, such as stereo equipment. To this end, the machine was blessed with its iconic wood grain effect panel. *"I wanted to integrate a little bit of warmth,"* Thompson told Tim Lapetino in 2016. *"The switches were nice little German switches that I had ported over from my audio days. They weren't cheap."*



The VCS's look was one thing, but the player's main interface with the console was its joystick, whose design would endure while the original system underwent a series of case redesigns. One of these stripped away the wood grain panel from the front, took on the 2600 moniker for the first time, and was nicknamed the 'Vader' due to its all-black looks. The shape would change completely in later years to keep up with the times.

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The one-button stick, often referred to as the CX40, was first designed by industrial designer Kevin McKinsey, and was originally envisaged to accompany a home port of the arcade game *Tank*, imaginatively named *Tank II*. While this was cancelled in 1977, the stick would live on as part of the VCS package, and has gone on to become as iconic as the console itself. The boxy shape of the stick's base is due to the fact that it was supposed to fit inside the case of the proposed *Tank II* console, and the rubber 'boot' which joins the stick to the base was, according to McKinsey, inspired by similar designs seen on military equipment.

Bushnell had grand visions for this trailblazing console, as well as home gaming in general. In fact, some of his ideas were so epic in scope that they were literally decades ahead of their time. *"We were planning to do a telephone-linked gaming system,"* he says. *"We would have a group of modems in a closet, and, in the US, calling within an area code was free. So our plan was to have these modem closets in each area code where you could call into a telephone number. We had the fastest modems in the world; we were going to do a thing where you could play people over the telephone lines. We were going to connect those modem closets to each other."*

However, Atari's ambition was held back by the reality of its financial situation, and reserves were running low. The company needed an injection of cash to bring the VCS to market – one it would get when it was acquired by media giant Warner Communications for $28 million in 1976, a decision that Bushnell later said he regretted. Regardless of hindsight, the deal enabled the production of the VCS to proceed as planned, and the next phase in Atari's history was about to be written.

The VCS arrived on store shelves in October 1977, accompanied by nine games: *Air-Sea Battle*, *Basic Math*, *Blackjack*, *Combat*, *Indy 500*, *Star Ship*, *Street Racer*, *Surround* and *Video Olympics*. It retailed for $199 and was bundled with the Combat cartridge. Despite the presence of several notable rivals, which included the Fairchild Channel F, RCA Studio II and Magnavox Odyssey, the VCS offered several new features that made it unique, such as a joystick, selectable difficulty levels, and the ability to play games in both black and white *and* colour. However, contrary to popular belief, the VCS wasn't an immediate runaway success. Atari's profit was all in the software; the margin on the hardware was actually very small, and the company hoped that, by selling the VCS at a low price, it would result in more games being sold. Unfortunately, Atari struggled to get enough machines onto store shelves during its debut holiday season, and it appeared that the public's interest in home gaming had ended almost as quickly as it had begun. Throughout 1978, the VCS sold at a slightly better pace, but hardly fast enough to be termed a smash hit. At Warner, there was concern that its investment might turn sour, and that video games were just a passing fad.

Warner also had concerns with the way Atari was being operated, which was pretty much the same way it had been run since Bushnell started it years before. *"In terms of the philosophy, we wanted to build a new kind of company that embodied the culture of youth,"* recalls Bushnell. *"The way we thought of the culture of youth is to form a meritocracy, and not be a slave to process, to recipes – because we felt that the old recipes were somehow wrong. Remember, Steve Jobs worked for me, and so he took that ethos to Apple. All of a sudden, the other Silicon Valley companies were a little bit confused because it looked like we were playing all the time.*

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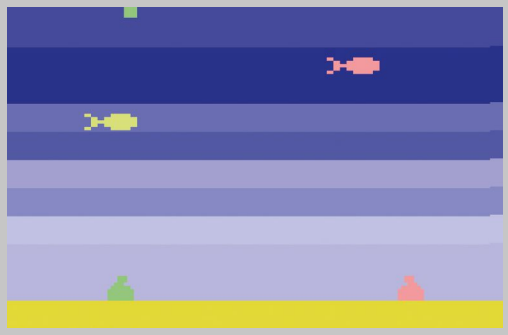

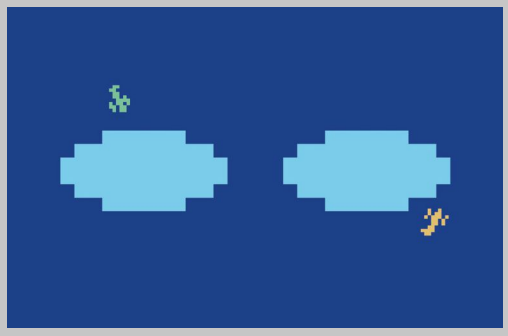

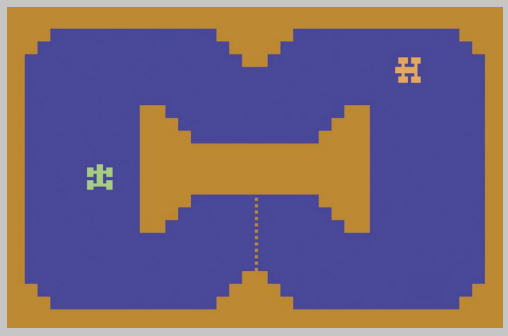

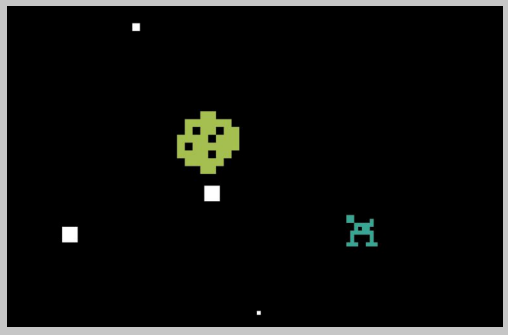

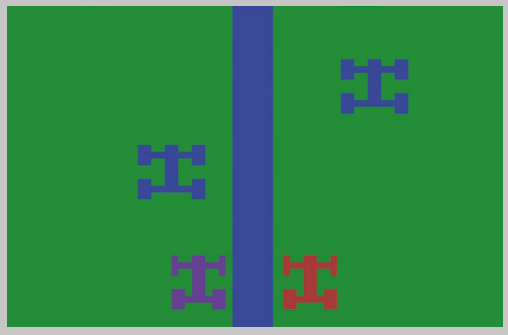

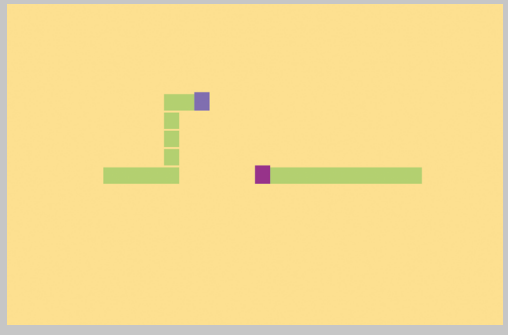

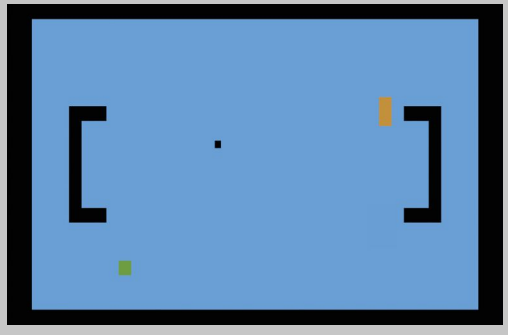

Selection of Atari 2600 launch titles / 1977

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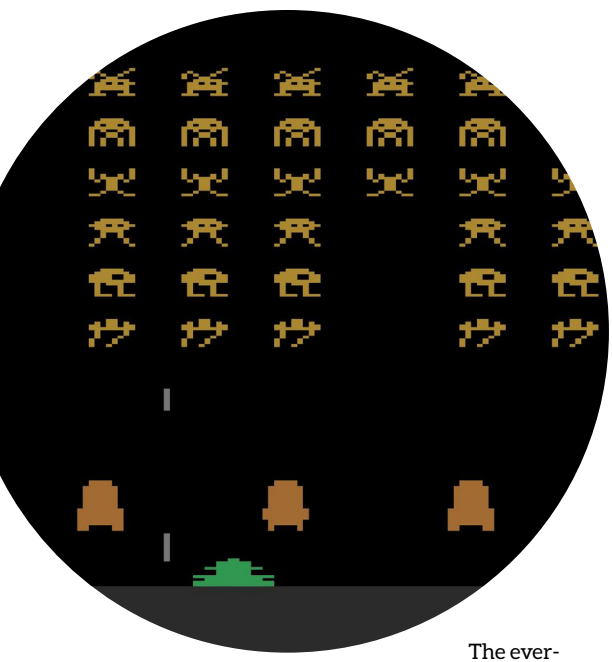
But we weren't; we were working harder than anybody. But we didn't have the trappings of hard work." This ethos was never going to find favour with a huge company like Warner, and, slowly but surely, it started to rein in its new acquisition.

> *"Kassar's stance was helped by the fact that, by the time the '80s dawned, the VCS was the hottest ticket in town, so the idea of replacing it seemed like utter lunacy."*



The ever-restless Bushnell might have been expected to guide Atari out of this tight spot, and come up with a strategy to revitalise the VCS, but, following Warner's purchase, he was finding that it was harder than ever to make his voice heard. *"As it became clear that some of the things that were going on were things I really disagreed with, it was harder and harder for me to really climb in and be as enthusiastic as before,"* he told Steven L. Kent in 2001. Constantly looking towards the future, Bushnell's bold plan was to scrap the VCS and replace it with something more powerful, a suggestion that Warner boss Steve Ross – who was already having grave doubts about the Atari acquisition – was apparently less than happy with. In '78, Ross decided to bring in Raymond Kassar – formerly of textile firm Burlington – to restore some order. *"I came in as a consultant for Warner,"* said Kassar in Steven L. Kent's *Ultimate History of Video Games*. *"There was no infrastructure. They had no financial person. They had no marketing. They really had nothing. It was a disaster."* Warner wanted Kassar – who had never even played a video game before – to steady the ship and determine if Atari was a venture worth continuing. He decided that the VCS was still capable of bringing the company a tidy profit, and redoubled marketing efforts for Christmas 1978. *"The key decision we made was to advertise the product,"* he said in a 2011 interview for Tristan Donovan's book, *Replay*. *"I had a strong belief in the product, and I just focused on fixing all the problems."*

The VCS sold well that festive season, but Bushnell's involvement was over. Manny Gerard, who was Warner's vice president at that time, and essentially brokered the deal between the two firms, caught word that Bushnell was planning on holding an Atari board meeting without a Warner representative present. *"I got the contracts out, I got the lawyers out, and I removed Nolan from office,"* he told Steven L. Kent in 2001. Atari's talismanic leader was swiftly replaced as CEO by Kassar – a necessary measure, according to the latter. *"I couldn't have accomplished what I did with Nolan in the picture,"* said Kassar in 2011. *"Atari couldn't have two bosses. Two people can't run a company. One person has to have the final responsibility. Nolan would say one thing and I would say another thing. How do you resolve that? Either they're going to have faith in him or me."*

The effect of Kassar taking control was almost immediate. Back in 1977, Atari made $75 million in sales, pleasing Warner management greatly. Within three years, Kassar took that to $2 billion and made Atari the fastest-growing company in the history of the United States (an accolade which has since been overtaken several times over). Ironically, the success that followed Kassar's appointment is overshadowed by the changes he made to the company at Warner's

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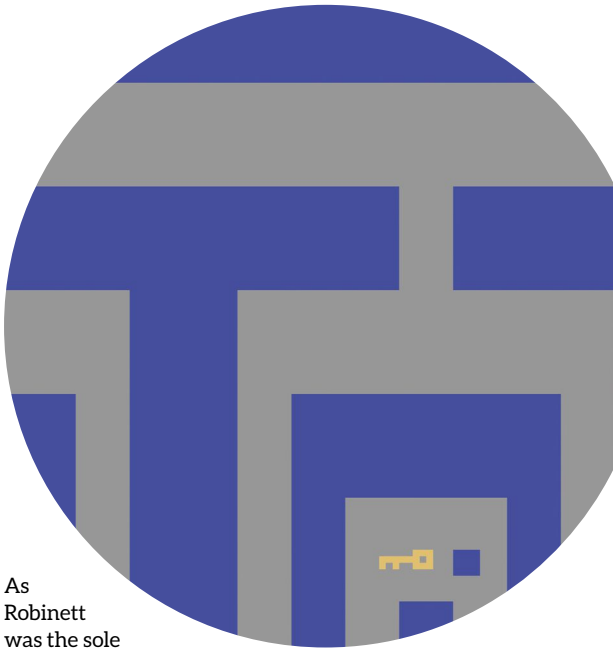
behest. The Atari of old was all about experimenting and coming up with new approaches, mainly because Bushnell was sick of seeing rival firms copy and profit from Atari's ideas. But Kassar was from a marketing background and knew that, with the right promotion, Atari's existing products could provide stability and profit. Therefore, all discussion of a successor to the VCS was silenced, despite the pleas of Atari's own engineers – a move that would have serious ramifications down the line.

Kassar's stance was helped by the fact that, by the time the '80s dawned, the VCS was the hottest ticket in town, so the idea of replacing it seemed like utter lunacy. Atari then made history by licensing Taito's arcade phenomenon, *Space Invaders*, for conversion to the VCS – a first in the industry. This deal was suggested by Manny Gerard, and Atari soon found it had the best-selling game of 1980 on its hands. *"When they came out with the* Space Invaders *cartridge, all hell broke loose,"* Gerard told Steven L. Kent in 2001. *"That was the beginning of licensing coin-op games as consumer products."* That year, Atari was responsible for one third of Warner's total annual income. A port of several other non-Atari arcade games followed, including Namco's much-beloved *Pac-Man*, with the latter going on to become the console's bestselling game ever, with over seven million copies sold – despite it not being a particularly faithful or impressive conversion.

Still, some of Atari's other games were really pushing the envelope in terms of gameplay and scope. Warren Robinett's 1980 title, *Adventure*, based on the 1977 text title *Colossal Cave Adventure*, was one of the first games to break free of the single-screen playfield and present a large world for the player to explore. Like so many VCS titles, it practically kick-started an entire genre and remains ingrained in video game history. The game, which served as a vital plot point in the 2011 Ernest Cline novel (and subsequent 2018 Steven Spielberg box office hit), *Ready Player One*, was also significant for another reason – it was one of the the first games to include a hidden Easter egg. Robinett had created a room which, once discovered, would cause the text 'Created by Warren Robinett' to flash on screen. Believe it or not, this was a sackable offence at the time because Atari refused to credit the people who made its games.



As Robinett was the sole programmer, designer and developer of the game, no one else had checked the code. It wasn't until after he had left Atari that his secret room was discovered by a 12-year-old player. While the story is undeniably amusing, it shows the darker side of Atari's business practices at this time. Despite the amazing success of the VCS, Atari's draconian policies towards its staff would contribute to the company's impending problems.

The first cracks started to appear due to Kassar's authoritarian management style. For example, he refused to pay royalties to those individuals who were contributing most to the company's bottom line. Rob Fulop, who later left Atari to co-found Imagic, ported *Missile Command* to the VCS, which sold more than 2.5 million copies, and *Space Invaders* to the Atari 400/800. Despite both games' incredible success, Fulop claims that all he received for his Christmas bonus was a certificate for a free turkey. Kassar also refused to give the developers of Atari games the credit they deserved, branding them *"high-strung prima donnas"* – a comment he later admitted he regretted uttering.

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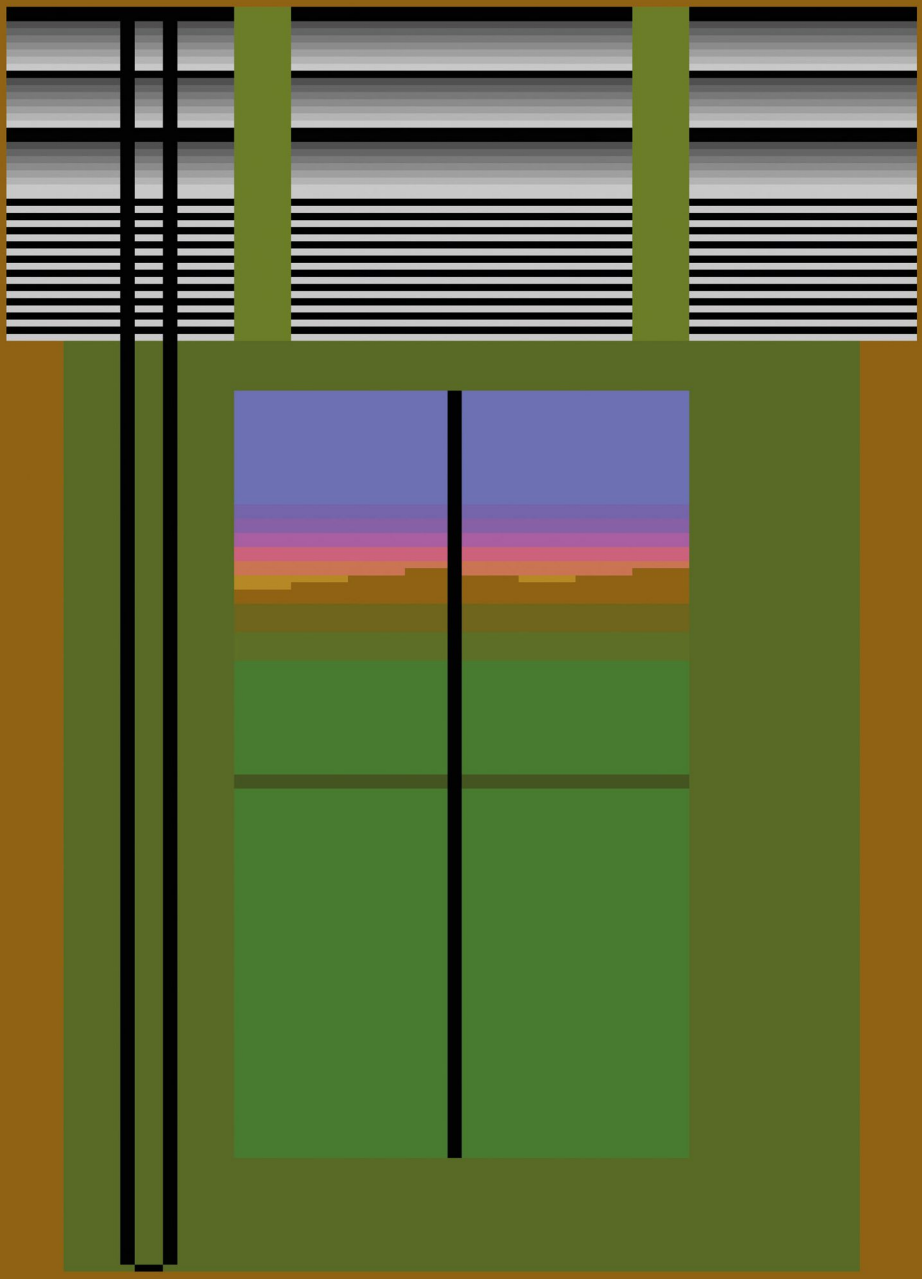

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"When I said that, it was an off-the-record comment that unfortunately got on the record," he told Tristan Donovan in 2011. *"I had great respect for the designers. There's no mistake about that. So that is a totally blown-up image of me by engineers who really hated the fact that I wasn't an engineer and that I came from New York."* Nonetheless, the damage was done, and Kassar's approach led to an exodus of talent.

> *"Activision endured, thanks to a series of hits."*

Alan Miller was the first to leave, keen to be rewarded for his efforts, and to have some degree of ownership over the games he was creating, he teamed up with David Crane, Bob Whitehead and Larry Kaplan – who all had similar feelings – and approached their superiors at Atari to try and broker improved terms. Atari's management put its foot down and refused to change its policies, so the quartet left to form Activision with the intention of creating games for the VCS. Atari challenged this move, stating that only it had the right to produce cartridges for its console, and that the former Atari staffers had 'stolen' techniques that it was using in its games. This led to a lawsuit, which, in turn, generated a famous story about Crane presenting the 'Venetian Blind demo' to Atari. This ingenious technique was perfected by Whitehead during his time at Atari and was developed to overcome a sprite display limitation on the VCS. At the time of the lawsuit, no Activision game utilised the system, and when Atari's lawyers questioned the company about the 'stolen' technique, the story goes that Crane presented a demo which comprised of a perfectly animated set of Venetian blinds which could be raised and lowered using the joystick. This tale has since been debunked by Crane himself; it was, in reality, an elaborate practical joke not meant for public consumption. *"We made a display showing an architecturally accurate window with a view of a grassy hill at sunset,"* he said in an interview included in 2003's *Activision Anthology for the Game Boy Advance*. *"We took it to CES and showed it to a few people who were privy to the lawsuit, asking 'Is this what Atari means by the Venetian Blind Technique?' The joke was on us in one respect, when we realised that we had made public our latest innovation – the background sunset – when we showed it to our competitors."* Atari's case would ultimately end in defeat, and Activision endured, thanks to a series of hits, such as *Pitfall!*, *River Raid* and *Kaboom!*, establishing itself as one of the industry's most exciting publishers. Indeed, the company is still at the forefront of video game publishing to this day.

Activision was followed by other third-party developers, such as Imagic, co-founded by Rob Fulop, the developer behind the excellent *Demon Attack* and *Cosmic Ark*. However, sensing easy profits due to the massive audience on the VCS, these firms were accompanied by less talented teams, and the market was soon flooded with poor-quality software. Many industry analysts predicted at the time that the market would crash, but, with the VCS hitting its stride and Atari posting bumper figures, it seemed like the good times would roll on indefinitely. By 1982, the VCS had an install base of seven million, making it the undisputed ruler of the living room. For Kassar, the stars had seemingly aligned: he had resisted calls to replace the VCS and had turned the ageing system into the de facto standard for home entertainment; people didn't play video games, they played Atari. The shortages that had held the console back in '80 and '81 were a thing of the past by the time '82 came around, but therein lay the issue – as supply caught up with demand, there was a flood of poor-quality software hitting the market. Because many publishers purchased their game stock for an entire year, they either had to be supremely confident it would sell, or they would have to take a wild guess and hope that the bubble wouldn't burst. Sadly, for both them and Atari, it burst in dramatic style.

Part of this was very much Atari's fault, although it's far from the only factor in this story. The first sign that something was wrong was the aforementioned port of *Pac-Man* – it was a poor-quality port, but Atari was so confident of success that it manufactured 12 million cartridges when there were only ten million VCS owners. The game sold seven million copies to become the system's most successful game, but that still left a lot of unsold inventory, not to mention a large group of disgruntled fans. This was followed by one of the most infamous video games of all time: a licensed adaptation of Steven Spielberg's *ET: The Extra-Terrestrial*, which was tipped to be THE big movie of the holiday season. The decision to

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create the game was forced upon Atari by Warner boss Steve Ross, according to Kassar. Warner had already guaranteed Spielberg $22 million for the project, despite the fact that the deal was made in August and the game needed to be designed, programmed and manufactured by the holiday season – this was back when the normal lead time for a video game was at least six months.

The man responsible for creating *E.T.* was Howard Scott Warshaw, who had previously coded the incredibly successful *Yars' Revenge* for the VCS. Warshaw got a call from Kassar on July 23rd, 1982, asking him if he could get a game ready for September 1st, and Warshaw replied that it would be possible, provided that the right financial agreement was reached. Atari got its game on time, but it was a critical disappointment. *"We made about five million copies of E.T.,"* said Kassar in 2011. *"Most of them were returned."* It was rumoured in the '80s that Atari secretly buried millions of these unsold cartridges in Alamogordo, New Mexico, in order to wipe them off its books. The urban legend proved to be partly true when games were unearthed at the same location in 2014.

Although it must be stated that *E.T.* was far from the most common title found, with many others - including *Defender* and *Centipede* - showing up in high numbers. This was recorded in Zak Penn's subsequent documentary *Atari: Game Over*, which debuted via Microsoft's Xbox Video Store. Following the excavation, James Heller, the former Atari manager who was in charge of the burial, confirmed that 728,000 carts, including *E.T.*, were indeed put into landfill back in 1983. But he also stated this shouldn't even be a myth, let alone a surprise, as it was heavily documented by the press of the time.

When the video game crash hit, it devastated the video game market in North America. Many argue that it started when Atari announced lower-than-expected financial results in December 1982. This revelation sent shockwaves through the entire industry; if the creator of the VCS had to dial down its projections, then it proved that all was not well within the sector. Confidence in the video game market was dented further by the tepid release of the Atari 5200 SuperSystem, intended to be a high-end sibling to the VCS (which would, from this point onwards, be marketed under its 2600 designation). The development of a successor to the VCS was tortured and strung out, and, in the end, the decision was made to adapt the company's home computer technology for a home console instead. With its sleek design and lofty pretensions, hopes were high, but the 5200 lacked compatibility with existing 2600 software, its games failed to utilise the systems potential, and its 'revolutionary' controller had mixed reviews by players.

Atari's former leader had, of course, predicted this outcome many years previously. *"I told the Warner management that the 2600 was dead,"* says Bushnell in an interview with *Edge* magazine in 2002. *"They'd just bought the company, and here we were just starting to market the 2600, and I said, if we don't start developing a replacement for it right now, it won't be ready in time to take up the slack and to have an easy transition. And they thought, somehow, I was committing heresy. They were absolutely against developing a replacement for the 2600. And, when they finally woke up, they created what I consider to be a relatively horrible product in the 5200. It was totally rushed, it wasn't based on*

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really good technology at that time; it was based on a kind of warmed-over Atari 400 technology. It was just a debacle."

The failure of the 5200 simply added to the chaos enveloping Atari and the industry in general, and, as the market slid further into the mire, the ramifications became catastrophic. Thanks to the fact that it remained part of the deep-pocketed Warner Communications, Atari was able to weather the storm, despite massive losses, but many of the companies that had sprung up in order to capitalise on the success of the VCS swiftly went out of business, their capital tied up in cartridges that they simply couldn't sell. Warner's stock took a nosedive, and it predictably tried to offload the company that, only a couple of years previously, had been responsible for a third of its yearly revenue across the entirety of its business portfolio. In July 1983, following revelations that he had offloaded 5,000 shares of Warner Communications stock prior to the announcement that Atari's profits were going to be lower than expected, Ray Kassar resigned from his position as CEO of Atari.

Warner boss Steve Ross brought in James Morgan as Kassar's replacement, who was previously employed at the tobacco company Philip Morris. Just as Kassar's objective had been to steady the ship back in the late '70s, Morgan was tasked with bringing order to a company that was haemorrhaging cash. Atari's workforce was trimmed from 9,800 staff to just 3,500, the company's massive network of buildings was condensed, and manufacturing was transplanted from California to the Far East. Despite all of his efforts – which also involved cutting operating costs from $600 million to just $150 million, following the revelation that Warner would not be bankrolling Atari further – Morgan was unable to turn the ship around. In 1984, Atari posted second-quarter losses of $425 million; this was the straw that broke the camel's back, and Steve Ross decided now was the time to cut his losses. The company was split in two, creating Atari Corporation and Atari Games Inc. The former was effectively the ailing consumer division, while the latter was responsible for Atari's market-leading coin-ops. Atari Games was purchased by Namco in 1985, while Atari Corporation was snapped up by Jack Tramiel, best known for founding Commodore, the company he'd recently exited in acrimonious circumstances. Tramiel purchased Atari Corporation for a pittance: $240 million in promissory notes, to be exact, which were based on the company's future performance. Although Warner had removed the weight from around its neck, it still had a vested interest in the new Atari succeeding.

But we actually need to rewind for a moment if we're going to tell the long and complicated story of Atari's next console properly, because the 7800 ProSystem, as it eventually became known, was originally released by Warner Atari in 1984, prior to the takeover by Tramel Technology, and then played a pivotal role in Atari's revival. We can trace this part of the story back to 1982 and the failure of the Atari 5200 SuperSystem. It didn't take long for the management at Atari and its illustrious owner to realise that the 5200 was a big mistake. The California-based company hadn't listened to its customers, hadn't analysed the competition properly, and had chosen a lazy option with the extremely arrogant assumption that it would sell on name recognition alone.

Still from Atari: Game Over / 2014

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You know there's something wrong when the 5200's biggest rival, the ColecoVision, had an adapter to play 2600 games, but the 5200 launched with no such device. This was rectified in due course, in the form of the CX-55 Cartridge Adapter – a sizeable piece of kit that was only compatible with newer versions of the SuperSystem (two-port models), and was expensive to produce. So Atari needed a solution, one that didn't ignore the hugely successful 2600 VCS, and it needed it quick if its fortunes were going to improve.

> *"The Maria would be the heart of the Atari 7800 ProSystem, and the very first version of this chip was numbered GCC-1701 because GCC's engineers were big* Star Trek *fans and the starship* Enterprise *was designated NCC-1701."*

For the first time in the company's history, this help came from outside, in the form of the General Computer Corporation (GCC). A few years earlier, Atari had taken the fledgling company, started in 1981 by Doug Macrae, John Tylko and Kevin Curran, to court for making illegal mod-kits for its hugely popular *Missile Command* arcade game. The settlement of this lawsuit was that GCC would actually end up working for Atari, creating new arcade games, as well as games for its home systems. Atari was already very impressed by GCC's undoubted talent, but it soon became even more enamoured by not only the company's ability to turn out games quicker than everyone else, but also the high quality of its titles. In fact, upper management allegedly nicknamed GCC 'The Toaster' because of the way it was able to just pop games out on demand.

Around this time, the question was still looming over just what Atari's next console should be and who should engineer it. Many projects had been looked at and considered, including the console that would become the Nintendo Entertainment System, but Warner had also been conducting surveys to find out exactly what gamers wanted from this new console. The key message it got from the public was that they wanted to be able to play their old games on their new system, so this soon became the focal point of any design. GCC got wind of this and proposed a new console to Warner that would not only provide powerful hardware capable of playing the latest arcade games, but would also play all your old 2600 games too. Atari even planned to create adapters to make your existing 5200 games compatible with this new console as well, so as not to abandon the users of its current machine. Initially code-named the 3600, the ProSystem would quickly become the sole focus of Atari. This upset a few people who were a bit miffed at Warner going outside of the company to find a new hardware solution.

Art Ng, Steve Golson and several of GCC's chip designers produced a revolutionary new graphics chip called Maria. This name was chosen because the key custom chip in the 2600 was called TIA, thus completing the name of the popular liqueur, Tia Maria. The Maria would be the heart of the Atari 7800 ProSystem, and the very first version of this chip was numbered GCC-1701 because GCC's engineers were big *Star Trek* fans and the starship *Enterprise* was designated NCC-1701. The Maria was pretty revolutionary for the time, offering up to 100 sprites on screen (in comparison, the NES maxes out at 64), high- and low-resolution modes, and 25 colours per scanline from a palette of 256 (the NES only has 54).

David Dentt, programmer of the 7800 classic, *Ninja Golf*, explains just how useful the Maria chip was to his kin: *"Although there were a limited number of colours available at any one time for display, you could split the screen up into sections and use different palettes for each one. This allowed more colours at a time on the screen as a whole, although any one section still lived within its limits. In* Ninja Golf*, this made drawing the centre/action sections a bit easier because there was no need to worry about the palette changes for fairway, sand, trees and water play accidentally causing an issue elsewhere. The second trick I used was for producing the dragon on the green. There were multiple display modes on the 7800, as you probably know. Most of the game was done in the simple/memory-efficient, low-res mode. The dragon level, being mostly static in terms of art, used the more memory-intensive, high-res mode instead for much more visual impact."*

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Atari 7800 ProSystem console / 1986

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The only real flaw of the new console design was that it didn't include an upgraded sound chip, relying instead on the old 2600 TIA chip to produce two-channel sound. This was blamed on a lack of space on the motherboard. The intended fix for this was that POKEY chips, or a new, low-cost sound chip called GUMBY, could be added into the actual cartridges themselves as an alternative.

The finished console, now known as the Atari 7800 ProSystem, was announced in May 1984, with machines shipping to stores in both California and New York for a test market release the month after. This would see it compete head-to-head with the similar, but much smaller, test market for the Nintendo AVS (later renamed the NES), the console Atari had turned down in favour of the 7800. Thirteen games were announced for the system's launch, many of which were conversions of popular arcade games. The press reaction to the 7800 was very positive too, with many seeing it as a much better bet than the rival NES. The console was praised for its backwards compatibility with the 2600, high-quality graphics, sleek and futuristic design, return to standard controllers (after the much-maligned 5200 analogue sticks), and for the inclusion of a BIOS that required a digital signature to be included in each game, which was specifically included to stop one of the key contributors to the North American video game crash – unlicensed third-party software. Atari had big plans for the 7800, and, as well as announcing a stream of games, it also planned to release a high-score cartridge for saving your performance, a keyboard to turn it into a fully fledged computer, and even a LaserDisc player that could be hooked up to the expansion port on the side!

Unfortunately for both the 7800 and the gaming public, Atari's situation had worsened while the 7800 was in the test market, and, as already explained, Warner decided it wanted to get shot of the company rather than continuing with a national launch of the system. One of the key objectives of Tramiel-era Atari was to relaunch the 7800 across the whole of the US and go head-to-head with the upcoming Nintendo console and SEGA Master System. The big problem was that GCC still hadn't been paid by Warner, and this was soon the cause of a lengthy argument between Warner and the newly founded Atari Corporation. After a year and a half of fighting, Atari CEO Jack Tramiel handed over the cash to purchase the rights for the ProSystem from GCC, rather than wait any longer. But then even more negotiations ensued to provide the software he also desperately needed, which again had been developed by GCC. By the time Tramiel settled all matters regarding the 7800, two years had passed. The market for the new console wasn't what it had been back in 1984, and Atari no longer had control over it. Not only had Nintendo swept in and aggressively taken hold of the marketplace, another new player from Japan was also set to enter the market in the form of arcade giant SEGA. The console market had been well and truly revived, but Atari had a lot of ground to make up if its console was going to be the success story everybody had predicted at its original test launch.

Due to Atari Corp's limited finances, the 7800 was relaunched in 1986 with limited advertising, a trickle of games, many of which now looked very dated, and very little investment in new ones. It had also cancelled all the planned peripherals and removed the expansion port to save money.

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Things weren't helped by Nintendo's stranglehold on the market that had seen it block retailers from selling rival consoles, stop publishers making games for anything but the NES, and spending big to tie up all the hottest licences. Despite Atari's lack of promotion and unwillingness to spend money to support the 7800, it performed surprisingly well in the marketplace. Admittedly, it was well and truly crushed by the NES juggernaut, but held on to a very creditable second place. While the North American sales figure of 3.77 million (plus what was sold in the original test launch) pales in comparison to the 34 million Nintendo consoles, it stands up well against the Master System, which sold fewer than two million in North America. At this time, Atari's video games division was being headed up by Michael Katz, who provides some insight into the issues Atari faced: *"What sells hardware is software, right, and what sold any hardware console from the store was the quality of the games on it. And whichever company got the hottest arcade titles, and got the rights to them first, usually won. At the time, that was Nintendo, who already had a lockdown on all the hottest arcade titles. None of the arcade companies of the time were willing to deal with Atari or license their titles for the 7800."*

Initially, there were no plans to release the 7800 in Europe; Atari had decided to go with the XE Video Game System instead, simply because this part of the world was currently dominated by home micros. But that all changed when popular UK magazine *Computer and Video Games* posted a public letter begging Atari to release the machine in Europe and encouraged consumers to write to them. Penned by Tony Takoushi in his Hot Gossip section, it saw the writer wax lyrical about the 7800 after having picked one up from the US. He bemoaned Atari's decision to go with the XE range, and drooled over the 7800's graphical capabilities and ability to mimic popular arcade games. He also compared it with the rival NES and Master System, where he mostly complained about the high prices of the competing SEGA and Nintendo products. Atari actually listened, and a quick change of heart saw the PAL 7800 make its debut in 1987, with a new faceplate and simplified name. The 7800 went on to sell rather well in the UK and Europe, and, in a 1990 issue of *Raze* magazine, it was reported that Atari currently had a 50% share of the console market in the UK. Taken from an independent Mintel report, this was not to be sniffed at. We asked Atari UK Marketing Manager Darryl Still about the machine's performance in this region: *"It [the 7800] was very well stocked by European retailers. Although it never really got the same consumer traction that the 2600 did, we did sell a lot of units through mail order catalogues of the time, especially in the less affluent areas."*

"Despite Atari's lack of promotion and unwillingness to spend money to support the 7800, it performed surprisingly well in the marketplace. Admittedly, it was well and truly crushed by the NES juggernaut, but held on to a very creditable second place."

And speaking of the 2600, we really shouldn't leave the revival of that system out of this story either. Although the sleek designs of the Atari 2600 Jr. are very much seen as a product of the Tramiel-era Atari, the 'Junior' project was actually started under the stewardship of Warner Communications, with the design of a cost-reduced version of the 2600 VCS code-named 'Val'. The CX-2000, as it was also known (its dedicated part number), would be an all-in-one unit with built-in joysticks to appeal to the more price-conscious budget market and younger families. As well as the new design, the unit would also feature a new chipset, reducing the 6507 CPU, 6532 RIOT chip and the TIA down into one single chip. Alongside this unit would be another, code-named 'Bonnie', that would keep the same basic design but, instead, use detachable joysticks, and would act as a replacement for the existing 2600 model. However, extensive testing proved that the built-in joysticks were far too flimsy, the design was considered to be very ugly, and it was not in keeping with the style of the Atari brand. So Atari decided to progress with the Bonnie project on its own, which would eventually become the Atari 2600 Jr.

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The plan was that the Jr. would be sold inside a small lunchbox-style box with a handle for portability, cost less than $50 (£50 in the UK), and be geared towards a younger market than the previous model, while the new 7800 ProSystem was aimed at older audiences. Atari was also planning to release a series of new games based on popular cartoon characters, such as Bugs Bunny, Donald Duck and Garfield, to help the console appeal to this new, more youthful audience. Sadly, none of these games ever made it into production, mainly due to the cost of licensing them.

Upon his acquisition of the Atari consumer division, Jack Tramiel set about plans to revive the Atari 2600 Jr. project almost immediately. He observed that this would not only help them shift the masses of inventory they were sitting on, but also help kick-start the video games division and provide the cash needed to develop his new home computer (which became the Atari ST). Despite many misquoted stories claiming otherwise, it was always Tramiel's intention to have both home computer and home entertainment divisions at his new Atari Corp. After clearing all the existing inventory of 2600 'Vader' models, Atari officially launched the new version of its popular console in January 1986. It came bundled with a joystick in the previously planned lunchbox-style packaging. The new version of the 2600, dubbed the 'Junior' or 'Jr.' – although this was never officially stated on the packaging – would be heavily pushed both on TV and in press adverts using the slogans *'The fun is back!'* and *'World's bestselling game console!'*. The memorable TV adverts featured young kids playing a selection of the system's most popular games, with somebody rapping 'The Fun is Back' song over the top in an attempt to make the console seem new and hip. Later versions of the advert featured the kids rapping themselves, as well as footage of much newer games made specifically for the 2600 Jr., such as *Midnight Magic*, *Solaris* and *RealSports Boxing*. The new games featured a smart, dark red box that made the 2600 name much more prevalent than previous box designs. Michael Katz reflects on the newer model's success: *"We had a professional ad agency for the 2600, and the whole positioning for the 2600 was: make it under $50 for the hardware, make the software under $15, and make the 2600 a console for lower-income game players who couldn't afford the Nintendo. It was a good strategy, and it worked very well. We generated a lot of income that went into the R&D budget for the ST computer. That commercial was very catchy, too, and it had the jingle* 'The fun is back… under $50!' *It met the objective of what we were trying to do, and the system sold like hot cakes."*

> *"In recent years, that has included allowing its logo to appear in the 2017 movie* Blade Runner 2049 *– a neat touch as the Atari logo also appears in Ridley Scott's seminal 1982 original."*

Jack Tramiel's dream of getting his own back on Commodore finally came to fruition in June 1985 when he released the 16-bit Atari ST computer to an expectant audience, beating the Amiga to market by just one month. Jokingly dubbed the 'Jackintosh', as Atari put it head-to-head against the Apple Macintosh, the computer proved to be a huge success – well, in Europe anyway – and, before long, Atari was returning to profitability. Joining the ST, 7800 and 2600 Jr. on the market were the XE range of 8-bit computers, repackaged versions of Warner Atari's XL series, and even a range of Atari-badged PC compatibles. In 1989, Atari also released the groundbreaking Lynx handheld, just a few months after the rival Game Boy. Developed by software company Epyx and the team behind the Amiga computer, who, rather ironically, had started off at Atari with the development of the 2600 and 400/800 computers, it was originally known as the Handy. After Epyx ran out of money, Atari purchased the console and renamed it to focus on its incredible ability to link up to 16 units together for multiple play. As well as also being the world's first colour handheld, other innovations included right- and left-handed play, a blitter chip (a first for a console), and a powerful 16-bit graphics chip capable of stunning effects, such as hardware scaling - something that had only ever been seen in expensive arcade coin-ops. The Lynx sold moderately well, with sales estimated at close to three million units worldwide, but failed in its war against Nintendo's much cheaper and less power hungry Game Boy and, later, the SEGA Game Gear.

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After numerous attempts to develop and market a 32-bit console came to nothing, most notably in the form of the Atari Panther, the Sunnyvale-based company attempted to return to its former glory with the launch of the '64-bit' Atari Jaguar console in 1993. Atari Corporation's presence in the video game sector had dwindled greatly by the mid-'90s, but its constant stalling saw the company begin to post losses, much to the chagrin of its shareholders. Despite investing heavily in the product, the Jaguar failed to be the success that Atari so desperately wanted. After being beset by delays, its numerous hardware bugs and poor development tools led to it being poorly received by consumers, and it was soundly crushed by Sony and the PlayStation juggernaut. Tramiel sold up, and Atari was reverse-merged with JT Storage in 1996 to form JTS Corp. After its venture to market PC hard drives failed to take off, JTS entered liquidation and, two years later, sold the Atari name to Hasbro in a deal worth just $5 million, bringing a sorry end to the story of Atari Corporation.

A new subsidiary was then formed, known as Atari Interactive. This didn't last for long as, in the year 2000, it was gobbled up by French publishing giant Infogrames. It soon saw the benefit of owning such an iconic name, and quickly rebranded its games division under the Atari moniker. Over the next few years, Atari was splintered across multiple entities, including Atari Interactive, Atari SA and Atari, Inc. By 2009, Infogrames had purchased all of these and would formally rename itself Atari SA. But then, four years later, all US subsidiaries of Atari SA filed for Chapter 11 bankruptcy in the United States. This appeared to close the book on the company's name for good. But, in February 2013, former CEO of Atari Interactive, Frédéric Chesnais, became Atari SA's largest shareholder via his holding company Ker Ventures. Thanks to significant funding from his company, Atari was able to avoid posting for bankruptcy in France, and then heavily restructured the North American business to keep it alive. Initially putting all its focus into mobile games, Atari has once again returned to publishing games, with the recent releases of titles such as *Tempest 2000* across multiple formats, *Rollercoaster Tycoon* for the Nintendo Switch, and a remaster of classic FPS *Blood* for the PC.

The Atari of today is a very different beast to the company formed by Nolan Bushnell and Ted Dabney way back in 1972; it remains involved in the production of video games, but is also engaged in licensing the Atari brand in all forms of media. In recent years, that has included allowing its logo to appear in the 2017 movie *Blade Runner 2049* – a neat touch as the Atari logo also appears in Ridley Scott's seminal 1982 original. Another interesting venture has seen the company port some of its most famous titles, such as *Super Breakout*, *Missile Command* and *Asteroids*, to the in-car entertainment console of electric-powered Tesla automobiles. Atari is even involved in the development of video game hardware once more- as, in 2017, it was revealed that the VCS would be resurrected as a new system based on powerful PC architecture. While the machine remains unreleased at the time of writing, the crowdfunding campaign proved a huge success, showing that one of the most legendary names in the games business still counts for something, even 40 years after the original VCS graced living rooms across the globe. Despite a history of mistakes and mismanagement, the Atari brand refuses to die.

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Combat

"I'm of advanced enough years to remember playing the two original coin-ops that *Combat* is based on – Kee Games' 1974 classic, *Tank*, and the 1975 sequel, *Jet Fighter*. Both were popular in the arcades, so it's no surprise that Atari decided port them to its brand-new 2600 video game system in 1977 and include them as part of the original nine-game launch lineup. What was a surprise, however, was that not only did *Combat* feature both arcade games on one cartridge, it also added biplanes as part of its 27 different game variations. That was really big news for a disco-era home video game console!

"*Combat* is basically stripped-down competitive play that puts players in the seat of a military vehicle. In the case of the tanks, players view the action from above and guide their vehicle of war around the maze-like screen, attempting to destroy their opponent using missiles. Depending on the game mode selected, missiles either shoot in a straight line, bounce off walls, or can be guided.

"Biplane and jet fighter levels are viewed from the side, with numerous gameplay variations helping to mix up the action. Players can choose one of three missile types (straight, guided, or machine guns), control a pair of planes at once, or fly three jets in formation against a larger enemy bomber in what was the first-ever asymmetric player-versus-player combat.

"What makes *Combat* great is that it's classic competitive gaming that pits players against one another on equal terms (jet fighters vs. bomber mode notwithstanding). Aerial combat is tricky but fun, and tank battles are an engrossing game of cat-and-mouse where one wrong move can result in failure. The end result is simple but addictive gameplay that still manages to be thoroughly enjoyable some four-plus decades after it first appeared."

Julian Rignall, games journalist

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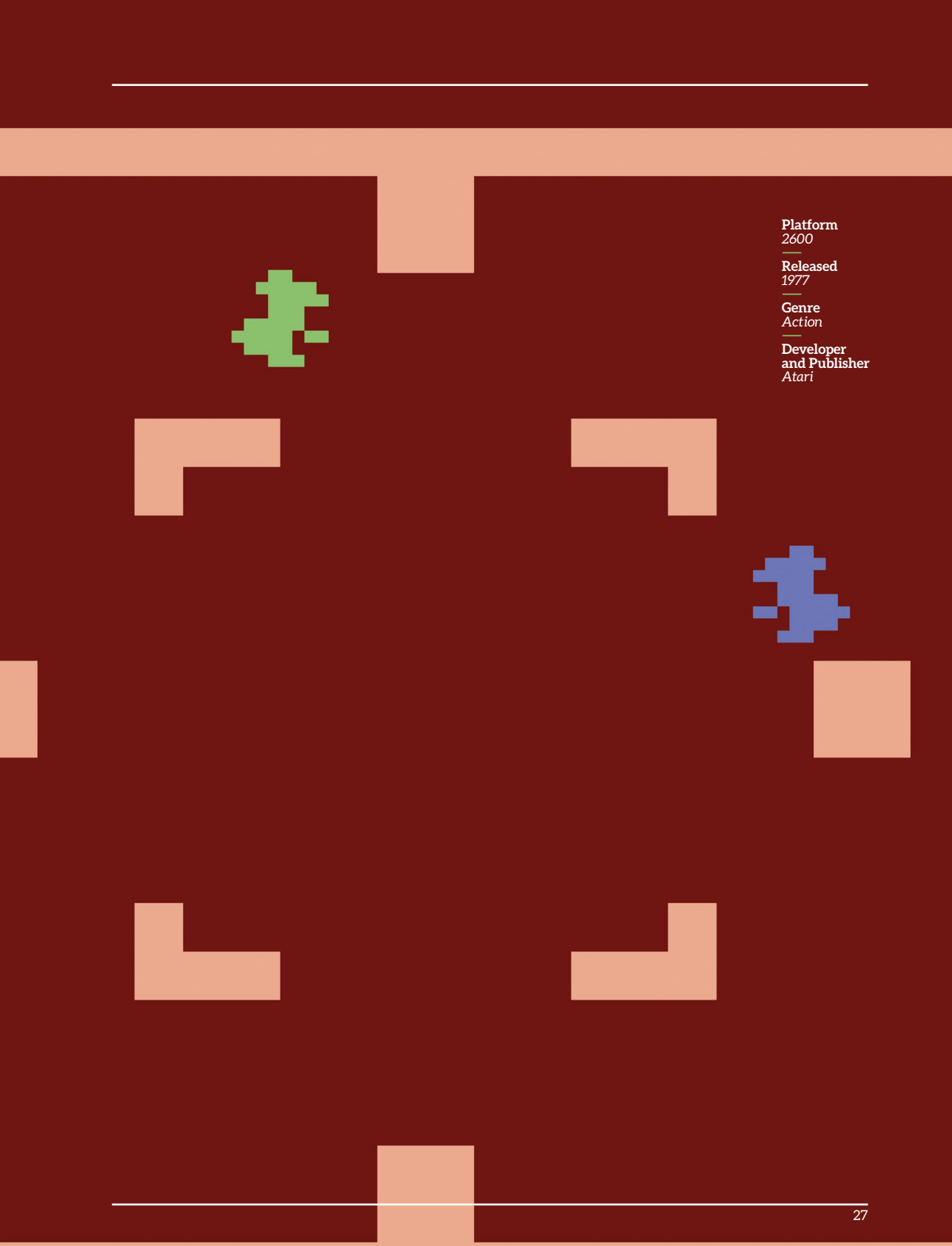

Platform
2600

Released
1977

Genre
Action

Developer and Publisher
Atari

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Indy 500

In the beginning, there was *Gran Trak 10* (1974), the very first top-down racing game. This was followed by *Gran Trak 20*, *Le Mans* and then *Indy 4*, before finally evolving into the popular Sprint series that concluded with *Badlands* in 1989. *Indy 500* for the Atari 2600 is actually a conversion of *Indy 4*, but only supports two players instead of four. It came bundled with the highly underutilised driving controllers, and was the only game released for the system that supported them. These peripherals are much like the more famous paddle controllers, but use a single port and offer full 360-degree movement. This delivers a far more authentic arcade experience, as they're basically just miniature steering wheels.

Indy 500 probably seems pretty crude by today's standards – just two cars, one track and no computer A.I. – but, back in 1977, it was pretty special. It's also worth noting that the game helped spawn the highly active Atari 2600 hacking scene when the AtariAge forum ran a competition to create new tracks for the game. The best 16 of these were chosen and put into a special edition cartridge called *Indy 500 XE*.

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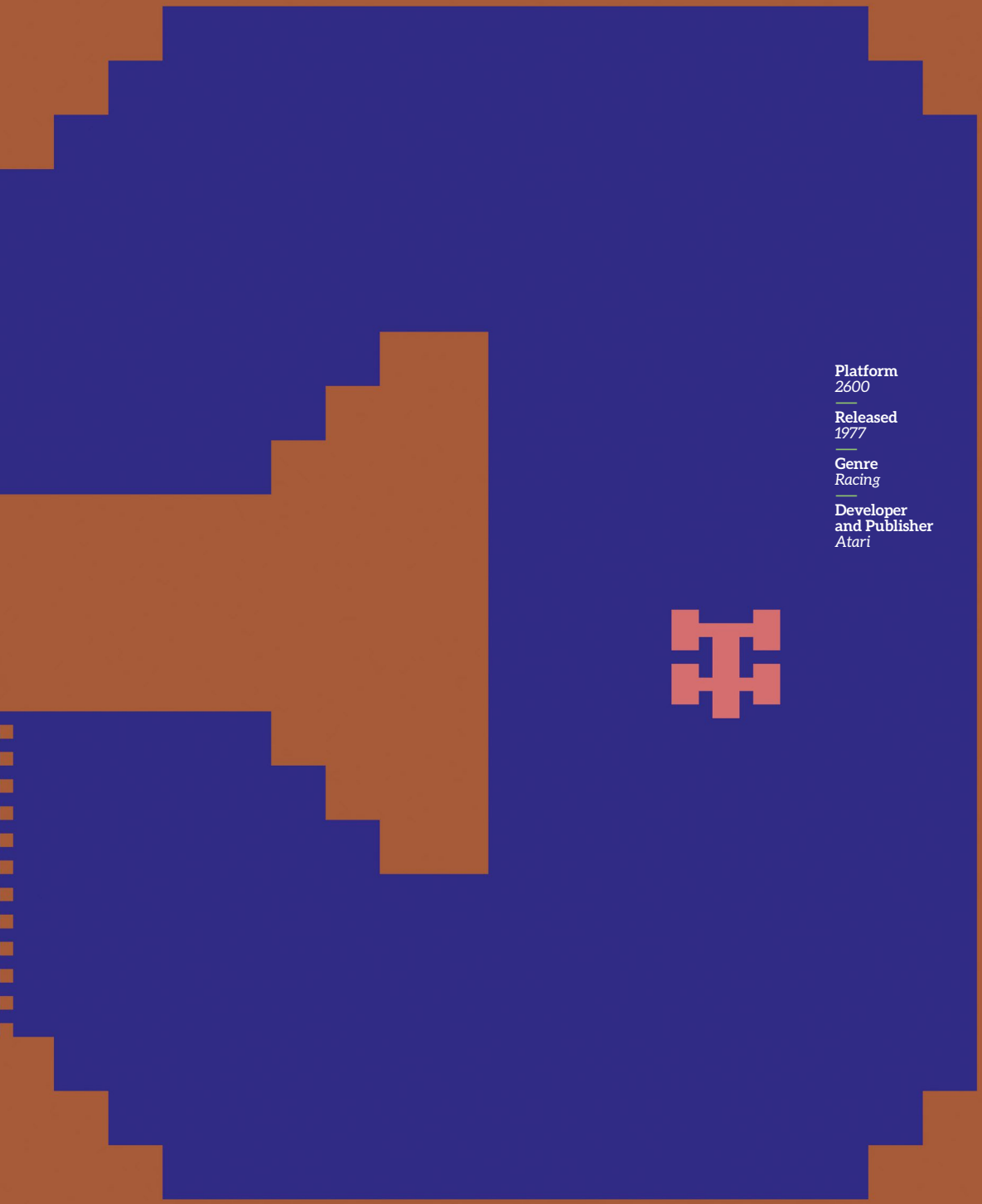

Platform
2600

Released
1977

Genre
Racing

Developer and Publisher
Atari

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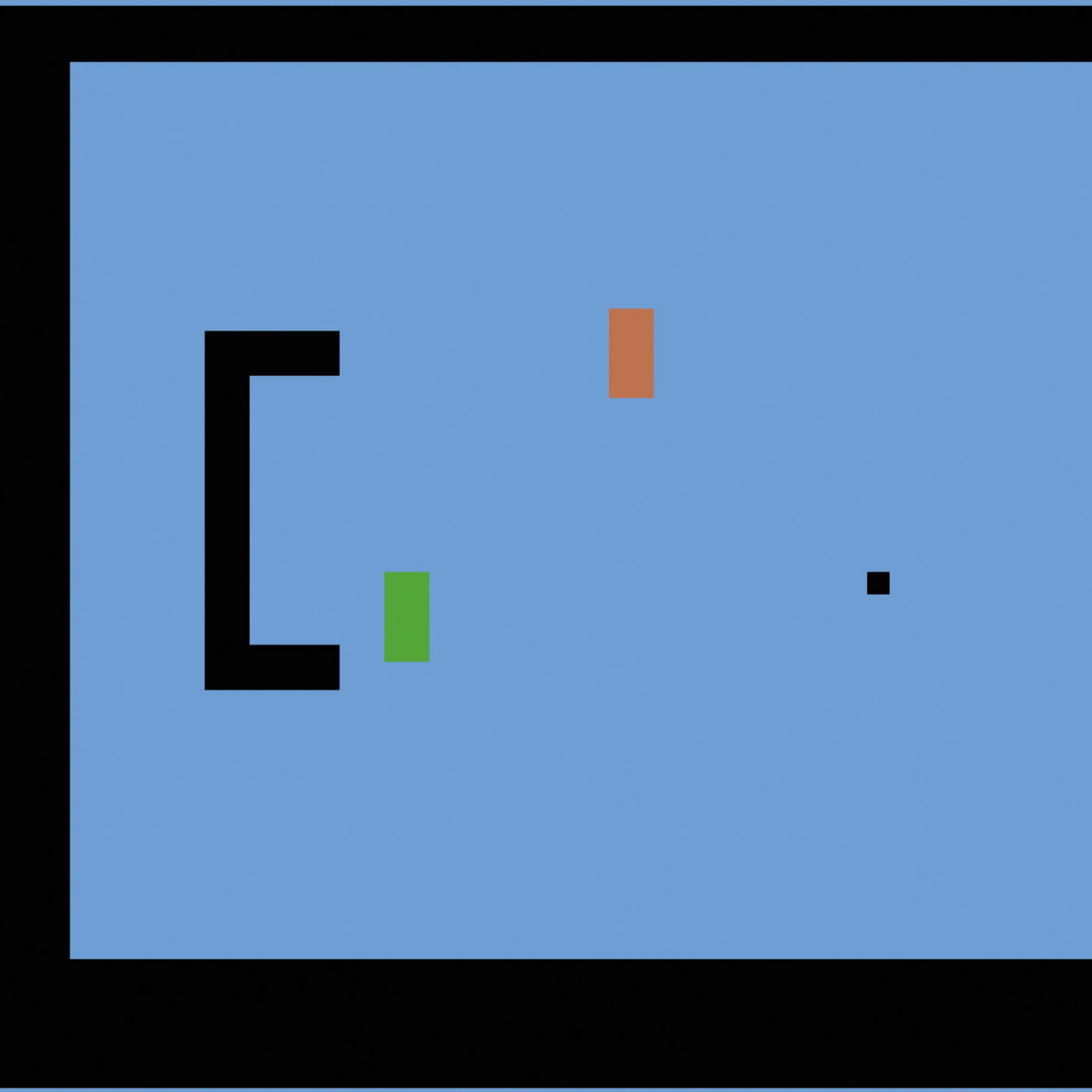

Platform *2600* / **Released** *1977* / **Genre** *Arcade* / **Developer and Publisher** *Atari*

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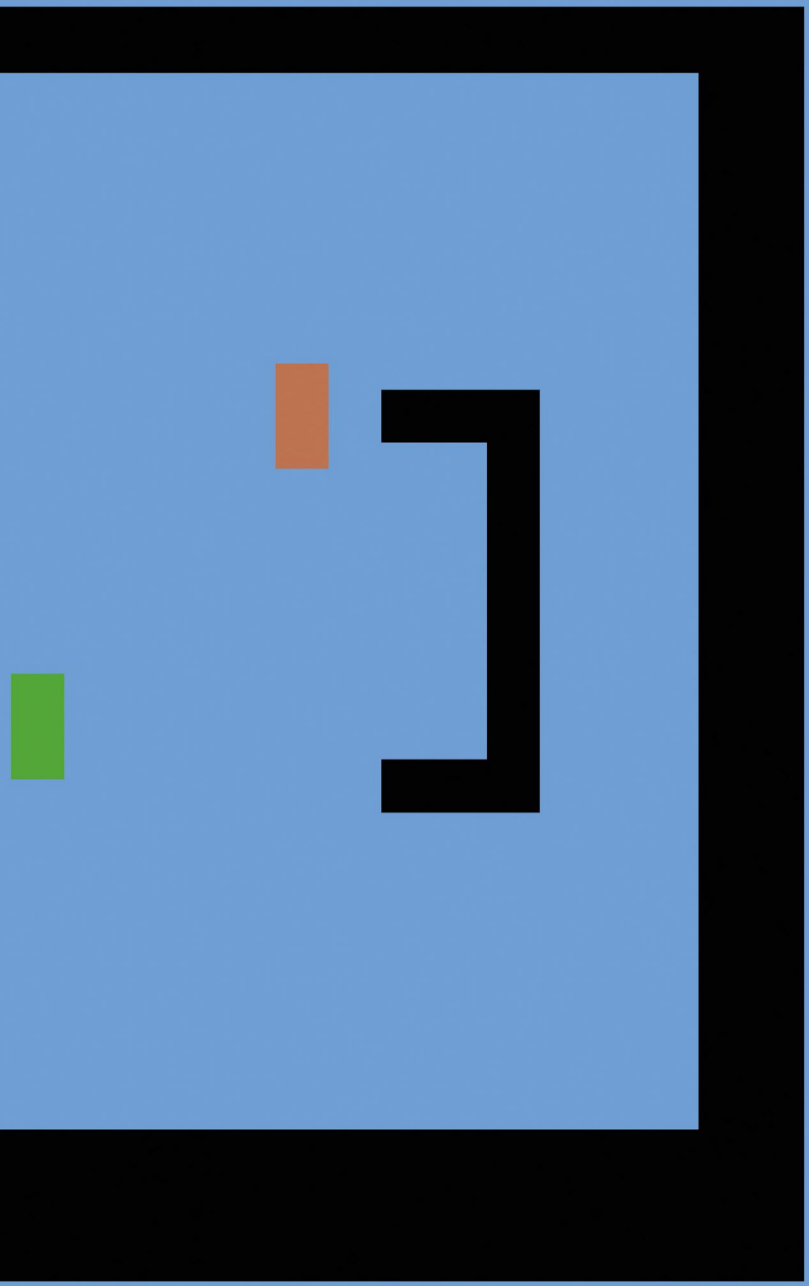

Video Olympics

Programmed by one of the people responsible for creating the Atari VCS console itself, Joe Decuir, *Video Olympics* is an evolution of Atari's very first video game – the historic *Pong*. In fact, the Sears-branded version of the game would actually be renamed *Pong Sports* to emphasise this even further.

On this cartridge, there are an incredible 50 different game variations that offer up some really unique alternatives to the traditional two-player version of *Pong*. Some of these support as many as four players and include sports such as basketball, hockey, foozball, volleyball, soccer and handball. It's the inclusion of all these extra sports (on top of tennis) that gives the game its 'Olympics' moniker. Some of these sports work a bit better than others, but they all have a certain degree of fun, especially if you have three other people to play them with.

Of all the games that make use of the paddle controllers, *Video Olympics* has to be up there among the best. It might look ugly, sound simple and be based on an overused concept, but the extra variations breathe new life into the gameplay and create an almost unbeatable multi-player experience on the 2600.

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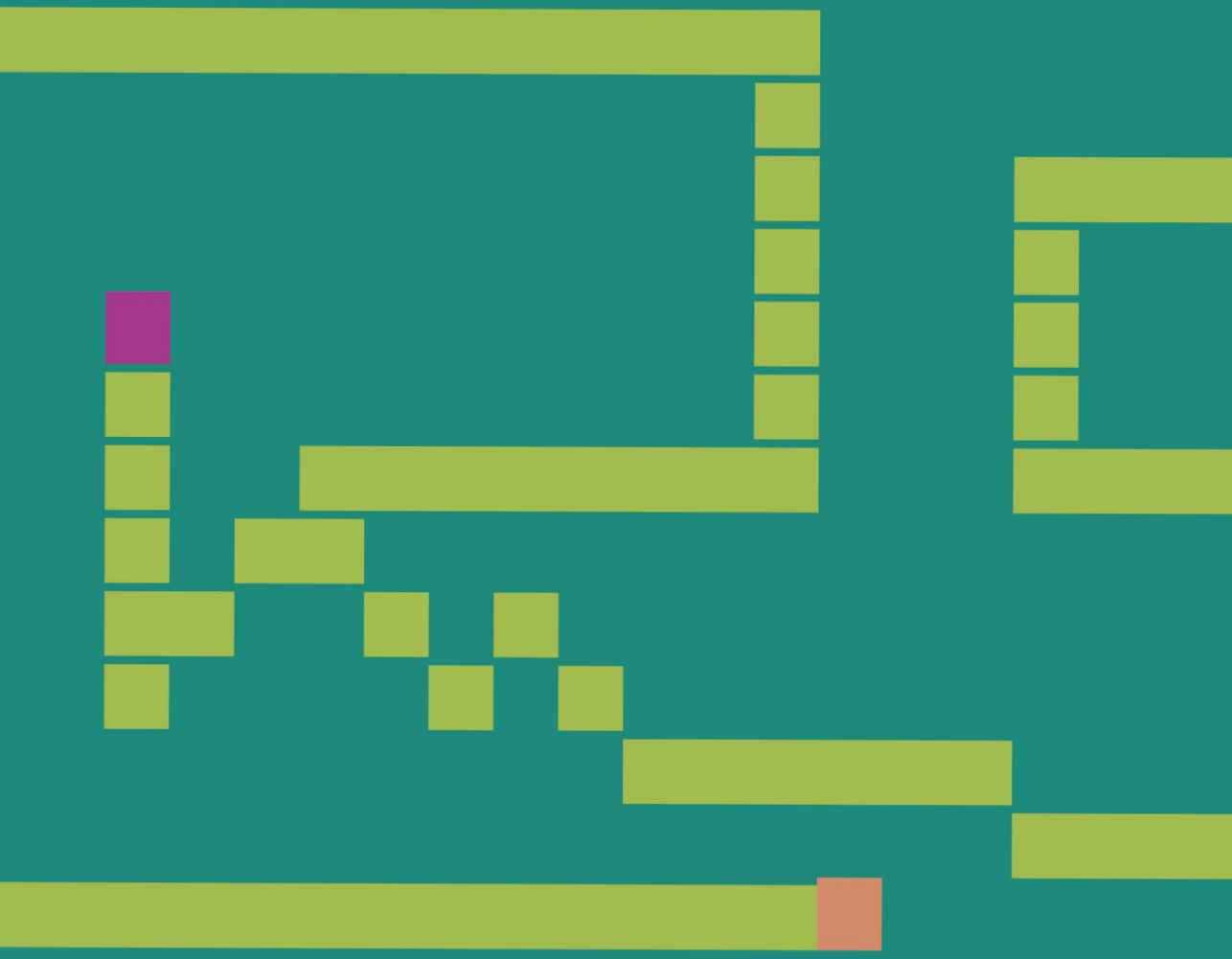

Platform
2600

Released
1977

Genre
Arcade

Developer and Publisher
Atari

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Surround

"I started working at Atari on February 22, 1977, and was assigned which game I'd do for my first title. So I began working on *Surround* in late February or early March 1977. It was introduced about 14 weeks later at the June 1977 CES in Chicago. I didn't personally attend that show. *Surround* was based on a gameplay concept implemented in several arcade games in the mid-'70s, such as Atari's *Dominos*, Gremlin's *Blockade* and Meadow's *Bigfoot*.

"After being assigned *Surround*, the best source of game ideas for me was thinking them up myself. In the early days, the extreme hardware constraints eliminated most obvious game designs, so game concepts had to be developed with those constraints expressly in mind. After I came up with a concept that I thought would be fun and could be implemented, I wrote it up and discussed it with others in the group, like David Crane, Bob Whitehead and Larry Kaplan. Few of my game ideas were abandoned. Of course, we also played all the arcade games as well as the home game carts that were already available from Fairchild and RCA. All of these, I'm sure, had an influence on us."

Alan Miller, designer and programmer

As soon as anyone mentions the game *Snake*, most people are filled with warm and fuzzy recollections of their Nokia mobile phones from back in the day. But most people don't realise that the game was far from original and evolved from something even further in the past. In 1976, Gremlin Industries – which would later merge with SEGA – released *Blockade*, the granddaddy of all *Snake* games. A simple title in which two players directed an ever-growing line around the screen, trying not to hit the tail left behind by the other. This concept would also evolve into the famous light cycles sequence in the Disney movie *TRON*.

Surround is little more than Atari's own attempt to recreate *Blockade* and plays identically, except for the addition of an extra mode called Video Graffiti. This was a less game-like variation on the cartridge where you could use the growing line to draw simple pictures – a bit like a pixellated Etch-A-Sketch! In total, there are 14 different game variations here, which include both single-and two-player modes as well as different levels of speed and difficulty. *Surround* was also released through Sears stores under the alternative title of *Chase*.

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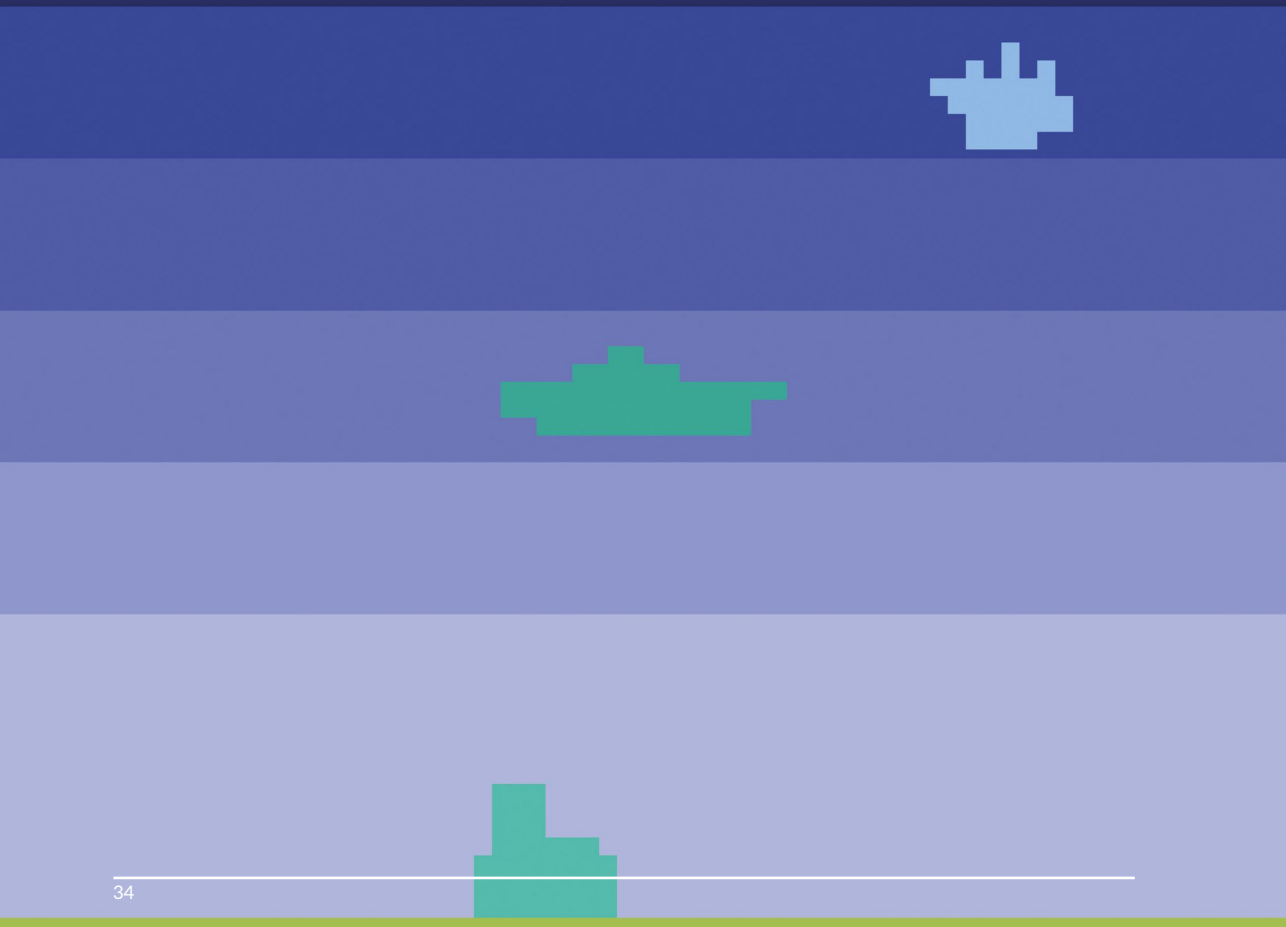
Air-Sea Battle

"As one of the original launch titles for the Atari 2600, *Air-Sea Battle* could be somewhat forgiven if it wasn't one of the better games on the console. However, that's not the case at all; this is one of the more fun two-player experiences, along with the likes of *Combat* and *Demons to Diamonds*.

"True to its name, you control cannons that are used to shoot down planes and boats. There are several other targets, too, that can make *Air-Sea Battle* feel almost like a carnival shooting gallery. Even ducks appear presented in classic side-on view. A number of game modes are available to keep the competitive play feeling fresh. You can add hot air balloons that act as obstacles to your real targets, as well as guided missiles that really change the way you have to shoot.

"*Air-Sea Battle* is a fundamentally simple game that works perfectly on the Atari 2600. Just grab a buddy on the couch, and blow up anything that moves before they can. The classic Atari sounds, especially the explosions, are really satisfying here."

David Giltinan, games journalist



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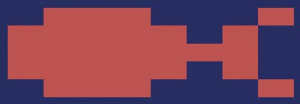
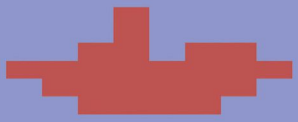
Platform
2600

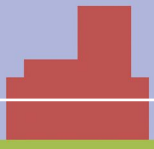
Released
1977

Genre
Shoot 'em up

Developer and Publisher
Atari







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Platform
2600

Released
1978

Genre
Arcade

Developer and Publisher
Atari

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Space War

"Few games have a heritage like *Space War*. It is, after all, the Atari 2600 version of 1962's *Spacewar!* The extraplanetary dogfighting game was initially crafted by academics at the Massachusetts Institute of Technology to explore interactive display possibilities, and, while it wasn't technically the first video game, it certainly played a key role in founding the games industry itself.

"Atari co-founders Nolan Bushnell and Ted Dabney had already rewritten *Spacewar!* while working together as Syzygy Engineering; their 1971 release, *Computer Space*, was the first commercial arcade video game. Syzygy soon became Atari, which returned to *Spacewar!* for 1978's *Space War*. Keen to update the then-16-year-old game, programmer Ian Shepard worked to build 17 variations of the base concept.

"A glance at *Space War*'s gameplay suggests an underwhelming, even clunky spin on the *Asteroids* formula. Instead of blasting space rocks, players pursue one another, with some modes offering a *Breakout*-like ability to bounce projectiles off the edges of the screen. In fact, the game feels distinctly strategic and methodical compared to the wider 2D shooter genre. Battles are won through patience and thoughtful shot placement, not barrages of firepower. *Space War* may seem primitive, but it's an important and enthralling work that demonstrates the value of minimalism in game design."

Will Freeman, games journalist

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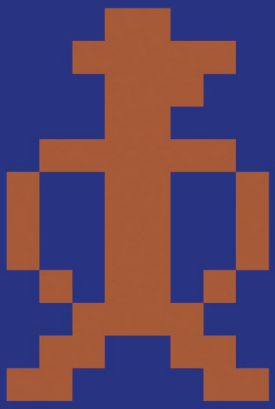
Platform
2600

Released
1978

Genre
Action

Developer and Publisher
Atari



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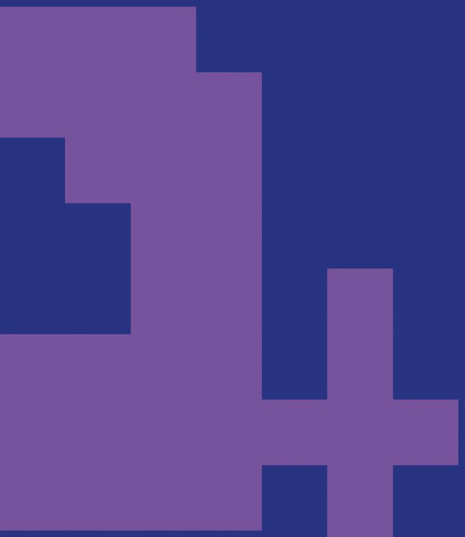
Outlaw

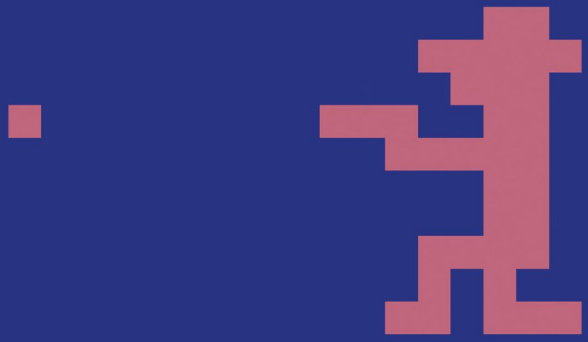
"*Outlaw* was the first game I made at Atari – which would make it the first video game I ever created of the nearly 100 games I published over a career spanning four decades. It was really just a training exercise that I used to learn how to program for the Atari 2600. On my first day at work, I was handed a 20-page manual explaining the video display hardware of the game system, and told to sit down at a development system and make a game.

"Inspired by the 1975 Midway arcade game *Gun Fight*, I sat down and started writing display routines to put a sprite on the screen. That seemingly simple task is very complicated on the Atari 2600, and it was several days before the first image appeared on the screen. One first had to draw an image on paper, one pixel at a time, key the image into memory as hexadecimal numbers, and then craft a program to sequence the image onto the television screen.

"While developing the game, I placed objects in the centre of the screen that could be shot through with holes by either player's bullets. Such a dynamic playfield was something rarely attempted on the 2600. It worked; although, when I later went back to look at the code, I was shocked that my first exotic programming ever worked in the first place. Thankfully, I have come a long way since then."

David Crane, designer and programmer





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Superman

"One of the earliest licensed video games, Atari's *Superman* took the work-in-progress code from *Adventure* and made something new and different with it. While still working within the limitations of the hardware, *Superman* delivers a character that's immediately recognisable as the Man of Steel and imbues him with the DC Comics icon's familiar powers.

"When Lex Luthor and his cronies knock out a bridge in Metropolis, Superman must soar through the skies to recover the pieces and repair the critical infrastructure – and then capture the villains themselves, of course. It might sound a bit mundane to fix a bridge, given Superman's repertoire of amazing powers, but the timed approach adds tension as you attempt to complete all the tasks as quickly as possible while dodging poisonous Kryptonite… before changing back into Clark Kent and heading to work at the *Daily Planet*.

"*Superman* is ambitious, both visually and in terms of scale, sending you flying across numerous screens during each attempt. Granted, it isn't always the smoothest journey; it's pretty easy to get lost while zipping around. Even so, *Superman* helped set the template for superhero adventures to come, and it's still one of The Man of Tomorrow's best-ever games."

Andrew Hayward, games journalist

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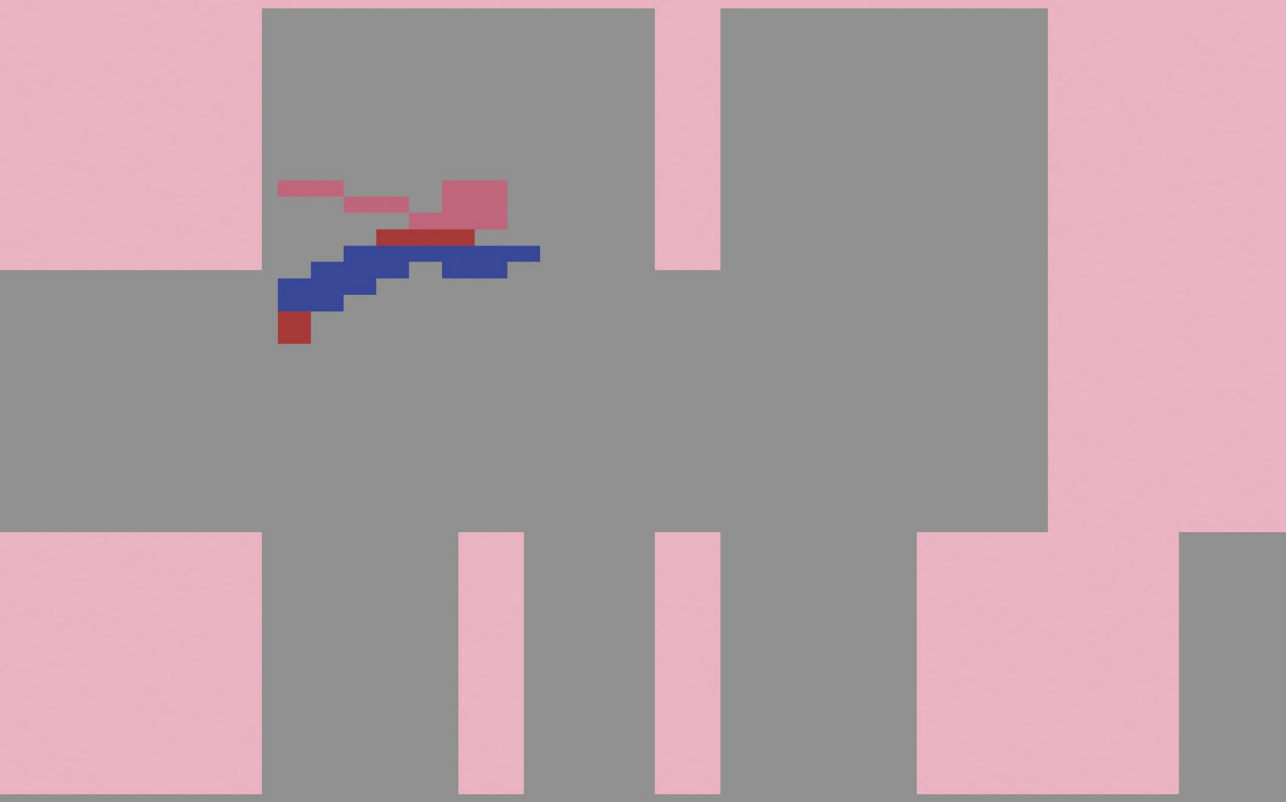

Platform
2600

Released
1979

Genre
Action

Developer and Publisher
Atari

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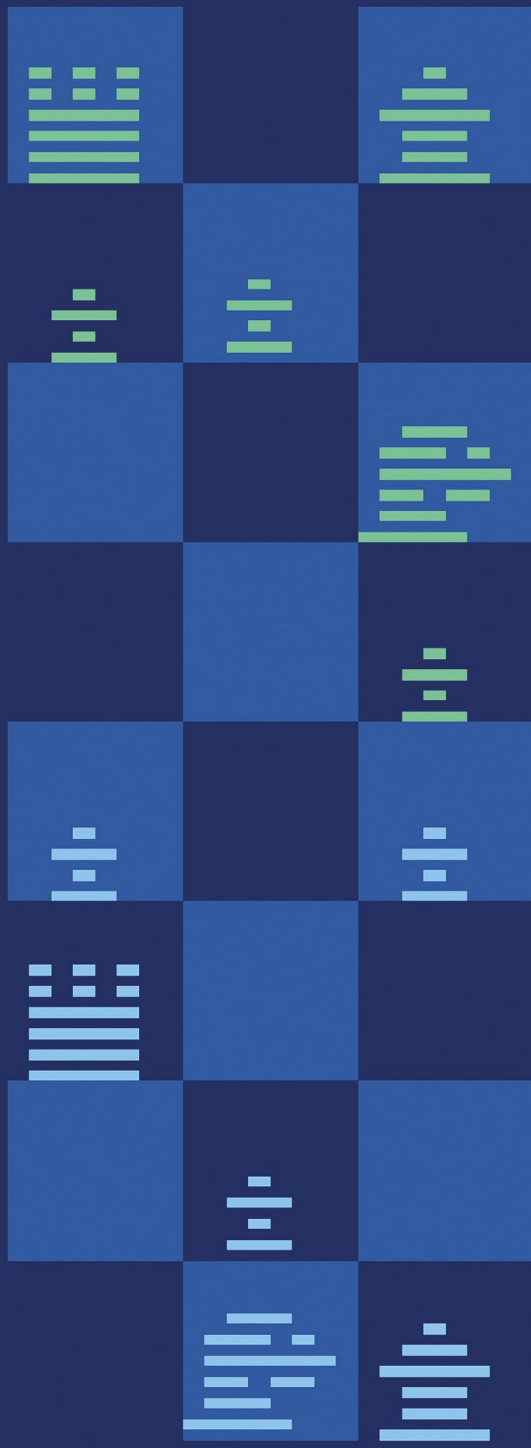
Video Chess

"Box art has always been a problem in our industry. How do you communicate to a consumer what's inside, and, at the same time, sell an image and make it 'pop' on the shelf? Combine that with a marketing group who's not experienced in consumer electronics, and you've got trouble. Consumer electronics, unlike many 'Procter and Gamble'-type products, is a business selling to a very savvy bunch of patrons. Plus, at the time, the computer chess game segment was an important genre in the very early stages of the home computer gaming business. Atari felt it had to address it. Unfortunately, those games at the time were simple text-driven interfaces with no graphics, and putting 'chess pictures' on the box didn't strike the powers-to-be how difficult a task it would be to pull off. I do remember discussions in the lab of how stupid it was to assume we can do a chess game and how impossible it was to do. And that's all I needed… you see, the word 'impossible,' it seems, has always been one of my igniters – it gets the puzzle solver in me going."

Bob Whitehead, designer and programmer

Developed by Bob Whitehead, who would go on to become one of the co-founders of Activision, *Video Chess* is an extremely important game from a historical point of view when it comes to the 2600. For those unaware of the story behind it, the box art on the first production run of the Atari VCS featured a large chess piece, even though Atari wasn't contemplating designing a chess game for the system or even thought one was possible. A man from Florida supposedly sued Atari over the box art, citing the lack of a chess game as false advertising. This caused Atari to start development of one immediately, and among the many problems it had to overcome were the 2600's severe sprite limitations.

The hardware was only capable of displaying three sprites in a row, or six with the right programming tricks. The eight-piece-wide standard chess board exceeded this limitation and then some. To rectify this, Bob developed a technique known as 'Venetian Blinds', where the position of each sprite changes on every scan line, allowing for eight or more sprites in a row. The concept of bank-switching ROMs was originally invented for *Video Chess*, too, making it an even bigger achievement.



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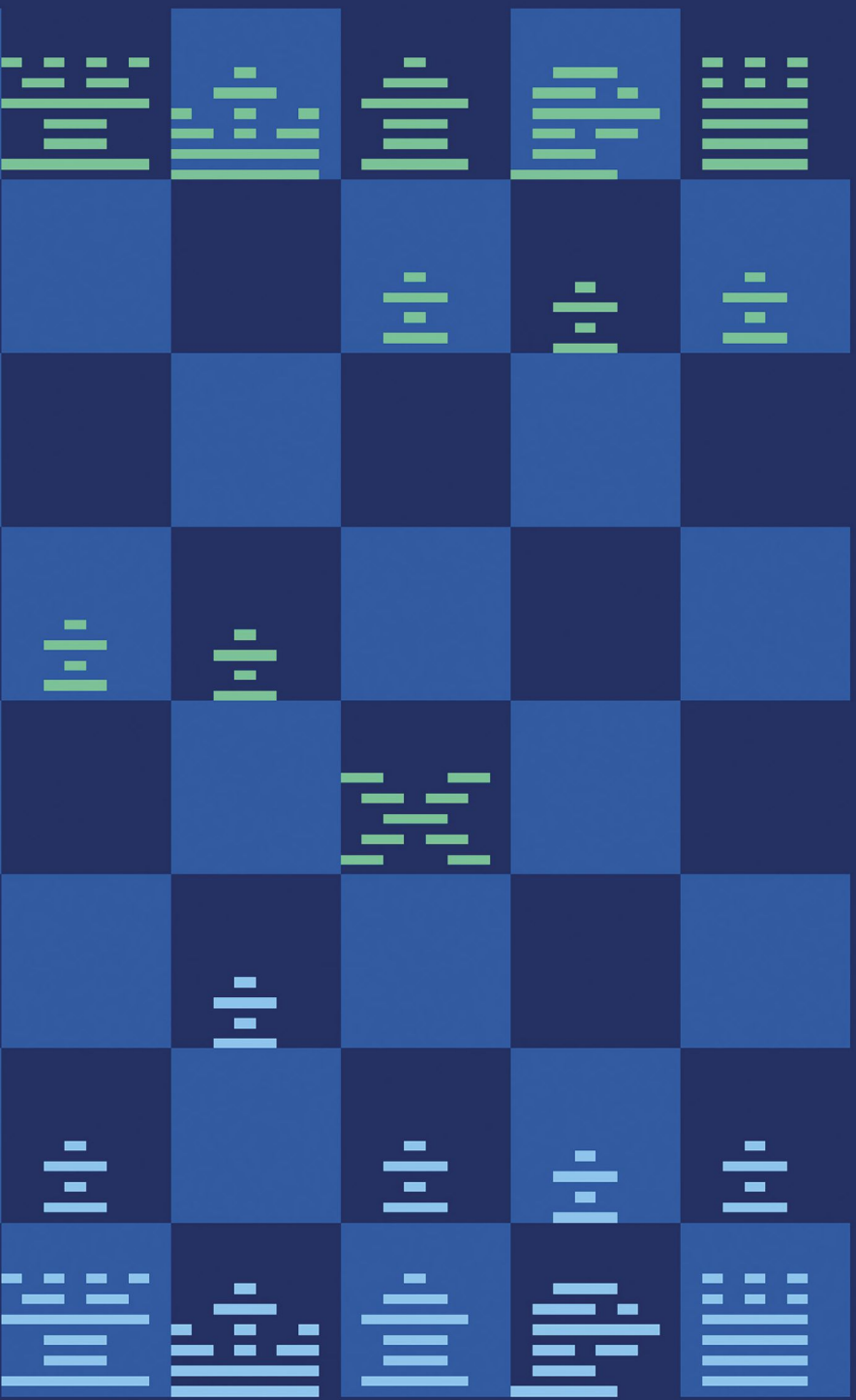

Platform
2600

Released
1979

Genre
Strategy

Developer and Publisher
Atari

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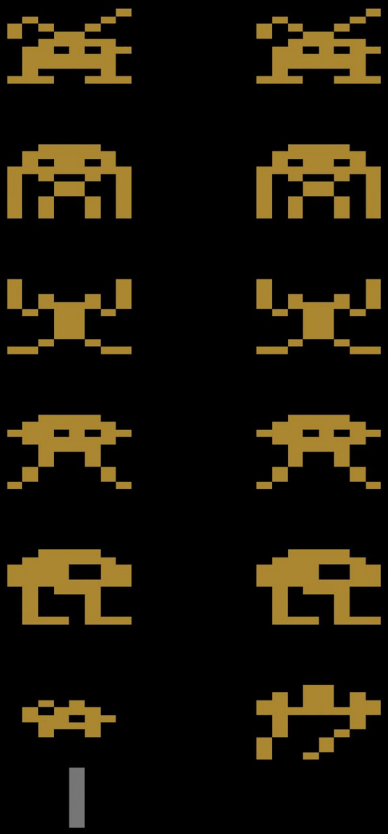
Platform
2600

Released
1980

Genre
Shoot 'em up

Developer and Publisher
Atari

Originally by
Taito



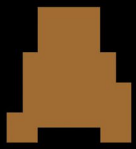
Space Invaders

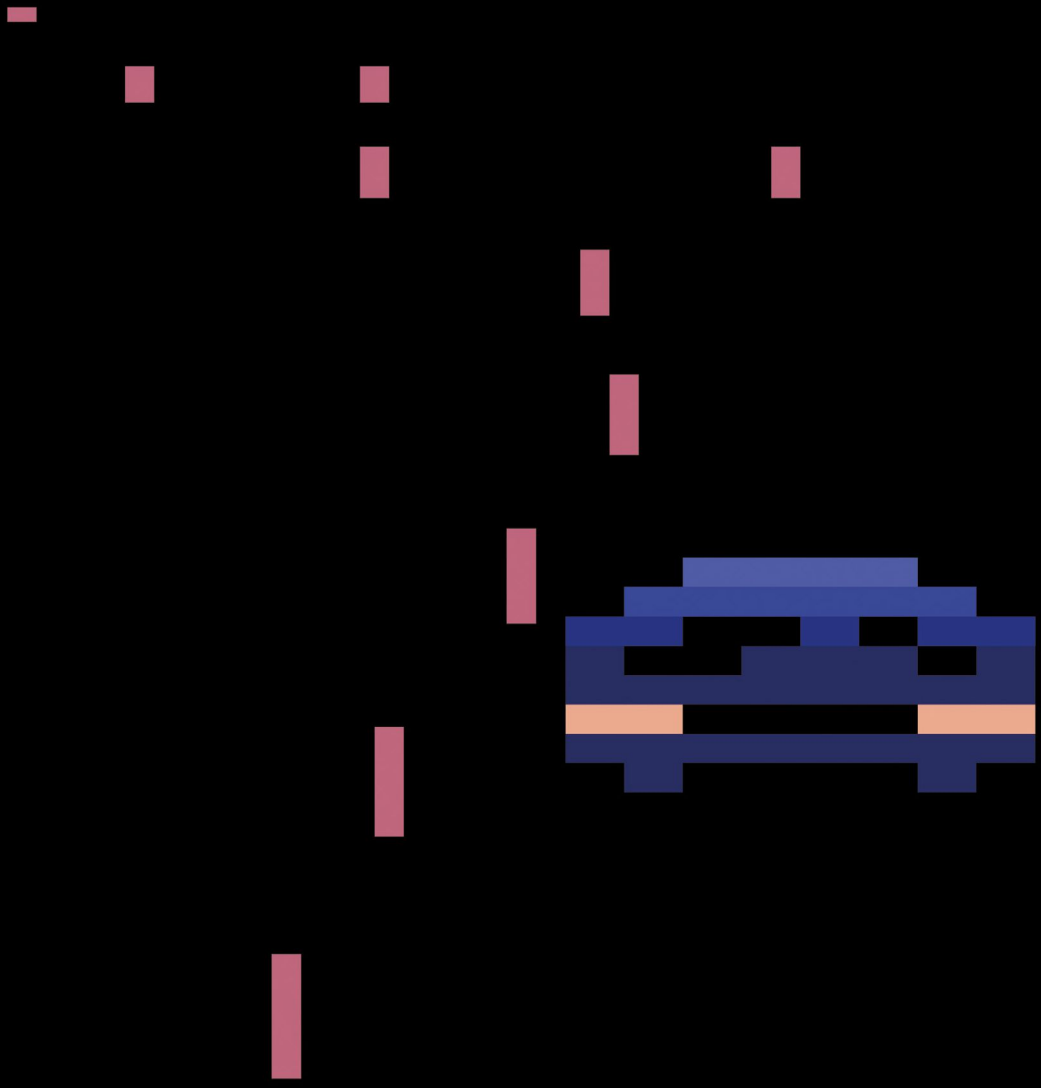
"Dubbed the first console killer app, *Space Invaders* was about as big a get for Atari as could be imagined at the time. The arcade version was nothing short of a global phenomenon, racking up billions for Taito and becoming the largest entertainment product of its time, putting even the grosses of the blockbuster film *Star Wars* to shame. The Atari 2600 version was the first official licensing of an arcade game for consoles, and the two million copies sold in the first year led to quadrupled system sales for Atari. It was an instant classic.

"And it's a darn good port to boot. While some modifications have been made for the home version, such as reducing the number of on-screen invaders from 55 to 36, some can be viewed as enhancements, such as more variety to the invaders themselves. What's so remarkable about the 2600 version, however, is its abundance of options – 112 in all, allowing players to adjust everything from the speed of the aliens to the size of the turret to even offering controls for a second player.

"The formula is simple: rows of aliens are attacking Earth, and it's your job to keep them from landing by shooting them out of the sky. Yet *Space Invaders* masters the art of tension by speeding up the music and aliens' movement as they get closer. This is actually a side-effect of the coin-op's limited hardware, but, nonetheless, it's a sensation no player ever forgets."

Sam Kennedy, games journalist





Night Driver

Platform
2600

Released
1980

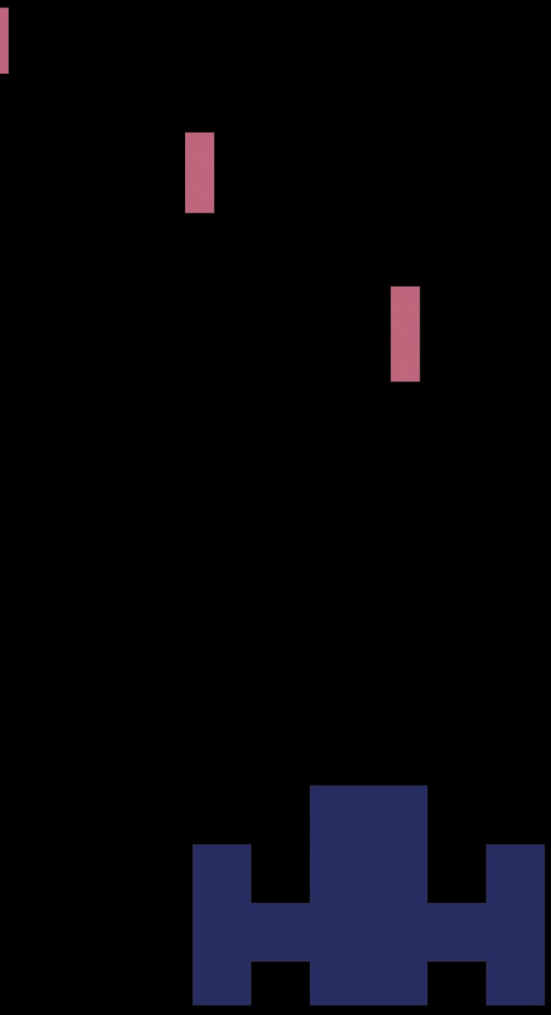
Genre
Racing

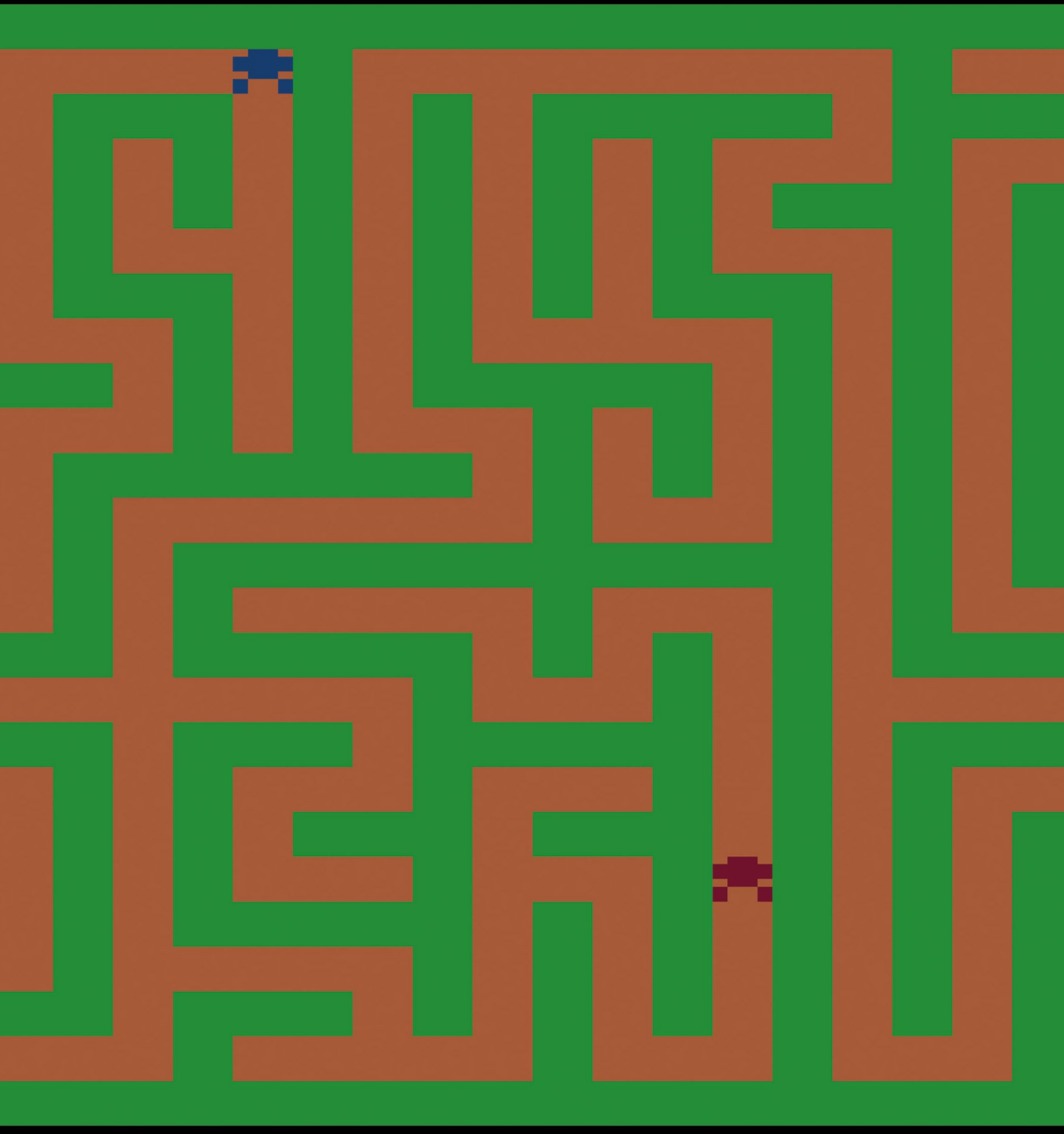
Developer and Publisher
Atari

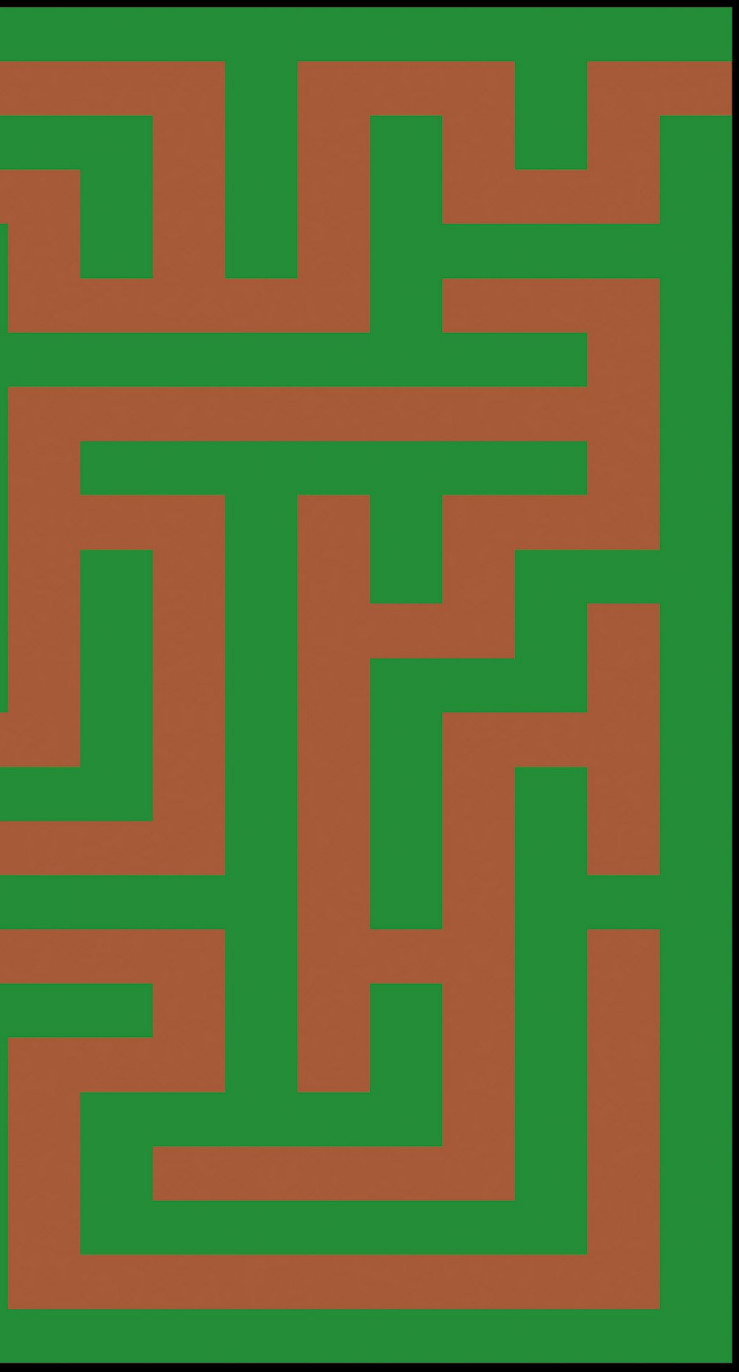
"*Night Driver* was my first-ever published game, derived from the Atari coin-op of the same name. Twelve white pylons accelerate down the screen to give the illusion of driving at night. It occurs to me as a miracle that the game worked at all, since I was given no help whatsoever in how to go about making a game, let alone a game for the convoluted Atari 2600. Frankly, to this day, I remain unsure how *Night Driver* actually worked; I just hacked away at the numeric tables that control the pylons until the on-screen result sort of resembled the coin-operated version.

"The only comment I put into my finished code were the initials 'PFM', which stood for 'Pure F&%king Magic', since all that really mattered in the end was that the thing sort of worked! Years later, I went on to name the games company I founded PFMagic to pay tribute to my first game, and to always remember that end users don't care at all about the technology behind the games – all they care about is the experience of playing the game."

Rob Fulop, programmer







Maze Craze: A game of Cops 'n Robbers

Subtitled 'A game of Cops 'n Robbers', no doubt to make it seem more exciting, *Maze Craze* was programmed by Rick Maurer, who also ported *Space Invaders* to the Atari 2600. One of the first interesting things about this cartridge is that, while it's actually pitched as a two-player game, there are some game variations that can be enjoyed by a single player too. The main object of the game is to simply escape the maze before your rival, with one being the cop and the other being the robber. Other modes see you trying to catch your opponent, mazes that turn invisible, the ability to stun your rival, and levels with multiple robbers to catch. These extra game variations make it so much more than just your standard 'escape the maze' affair that are seen on so many other home consoles and computers around this time.

In total, there are 16 different options to choose from, and the manual features a handy grid showing which gimmicks each one features, as many options have more than one. It might look pretty basic, but *Maze Craze* is actually a great deal of fun if you can find somebody to play it with.

Platform
2600

Released
1980

Genre
Arcade

Developer and Publisher
Atari

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Platform
2600

Released
1980

Genre
Adventure

Developer and Publisher
Atari

Adventure

"I didn't know I was inventing a new genre at the time of designing and programming *Adventure*. Video games were very new, and game designers were trying all sorts of things then. The thing I tried – to adapt the text-adventure game *Colossal Cave* to the video game format – did turn out to work extremely well. What we now call genres were just experiments by some game designer a few decades ago; experiments that worked.

"But, yes, I'm proud of *Adventure* now. At the time, I was forbidden to work on it by my boss, but I defied him and worked on it anyway. So he treated me like a bad, misbehaving employee, and that political story coloured how I felt about designing the game. I thought it was pretty good when I was working on it, and the internal Atari people who played the games under development gave me positive feedback. But it wasn't until it was released and sold a million copies during the next few years that it was clear that it was significant.

"The new owners of Atari (Warner Communications) were keeping all the Atari 2600 game designers anonymous, and the secret hidden in *Adventure* was what I called my 'signature'. The name 'Easter Egg' was coined a years later when it was discovered and the public found out about it. I wasn't sure anybody would even find the secret in the game as it was well hidden. I wasn't sure what would happen."

Warren Robinett, designer and programmer

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An interview with Joe Decuir

It's impossible to overstate the importance of the Atari 2600 – or Video Computer System as it was originally called – when talking about the history of the video game industry. Okay, it wasn't the first console to arrive on the scene, but it was undoubtedly the most important. Although Nolan Bushnell gets much of the credit, the system itself was the brainchild of Jay Miner, who would later go on to design and engineer both the Atari 8-bit computers and the Amiga. Sadly, he is no longer with us, after passing away due to kidney failure in 1994, but he is survived by Joe Decuir, his apprentice on the project, who made his start at Atari and continued to achieve greatness long afterwards.

After assisting Jay on the VCS project, Joe joined him in creating the Atari 400 and 800 computers before leaving Atari to pursue new technologies. His wide range of achievements and patents includes the development of the USB standard (an evolution of the SIO port he created at Atari), Bluetooth, modem and fax machine technology, and he also linked up again with Jay Miner for the creation of the Commodore Amiga.

As well as developing groundbreaking technology, Joe also contributed to the world of video games; not just by helping to create the Atari 2600, but also by co-designing its first-ever game,* Combat, *and evolving Atari's legendary* Pong *into* Video Olympics. *Now retired, he was happy to tell us more about his illustrious career in the industry.

Can you please tell us how you got started at Atari?
Yes, okay. First of all, I got a bachelor's and a master's degree from Berkeley in '72 and '73. While I was doing that, I was studying biomedical engineering as the application, but I was also studying microprocessors because they were new and fascinating. The [Intel] 4004 was invented in 1971, the year before I got my bachelor's degree. And when I was working on my master's degree, I took an elective in microprocessors, so I got to program a 4004, the first microprocessor. It was four bits wide, and the bus rate was like 50 kHz, vastly slower than what you can buy today.

While I was studying, one of my first jobs was interfacing minicomputers to monitor patients in intensive care in hospitals. I was doing that, and then I was doing medical research and thinking about applying to medical school. I was working on an NIH (National Institute of Health) grant, and we had too many patients that didn't have health insurance, and they ate up the whole budget. So, I was told in the summer or fall of 1975, *"You know we've run out of money. You're going to lose your job by Christmas."*

There was a show that they did that alternated between the San Francisco Bay Area and Los Angeles every year called West Con. In September 1975, Chuck Peddle had chosen that show to debut the [MOS Technology] 6502. Rod Milner had bought one, and he was a friend of Ed Dumont, who was a buddy of mine from my medical research institute. So, when I was told that I'm going to lose my job, I found two jobs. One job I was offered was to move to Orange County, which is an attractive thing. It's within driving range from my parents, where the surf is really good – I was a surfer in high school. And I was going to become their microcomputer expert as they brought microcomputers and microprocessors into medical devices. So I've got a really good background in that space and I'm going to be their guy. But, through my network, I connected to Rod Milner, so Thanksgiving weekend of 1975, I interview with some Atari people. And I aced the technical interview because I've mastered the microprocessor that they've chosen – but I don't know that yet.

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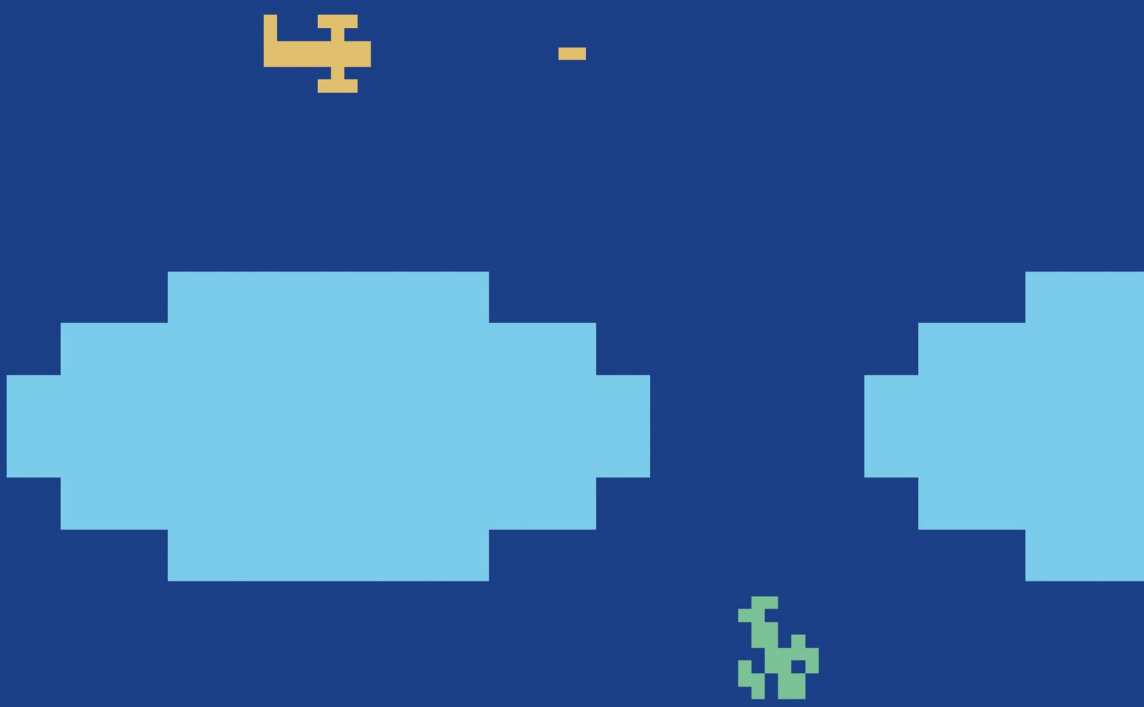
They walked me out through the lobby, and there's a bunch of Atari coin-op games. That summer, I was walking through Disneyland in Anaheim, California, not far from where my parents live. I was walking down the street, and my youngest brother, who was 12 at the time, and I walked past this arcade, and we heard all these noises coming out. We walked in and we discovered *Atari Tank*. So we wasted a bunch of quarters on *Atari Tank*. My brother, Bob, has better reflexes, so he beats me, but I did practise the game. So I'm being interviewed during Thanksgiving that year in Los Gatos, California, and I think I'm going to be tested. So I look at the *Tank* machine, and they walk over and say, *"Do you want to play some* Tank*?"* And I say, *"Let's try that."* I played passable games, and I was hired on the spot. So I tell my students, luck favours the prepared mind.

Can you tell us what you thought of the Atari 2600 project, and were you excited about it? Well, my appreciation got better over time. I was Jay Miner's apprentice, remember, and the project had started before I got there, but I definitely felt I had something to contribute. I designed the sound circuits, I added the collision detection and, conversely, I made it friendlier for the programmers as I wasn't just an engineer, I knew about game mechanics too. We hustled and hustled and we got not only the chip design but also the system finalised, and I worked on the design for all four of the controllers – the paddles, the joysticks, the keyboard and the rotary controllers.

> *"I designed the sound circuits, I added the collision detection and, conversely, I made it friendlier for the programmers as I wasn't just an engineer, I knew about game mechanics too."*



Combat / *2600 / 1977*

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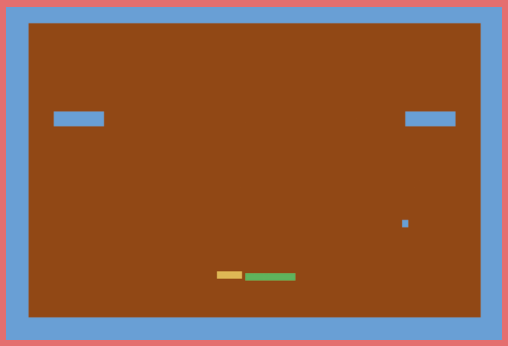
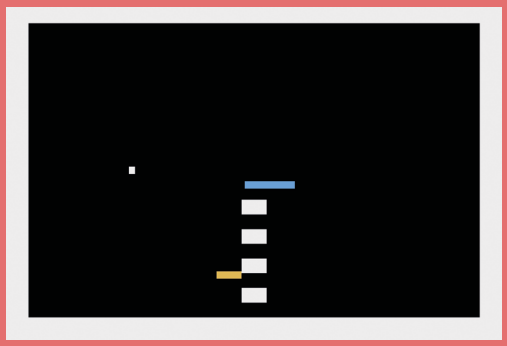
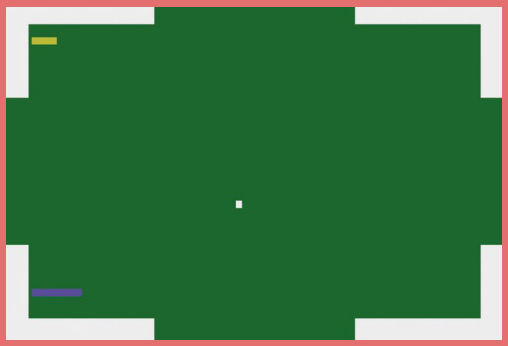
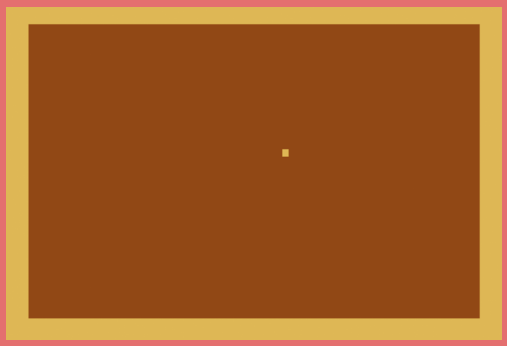
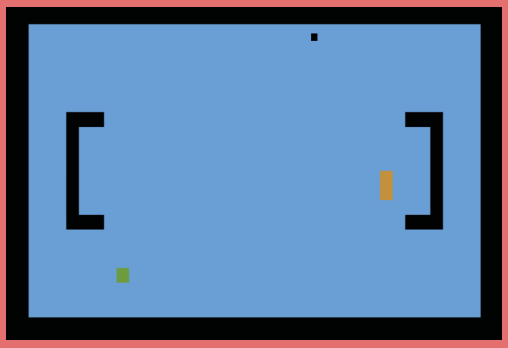
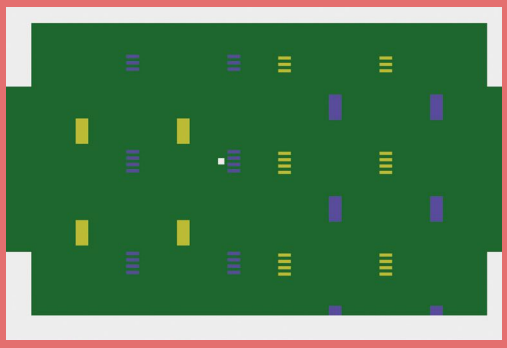
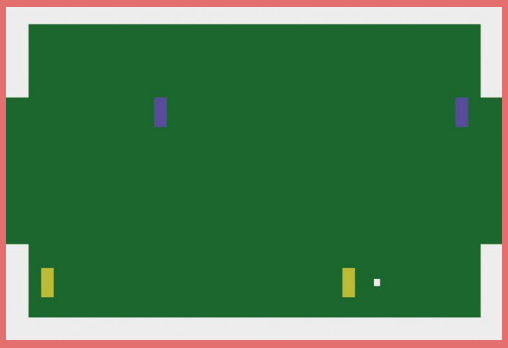

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> *“We were just so desperate to get the thing out. There are a lot of times when you close off ways that you could possibly make it better.”*

In terms of the design, are there any changes you wish you could have made?
Oh yes! I've had this argument with Nolan Bushnell before. In the fall of 2016, they had some Atari historical event in the Santa Clara Valley at some place, and I got to sit next to Ted Hoff, who invented the 4004 processor. But Bushnell, Alcorn and a bunch of old Atari buddies were up there at a table being interviewed, and I restarted this argument with Bushnell.

When you're sitting back there managing a project that's going to be the 2600, you know that you're going to attract competition. One hundred per cent sure. And you're also sure that you need to replace your system before your competitors do. So, Atari marketing and Bushnell themselves are saying, *“You know, the 2600 is probably going to last three years in the market, and maybe each customer is going to buy three or four different cartridges at these prices. So we know that we have to eat our own lunch before our competitors do.”*

What I wish we were willing to do is spend 50 cents more on the processor to get a 40-pin 6502 rather than a shortened 6507 that just saves us 50 cents in packaging. The total bill of materials was 65 bucks and we saved 50 cents on buying a cheaper processor, and we saved another 50 cents by having a 24-pin rather than a 30-pin cartridge socket. We were just so desperate to get the thing out. There are a lot of times when you close off ways that you could possibly make it better.

What's the biggest change that you would have made to the Atari 2600?
Well, I had this epiphany in winter of '77 where I said, *“Can we do this?”* and they said, *“Of course not,”* because we would have had to go back and not only rethink parts of the process of the product, but the whole system as well as the hardware. What I would like to have been able to do is architect a series of products around the 6502 that started with the 2600 and evolved into a computer, rather than having to junk that design and replace it completely with the Atari 8-bits. If you start selling these cartridges to the customers and they're happy, then they start building a larger library on your stuff. This all depends on compatibility with the original machine, because if you build something that isn't as compatible as the follow-up, they'll have to junk their libraries and start over.

That leads us very nicely to the next question! I know you weren't at Atari when the 7800 came along, but do you think this console was exactly what the 5200 should have been – backwards compatible, advanced graphics modes, more RAM, etc.?
Well, Atari struggled constantly to figure out how they were going to follow the success of the 2600. They did eventually build the 7800 – well, via GCC [General Computer Corporation] – but it was way too late. They just didn't have a proper plan in place. In retrospect, we could have built the 7800 and shipped it in 1980 instead of in '83 or '84 – now that would have been something.

Do you think that, because people constantly found new ways of pushing the 2600 hardware, it perhaps made Warner Brothers and the Atari management think a replacement wasn't needed?
Yes I do. Basically, we didn't know what we didn't know. We didn't know that the programmers were going to surprise us. We went to market with not quite a dozen launch titles. The programmers were already surprising us, and we didn't know exactly how much they were going to surprise us with what they could do with that platform, which wasn't designed to do what they did. We didn't know how big a tail the 2600 was going to have because you don't know what you don't know when you're trying this stuff out. We weren't stupid; we were ignorant.

> *“The programmers were already surprising us, and we didn't know exactly how much they were going to surprise us with what they could do with that platform, which wasn't designed to do what they did.”*

Video Olympics / *2600 / 1977*

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The Atari 400/800 was obviously an evolution of the Atari 2600 hardware design, and it's been rumoured that it was originally planned for use in a console. Can you confirm this?
Well, yes and no! The original plan was that we were going to design a better console and a new computer. What we wound up doing was designing one chipset that was going to be packaged two ways. Originally, the 400 wasn't going to have a keyboard and would have been the console, with the 800 being the premium-priced computer.

But then, Doug Neubauer designed the POKEY chip and then came up with *Star Raiders*. And that blew everybody's doors off, so marketing decided, *"The 400 has to have a membrane keyboard so you can play* Star Raiders*"*, because it's the killer game for that platform. So we ended up with two systems that are, from a programmer's standpoint, identical.

The 400 was supposed to occupy the game console niche. But, when it came out, its suggested retail was 500 bucks – and we're talking 500 bucks in 1979. It was still a lot cheaper than the Apple II, which listed at $1,200 in 1979, but was still far too expensive to be a replacement for the Atari 2600.

They were also reluctant to push it as a console because the 2600 had just taken off. We sold a quarter of a million in '77. We built 800,000 in '78, but we only shipped about 550,000. Then we started advertising the 2600 at Halloween in '78, and every store in the country had sold out before the Thanksgiving weekend. There were big snowstorms crossing the United States, and the retailers said, *"Hey. We just sold through. We're fine."*

So people saw the advertising, they went to the stores, and they were already sold out across the country. So we had a quarter of a million units stuck in the warehouse at the end of 1978, and Nolan Bushnell got cement over his shoes trying to shift them!

This hardware was eventually used in the 5200, which many people regard as a massive mistake. What are your thoughts on this system?
Yeah, definitely a big mistake. We should have been shipping the 7800 in 1980, not a repackage of the existing hardware with a few small changes. The 5200 never should have happened.

If Nolan didn't sell to Warner, do you think the crash would have still happened?
Well, the upside is, no one had the business sense to be focusing on the end customers in ways that Ray Kassar [post takeover Atari CEO] did. Kassar had business skills – particularly in marketing. I actually interviewed with Kassar on my last day, and I sat there explaining to him what the Internet was going to be, and he didn't really get it. But you needed a combination of different skills to make the company successful. Clearly, Kassar didn't have the technical vision that Bushnell had, and you wouldn't expect somebody like Kassar to issue Nolan's theorem, which is that the best games are easy to learn and difficult to master; he didn't think like a player. So I both agree and disagree with Kassar. One of my mottos is that business is a team sport.

What was it like being involved in the creation of the 2600's first game,* Combat*, and are you proud that people still love the game so much?
Yeah, well it got an award. It was one of the top games that Chris Melissinos put into the Art of Video Games [exhibition in 2012]. So I'll tell you a story about *Combat*. I was in a class that I teach on amateur radio a few years ago, and the person running the class says, *"Tell us something that people might not know about you."* So I said, *"Okay, you asked for it. How many of you play video games?"* Half the hands go up, mostly the men but some of the women too. So then I said, *"How many of you remember Atari?"* All the hands keep rising, and I said, *"Do you remember the Atari 2600?"* And everyone shouts, *"Yeah!"* I reply with, *"Did you ever play* Combat*?"* All the hands are still up, and I said, *"Two people designed that game, and I'm the one who's still alive."* And they're like, *"Wow!"* So, if I want to get some attention, I say that!

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Video Olympics *was a great evolution of the classic* Pong *formula. Were there any other sports you planned to include in it but didn't?*
So, after doing *Combat* I went off in a corner, and for three months I wrote *Video Olympics*. I said to the management I don't want to have more than 50 variations (which it shipped with) because I was going to put up a number, which was the variation on the score, and I didn't want that to go past 50. And he said okay. So, I invoked it all in 2,000 bytes, in fact, at the tail end. I was invoking a complete horizontal reset routine from eight different places in the code, which is a three-byte call. And my code didn't quite fit into 2K, not 2,048 bytes. So, I replaced the three-byte chunk to several recalls in eight places with a software interrupt – which is a one-byte call. And I, therefore, saved 16 bytes, and it all fit! So no, there was no room to include anything more!

What is your best memory of your time at Atari?
1977, I lived in Mountain View, California, and the nearest Sears store is on San Antonio road, a mile up the street. I go there on the day after Thanksgiving, which is the traditional big day when Christmas shopping starts. And there's an Atari 2600. It's called a VCS, it's screwed down so nobody can steal it, and there's a pair of joysticks that are screwed down, and somebody has put a screw into the *Combat* cartridge which is stuck into the 2600. So, it's all set up so nobody can steal the pieces. It's connected to a serious 27-inch CRT TV, and it's set up for playing *Combat*. So, I go in, and there are probably 60 children in a big crowd around this display, trying to take turns to play this game. Parents walk in, their children say, *"Oh I want to see this!"* So the parents go up and shop, and the kids wait in line, right? And so I'm watching, not supervising, I'm just taking it in. I watch for about an hour and a half. And I say, *"Oh my God! We really have a success here."* Because, if the kid didn't get their chance to play by the time their parents came to pick them up, they got really, really angry. It was amazing to confront happy customers. They really wanted that machine.

I've seen cartoons in the papers where people draw pictures of what it was like when their father let them bring home one of these things, and they're holding the thing up under the Christmas tree. So, that was my favourite moment. But there's a related moment: I'm working, and I have four younger siblings. I go home for Christmas in 1977. I give one of these [2600] to my father, to the family, basically, and my youngest brother, Bob, who was 12 when I first played *Atari Tank* in the summer of 1975. It's now Christmas, two and a half years later. I bring it home, we plug in the 2600, we plug in *Combat*, and I play my youngest brother on my game, and he beats me on my game! Because he still has better reflexes.

What do you think Atari's greatest legacy is?
They really founded the video games industry. The video games industry a few years ago was $100 billion; now it's probably $140 billion worldwide. It's larger than movies and music put together, and Atari did that.

"They [Atari] really founded the video games industry. The video games industry a few years ago was $100 billion; now it's probably $140 billion worldwide. It's larger than movies and music put together, and Atari did that."

Combat / *2600 / 1977*

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Atari 2600 joystick / *1978*

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> **“The video games industry a few years ago was $100 billion; now it’s probably $140 billion worldwide. It’s larger than movies and music put together, and Atari did that.”**

Joe Decuir, designer, programmer and co-designer of the Atari 2600

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Dodge 'Em

"One of the Atari 2600's most literal game titles, the name *'Dodge 'Em'* also serves as a complete strategy guide: 'What do I do in this game?' 'Dodge 'Em'. *Dodge 'Em* pits two race cars in concentric rings. In the single-player mode, you must avoid a computer-controlled car that's also speeding around the track. It's out for blood, gunning for a head-on collision while you go about your dot-collecting business. Intense! You can't stop your car, but you can speed up with the fire button, which only adds to the insanity. *Dodge 'Em*'s two-player mode is a good time, too: with one less self-destructive car to avoid, players simply have to avoid accidents – although this turns out to be harder than it sounds, and chaos ensues. For a break from the madness, check out *Dodge 'Em*'s box art, which depicts two fuddy-duddies in olde tymey clothes, driving horseless buggies: a theme the kids just went crazy for in 1980, no doubt."

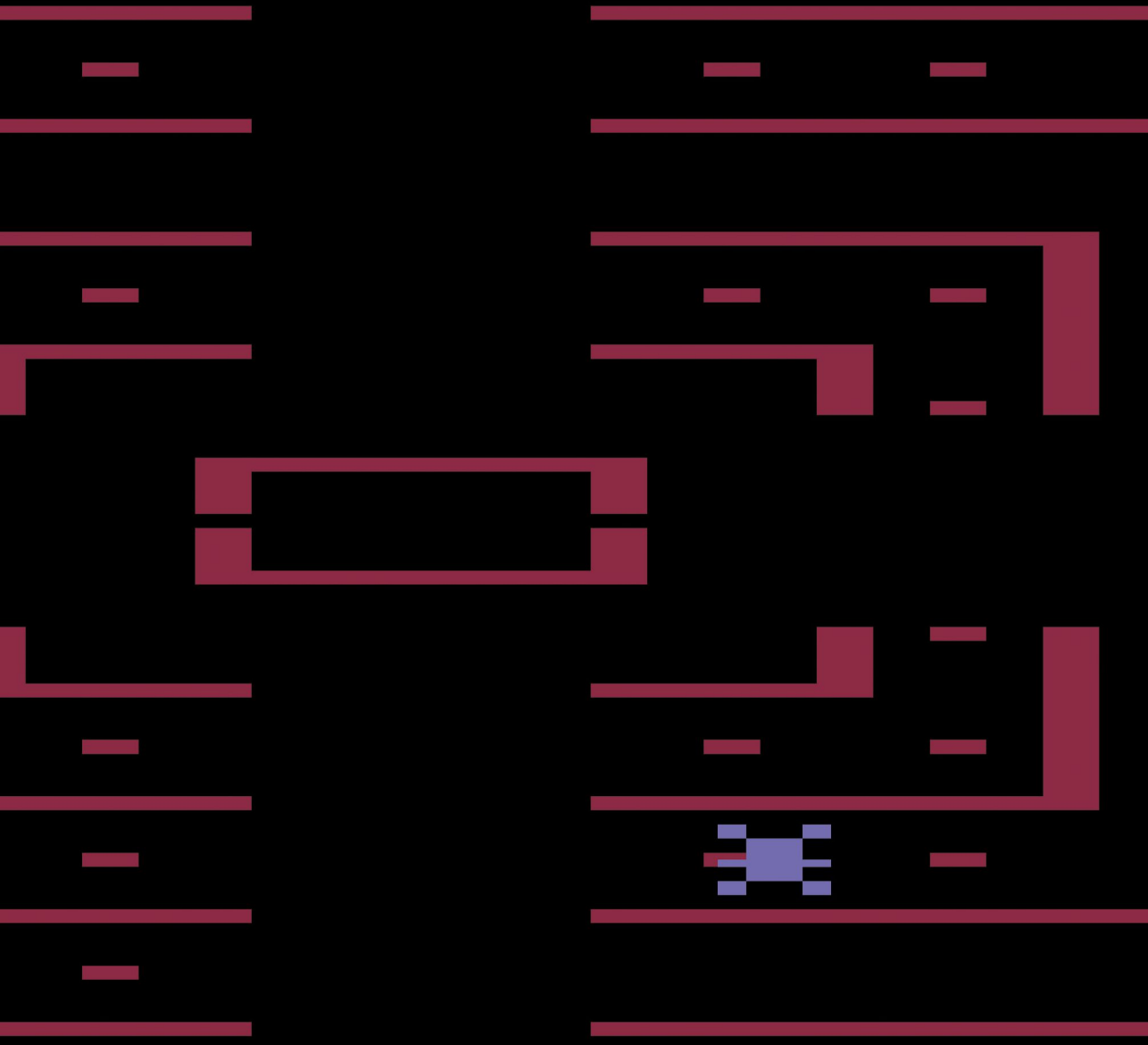
Samuel Claiborn, games journalist

Platform
2600

Released
1980

Genre
Action

Developer and Publisher
Atari



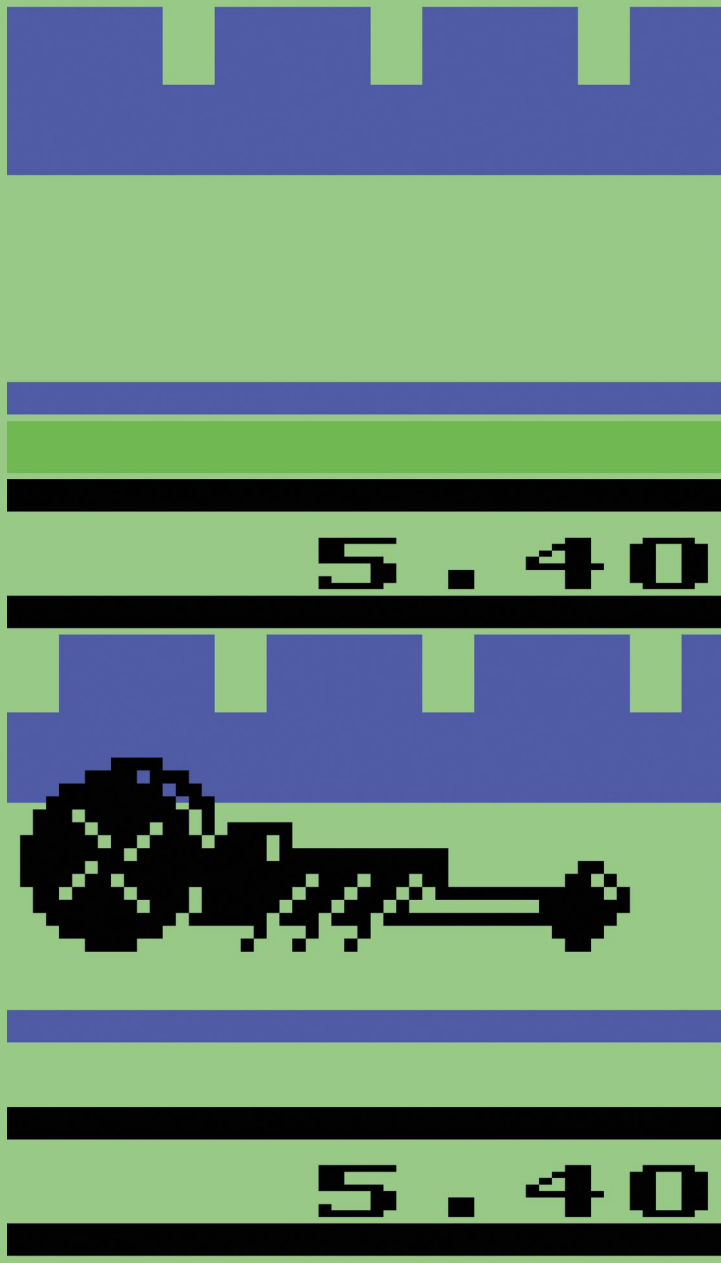
Dragster

"*Dragster* was Activision's first video game, code-named AG-001 (Activision Game), and featured two 32-bit moving objects to represent each player's nitro-fuelled dragster. Putting a 32-bit-wide moving object on the screen using the Atari 2600's limited hardware was an incredible achievement.

"The Atari 2600 was designed to display two 8-bit objects – such as the two tanks or jet fighters seen in Atari's *Combat* cartridge. A 32-bit moving object was unheard of and helped to announce to the world that Activision would be pushing the boundaries of the Atari 2600 game system. I'm proud of the gameplay as well; no single race took longer than six or eight seconds, but it so compelled you to try to improve your score that you could spend hours playing it.

"Referring back to the 32-bit moving object, I heard years later that programmers at Atari and other competitors dismantled a *Dragster* cartridge and cut out the display program for use in their games. Several programmers told me that, while they used the code directly from my game, they never truly understood how it worked."

David Crane, designer and programmer



Platform
2600

Released
1980

Genre
Racing

Developer and Publisher
Activision

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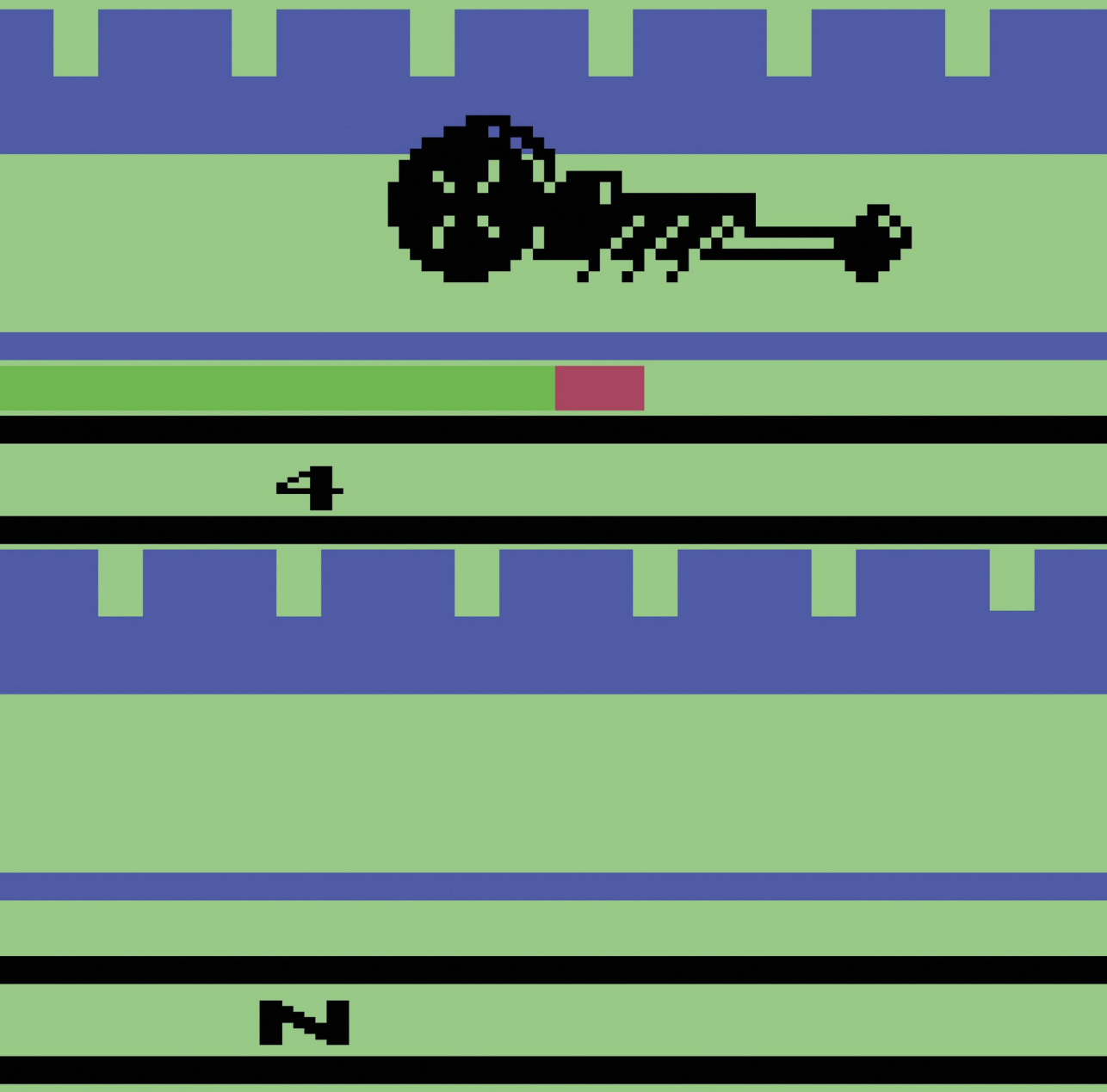

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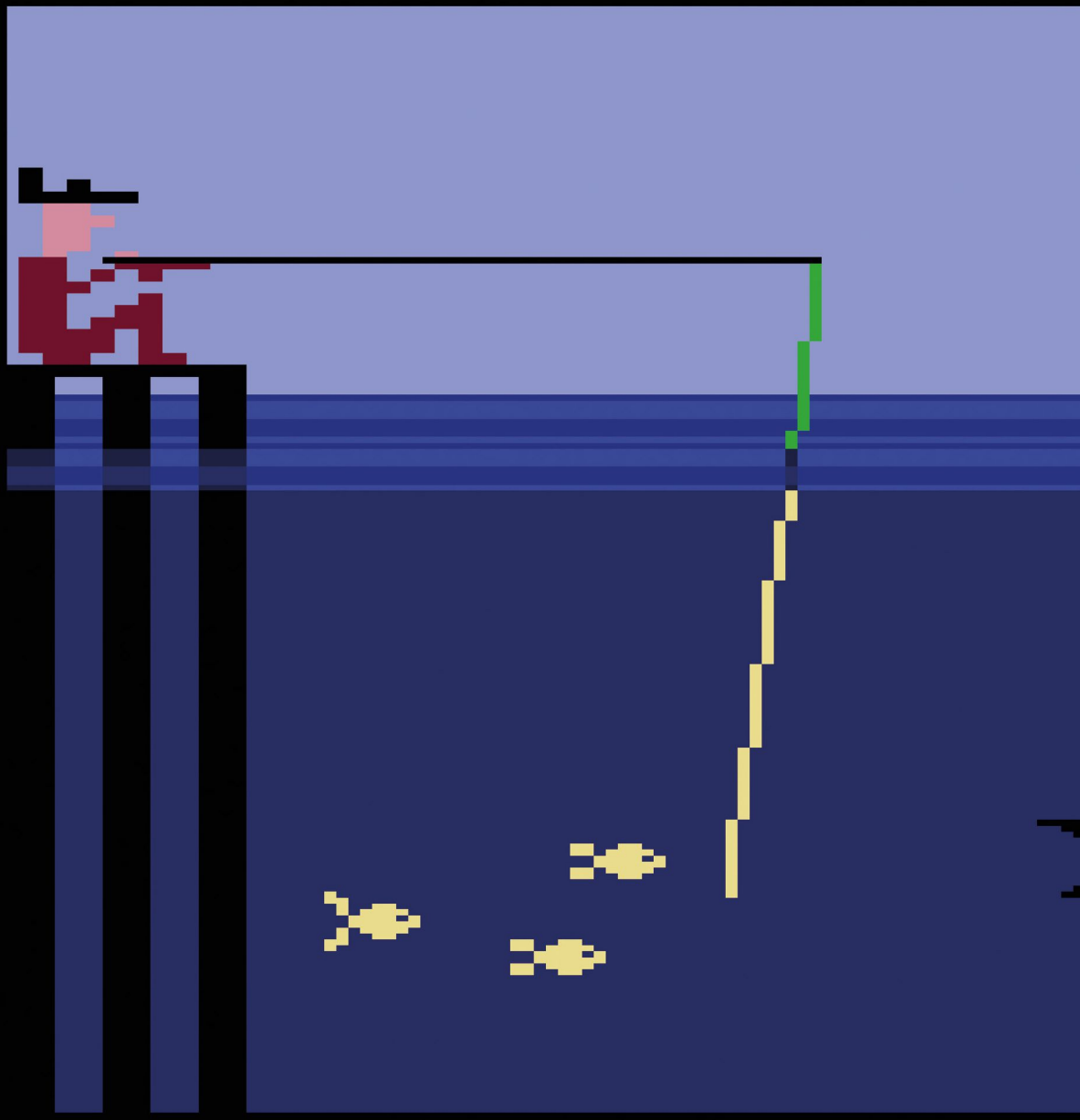
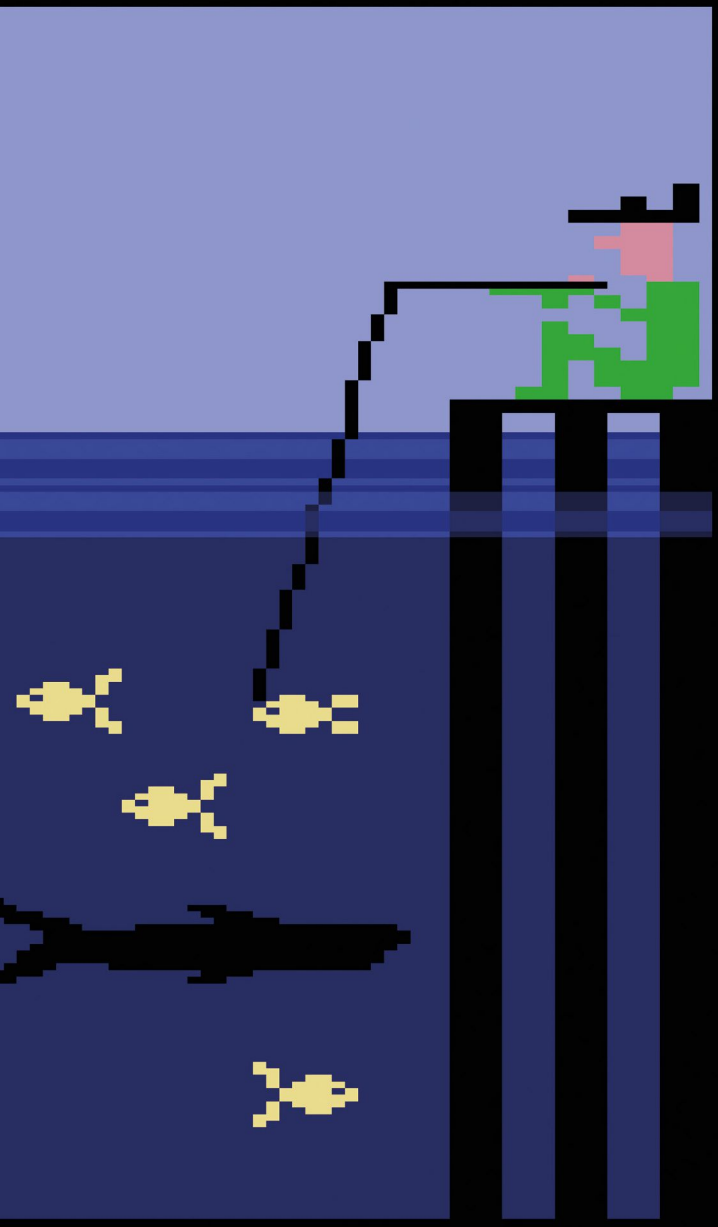




Fishing Derby

"While the Atari 2600 was designed to only display two 8-bit objects, with clever programming, those two objects could be reused in horizontal bands from the top of the screen to the bottom. This was learned early at Atari and showed up for the first time in Atari's game, *Air Sea Battle*. While trying to decide what game to make following *Dragster*, I worked with that technique and made a series of bands of yellow sprite blocks on a blue screen. Looking at that screen, I realised that it could represent fish in the ocean, with each horizontal band representing increasing depth in the water. Several weeks later, I had six rows of yellow fish (goldfish?) swimming back and forth on the screen. It was actually quite mesmerising.

"*Fishing Derby* was developed in Activision's first office – an 800-square-foot, three-room office above a warehouse in Sunnyvale, California. We were so cramped that the 'game design lab' was in the office's kitchen. The few non-designers in the company had to pass through the lab to get to the coffee machine along the back wall.

"Invariably, as people walked through the lab, they would be captivated by the swimming fish, much like the soothing effect of watching an aquarium. It was pretty funny to have to snap my fingers to get CEO Jim Levy's attention back on the reason he was passing through. Of course, games were for playing – not watching. I added the concept of scoring, the fishermen, the fishing lines, the shark as a hazard, and the timer to add exhilaration, and what began as a fish bowl became a pretty good twitch game."

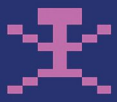
David Crane, designer and programmer

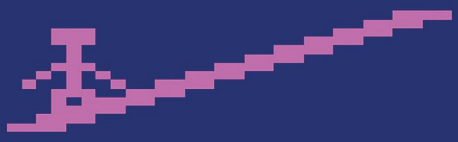
Platform
2600

Released
1980

Genre
Sports

Developer and Publisher
Activision





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Circus Atari

"Adapted from a 1977 Exidy arcade game called *Circus*, Atari's *Circus Atari* may be one of the most successful arcade-to-home releases ever for the 2600. The game is built on the simple notion of physics, where you alternate two clowns on a seesaw as they attempt to pop as many balloons as possible. Catch one, and their momentum continues, maybe even a little bit faster. Miss them, and they crash down to Earth, with their head flatter than a pancake. It's a simple idea, but one that becomes more and more addictive as you attempt to boost your high score. Once you pop a certain row of balloons, it refills magically – like someone has a helium tank on stand-by off-screen.

"What's remarkable is how well the game utilises the paddle controller. This makes for more accurate placement of the clowns at the bottom, while being able to press the button to alternate the position of the seesaw. Not to mention that the game's design, as blocky as it is, is quite close to the arcade game. You can also alternate between two players, which led to a great deal of competition between me and my sister. (She did try to make me crash my head on purpose several times – not a real surprise, if you know my sibling.)

"*Circus Atari* creates a fun, challenging experience that players of all types will enjoy. No matter which version you buy – the basic print version or Atari's revamped version with the fancy circus art – you'll find this game puts on quite the show."

Robert Workman, games journalist

Platform
2600

Released
1980

Genre
Action

Developer and Publisher
Atari

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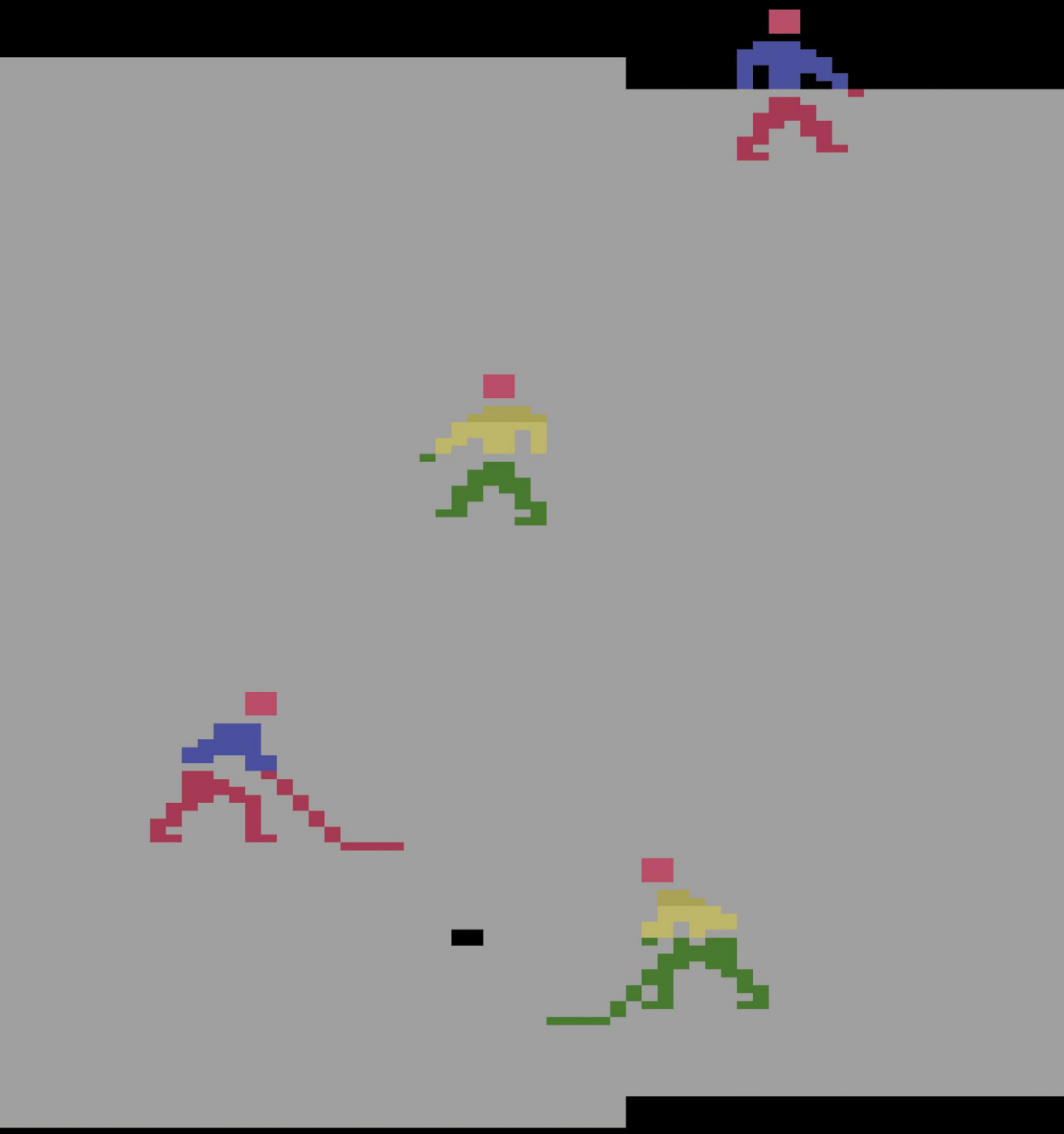


Ice Hockey

Platform
2600

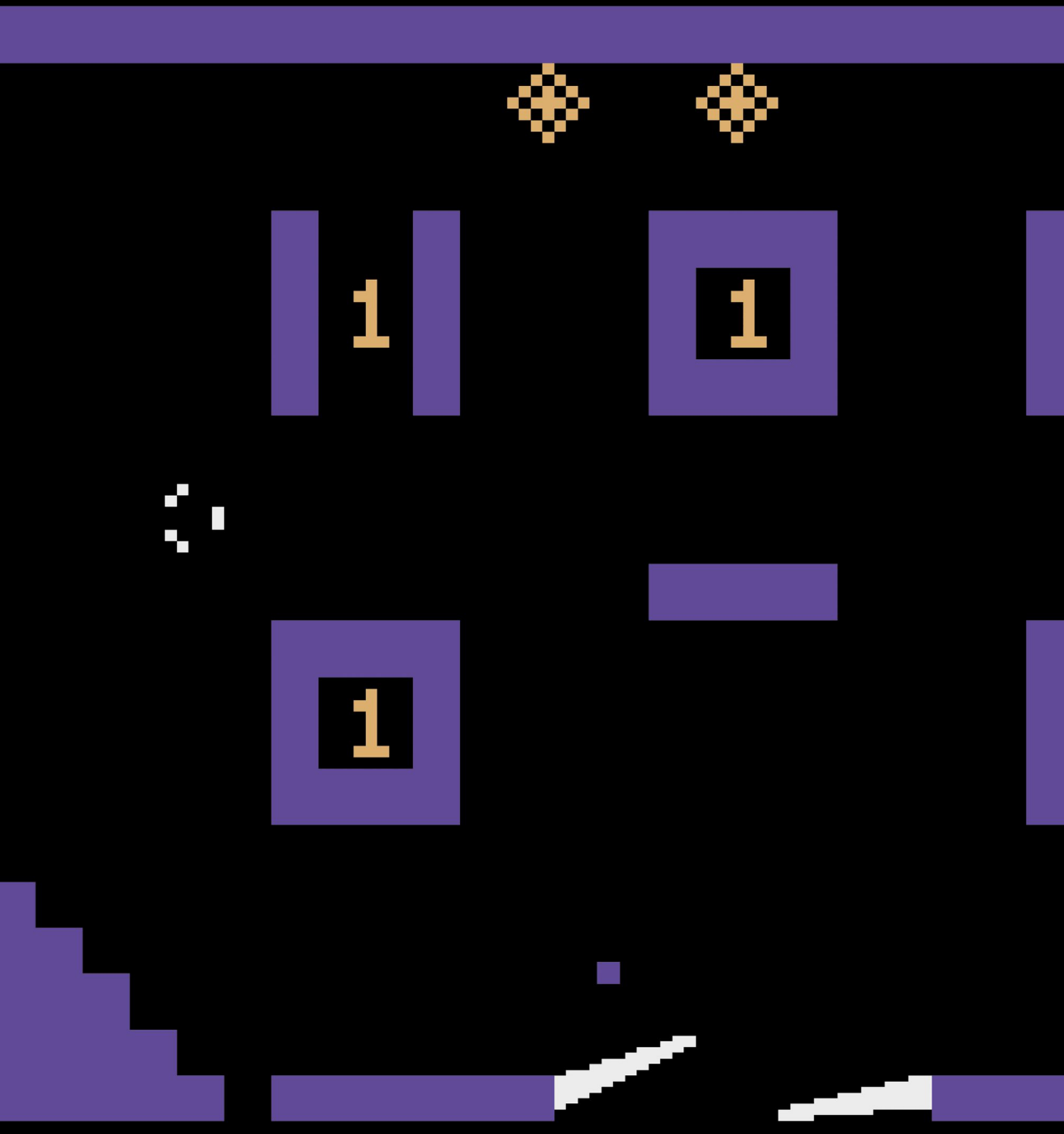
Released
1981

Genre
Sports

Developer and Publisher
Activision

One of the earlier games produced by Activision for the Atari 2600, Alan Miller's *Ice Hockey* was a game that had to be vastly simplified due to the hardware on offer, but inadvertently created a whole new sporting sub-genre off the back of it. Due to the 2600's sprite limits, there are only two players on each side (including a goalie), and the action is restricted to a single screen. But this actually makes for an extremely fun and frantic affair, with the two-on-two concept it created being reused in many arcade-orientated sports games later on, such as *NBA Jam*, *Hat Trick*, *Arch Rivals* and *Hit the Ice*.

Despite its relative simplicity, *Ice Hockey* broke a lot of new ground for 2600 sports games at the time, as pretty much all of them up to this point had not been much to write home about. The puck can be hit at any of 32 angles, you can switch players, and it also features realistic control in the way you direct the puck. Despite the huge popularity of the sport, especially in North America, it remains the only ice hockey-themed game released for the system.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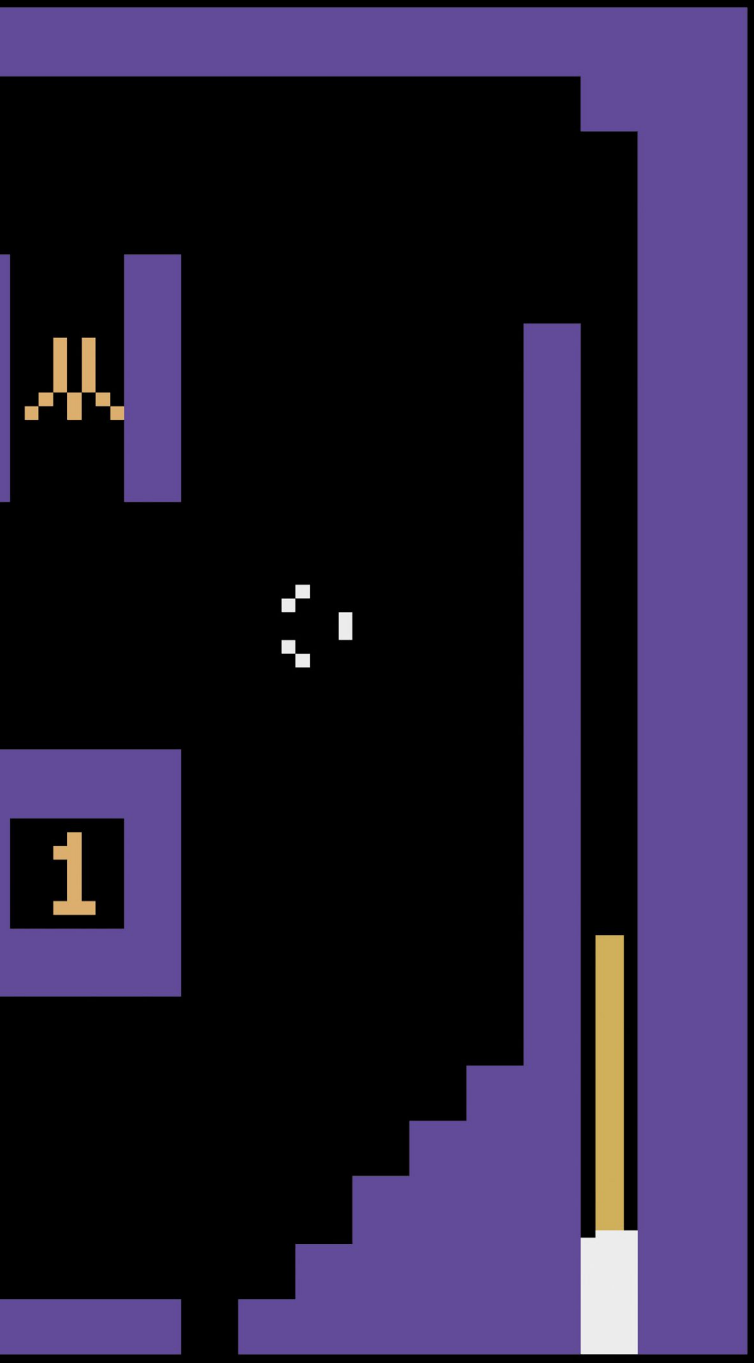


Video Pinball

"This was my first cartridge for Atari after I was hired in early 1980. After poring over the arcane documentation for a week, I told my supervisor, Dennis Koble, that I thought I could code a 2600 cart, so he gave me the top entry on the 'list' – pinball. I spent a week in the Atari corporate game room playing *Superman Pinball*, then more weeks with graph paper designing a 2600-compatible pinball playfield before I began coding. I was enchanted with the mysteries of the 2600. It was simple, yet convoluted – successful results were addictive.

"The show where *Video Pinball* debuted was my first Consumer Electronics Show. Activision was also there, so I met the four for the first time. I consider their acceptance of *Video Pinball* to be my initiation into the 2600 guild.

"Atari sold over two million copies of *Video Pinball* and paid me $15,000 for creating the cartridge. This was my last cart for Atari."

Bob Smith, designer and programmer

Platform
2600

Released
1981

Genre
Simulation

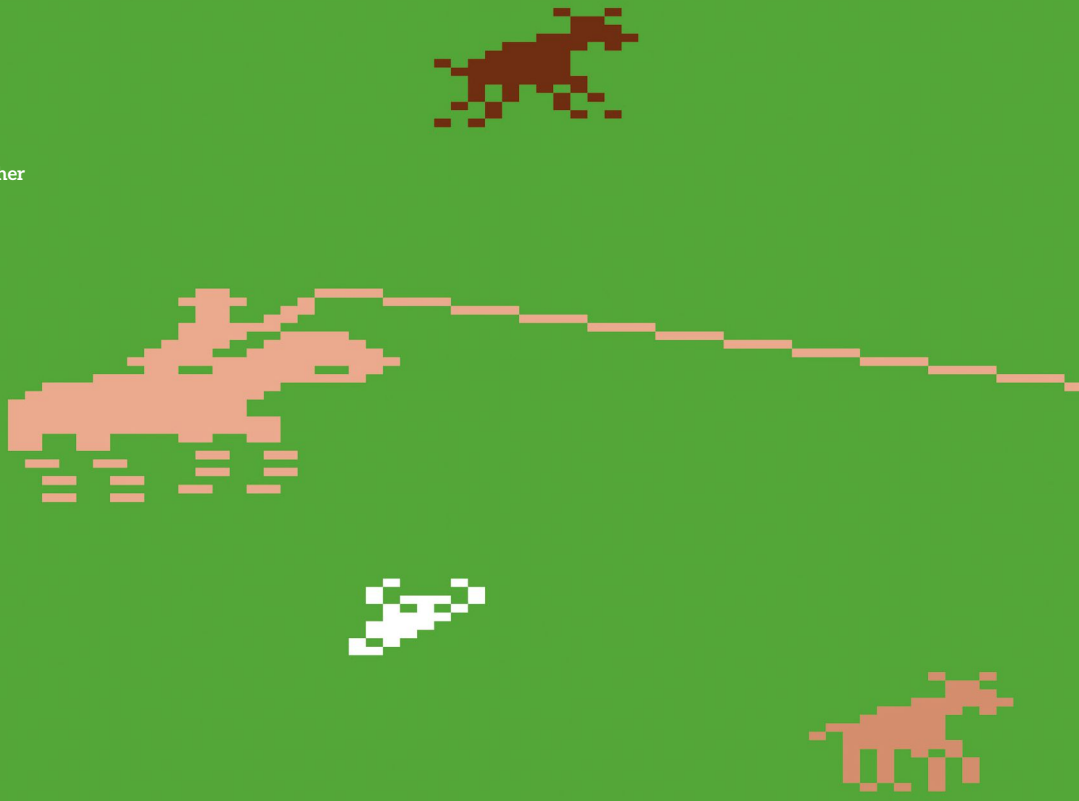
Developer and Publisher
Atari

Platform
2600

Released
1981

Genre
Action

Developer and Publisher
Activision



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Stampede

"Where most games based on Western themes involve shootouts (like Atari's own *Outlaw*), Activision's *Stampede* takes a much different approach. This game is all about roping up as many runaway bovines as you can before they escape. It grasps just the right amount of what makes being a cowboy – or cowgirl – fun. In the game, you gallop atop your mighty steed as you make your way along a fenced level. Your job is to rope as many runaway cows as possible, of varying colours. However, you'll need to be careful: if three manage to escape, your run is over. Fortunately, you can move quickly enough to line them up in your sights and then lasso them with ease. On top of that, the game gives you ample opportunity to bump up your score enough to earn an extra turn, gaining a little extra breathing room for a bovine or two to get away. You'll be thankful for it when they start running all over the place.

"Like most of Activision's Atari fare, *Stampede* is a colourful tour de force. The bright green motif makes it easy to see both your horse and the runaway cows on screen. The gameplay complements the action as well, as you can keep track of where your bovines are and build up your score. It may not be as action-packed as rootin' tootin' shooters, but *Stampede* is a hoot and a holler anyway, especially for young 'uns."

Robert Workman, games journalist

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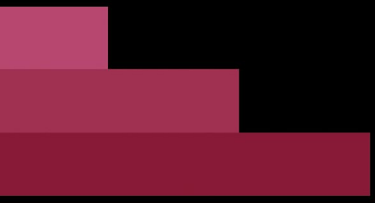
Warlords

"*Warlords* has to be in the running as one of the best games for the 2600. Not only is it one of very few simultaneous four-player games for the console, but it's also just incredibly fun. With two sets of paired paddles, you can trash-talk your way through competitive fireball-slinging play with two, three or four players – and the computer player AI at least offers a little challenge.

"*Warlords* is fun, combative, and still captures the great head-to-head gameplay of the arcade game. It also truly rewards strategy and coalition building (or back-stabbing) for great replay value. Personally, this is the game that probably single-handedly brought me back to the 2600, after I'd left Atari behind in my teenage years. During my first week in college, the denizens of my dorm floor had salvaged a 2600 Jr. system and regularly conducted *Warlords* round-robin tournaments. The yelling, laughing and drinking amidst the smell of castoff couches and old cigarettes inspired me to dig out my 2600 and bring it back to college, reigniting my love for this classic system. That *Warlords* gameplay led me to the early Internet, bringing me into the community of Atari fans who have helped preserve and cherish all things Atari."

Tim Lapetino, guest reviewer

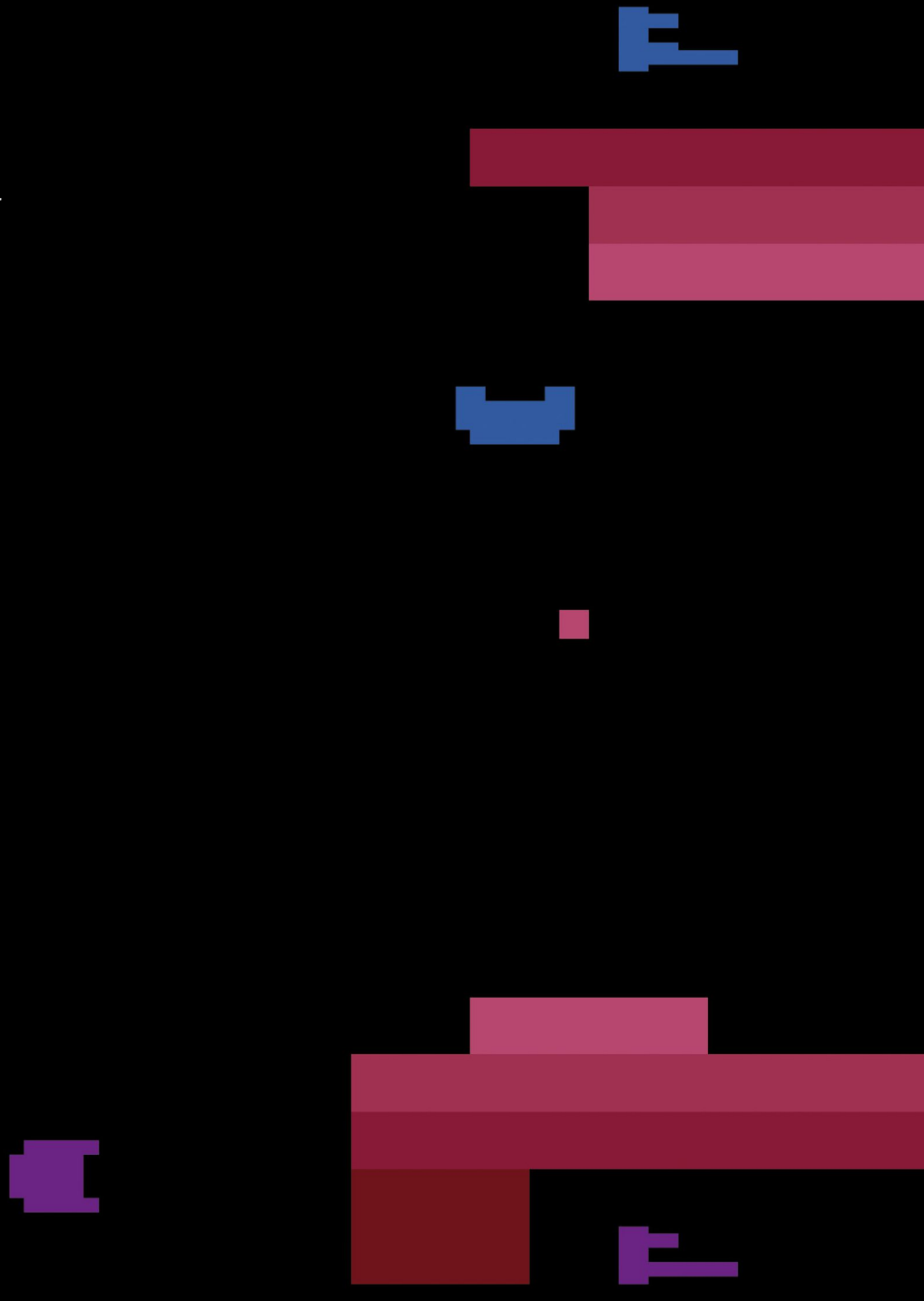


Platform
2600

Released
1981

Genre
Action

Developer and Publisher
Atari



Freeway

"The ideas for games come from many sources. After I had finished one game, I would drift about thinking about what might be fun to do on a TV screen. During one of those times, I was attending our industry trade show, the Consumer Electronics Show, in Chicago. I was riding the trade show shuttle bus up Lake Shore Drive when I saw a guy trying to run across ten lanes of traffic. It seems that parking was cheaper on the opposite side of the road from the convention centre, so he took his life in his hands to save a few bucks. I remarked to the person sitting next to me, *'There's a good idea for a video game!'* After returning home, I created *Freeway*.

"*Freeway* was originally a small running man crossing ten lanes of traffic, including a joke version where the guy turned into a bloody splat on the road when hit by a car. This joke version, known as 'Bloody Human Freeway', escaped the lab and can be found online!

"But in a very rare case at Activision, the game was changed for purely marketing reasons. In a meeting prior to the next trade show, we were brainstorming how to promote the game when CEO Jim Levy said, *'If we changed the man to a chicken we could take advantage of the old chicken crossing the road joke, and we could hire a guy in a chicken suit to run around the trade show floor promoting the game.'* I loved the idea (especially since I never liked the way the 'man' looked), changed the game overnight, and the box art, etc. was redone in time for the show."

David Crane, designer and programmer

Platform
2600

Released
1981

Genre
Action

Developer and Publisher
Activision

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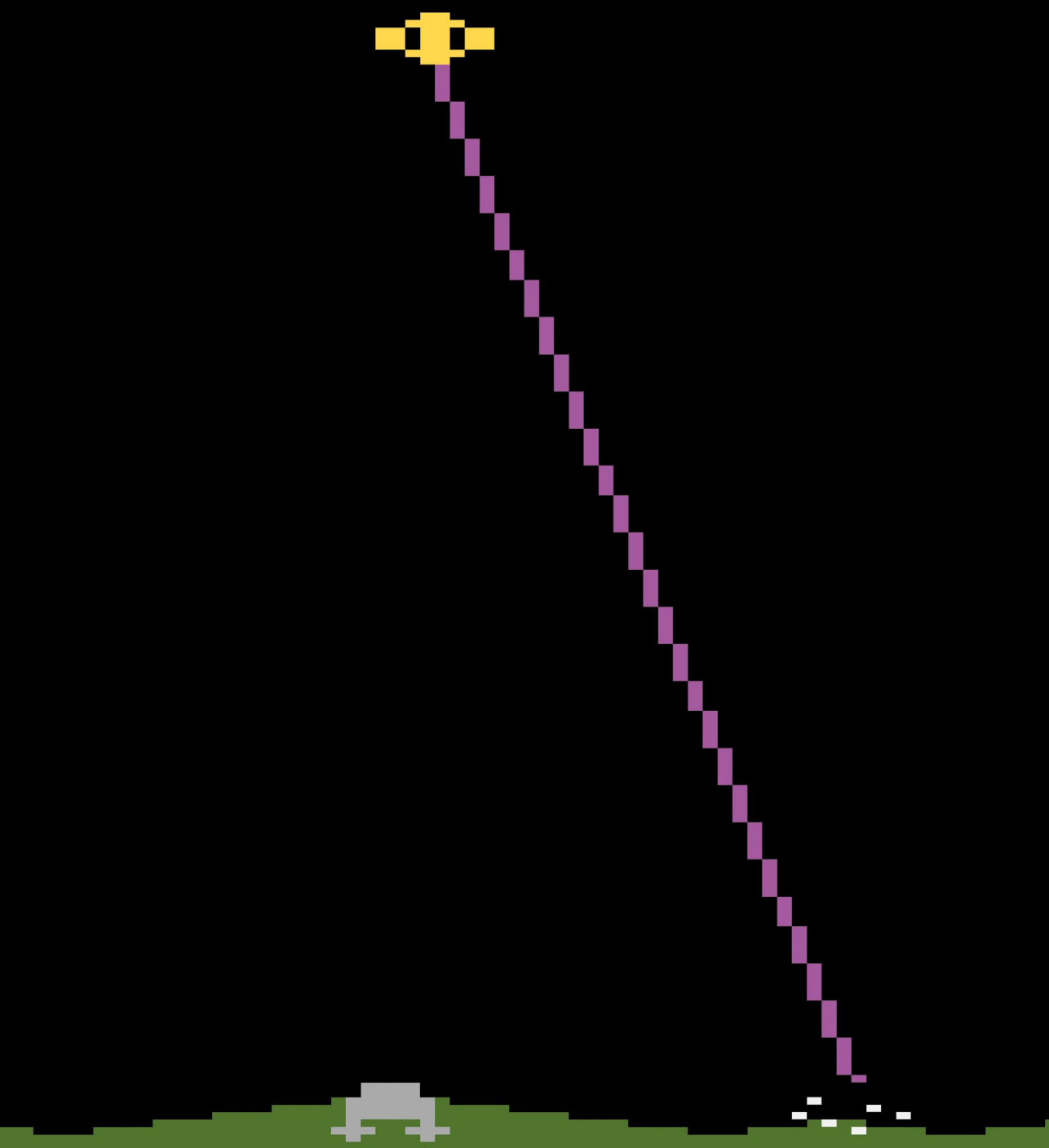

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Laser Blast

Platform
2600

Released
1981

Genre
Shoot 'em up

Developer and Publisher
Activision

"I developed *Laser Blast* because I recognised that the programming technique that displayed the fishing line in *Fishing Derby* could be used to display a laser beam. Combining that technique with the Atari 2600's ability to display triple objects allowed me to create a flying saucer (right out of the 1950s film *Earth vs. the Flying Saucers*) that fired down upon a squadron of defensive laser cannons on the surface of a moon.

"I'm known for not doing violent video games. I have received 'Parent's Choice' awards for making games promoting positive human values, etc. This has never been through conscious effort; it's simply based on my belief that it's not necessary to rely on the player's baser instincts in a video game. Contrary to modern game design theory, you don't have to kill something to have fun.

"I have to admit that *Laser Blast* is the exception. In this game, you are the aggressor, attacking the defenders, whose only motivation seems to be defence of their moon. Maybe the ground-based laser cannons are simply automated defenders…"

David Crane, designer and programmer

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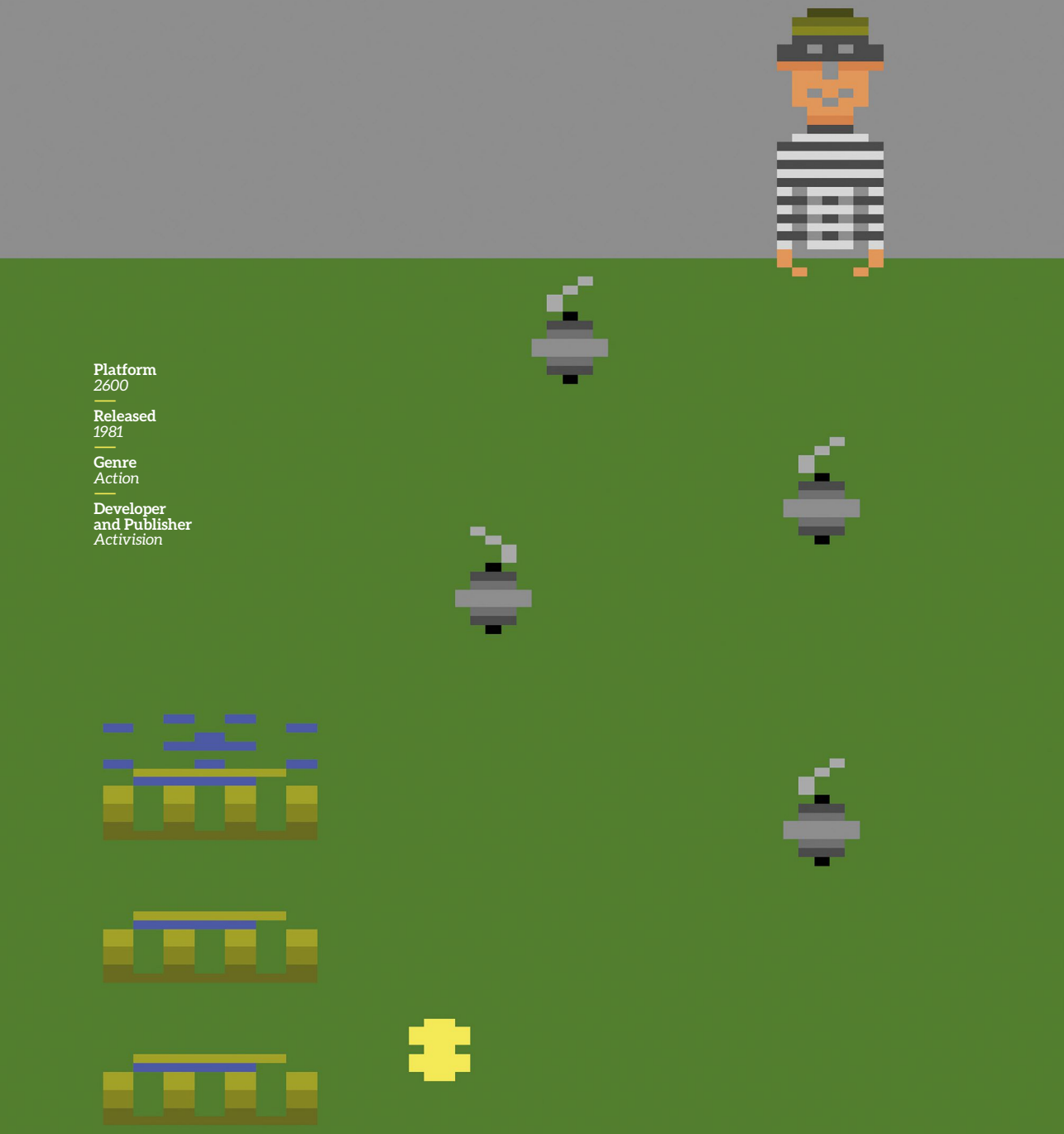

Platform
2600

Released
1981

Genre
Action

Developer and Publisher
Activision

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Kaboom!

"What do you do when you've always wanted to adapt one of your favourite arcade games to a home console? Well, when you're Activision co-founder Larry Kaplan, you improve upon the original, change the name, and go to market!

"*Kaboom* is essentially a modified port of the 1978 Atari coin-op *Avalanche*. Rather than catching falling rocks, however, you're attempting to foil a mad bomber stationed on the rooftop above you. As he lobs lit bombs towards the ground, it's up to you to catch them in your water buckets. If even one bomb touches the ground, you lose a life! But you will, at least, put a smile on the bomber's face.

"Playing this on modern compilations is always a bit of a crapshoot, as it was designed to take advantage of the Atari 2600's Paddle Controller. Playing *Kaboom!* on original hardware with said controller is an absolute joy. The bombs come in waves that ramp up really quickly, but the precision controls make you feel like an absolute champion almost immediately. Upon first play, the whole thing feels a bit unfair. But it's so easy to get good at this game that you'll feel yourself improving with every session, which will just keep you coming back for more."

Greg Sewart, games journalist

"Basically, I just ripped off [Atari coin-op] *Avalanche*, but I had to fit it into 2048 bytes and limited to VCS graphics. So, unable to display a bunch of rocks on top, I changed it to a single figure dropping bombs. David Crane came up with the Mad Bomber and the buckets (both of which he designed for me). Part of the appeal is the levelling process which, again, relies on the 60 [fps] frame rate to calculate drop speeds, etc. And it just so happens that those speeds are the most comfortable to play for long stretches. I do remember one awards ceremony where *Kaboom!* won for Best Audio, and I was in the bathroom when it was announced. I exited to great applause!"

Larry Kaplan, designer and programmer

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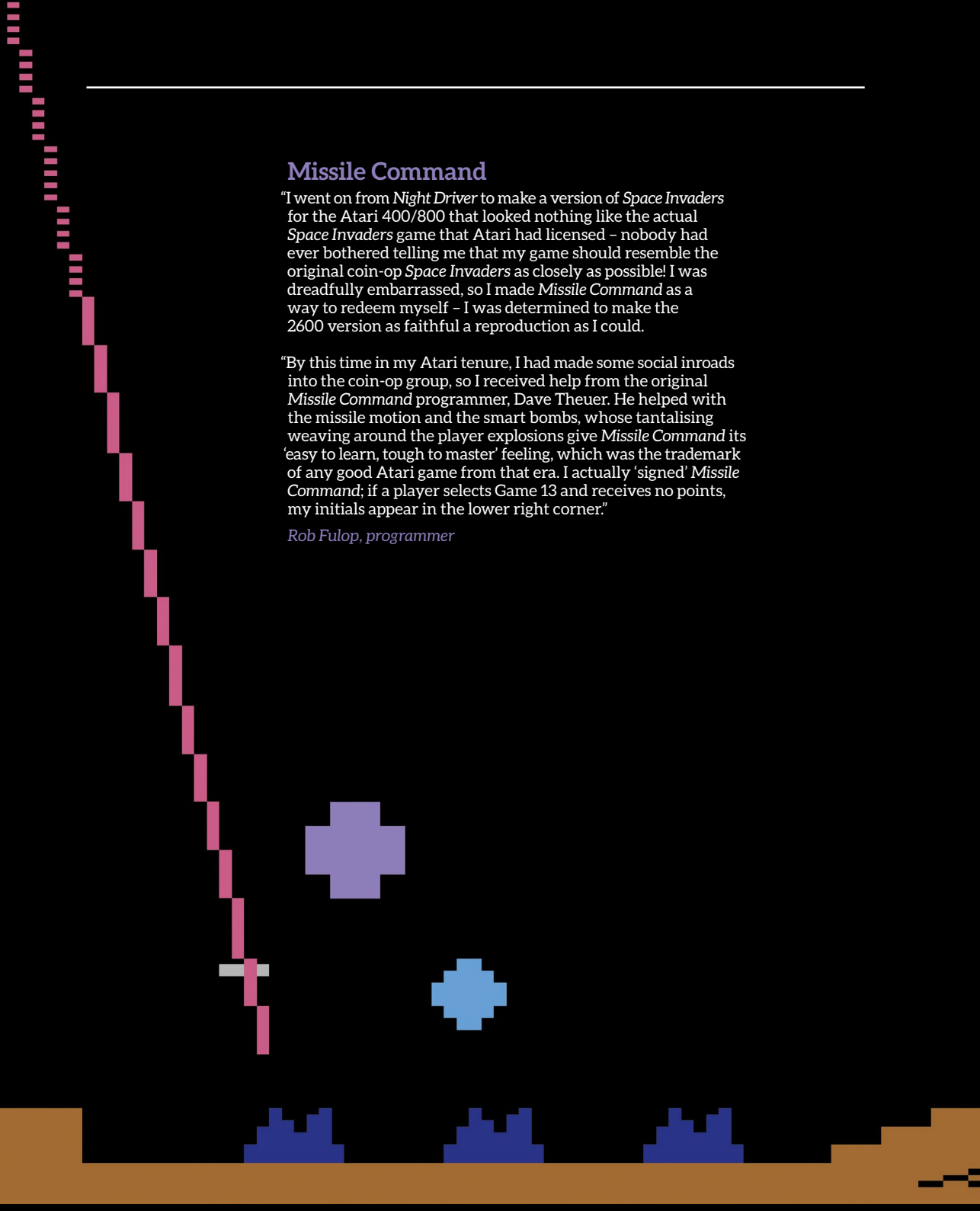
Missile Command

"I went on from *Night Driver* to make a version of *Space Invaders* for the Atari 400/800 that looked nothing like the actual *Space Invaders* game that Atari had licensed – nobody had ever bothered telling me that my game should resemble the original coin-op *Space Invaders* as closely as possible! I was dreadfully embarrassed, so I made *Missile Command* as a way to redeem myself – I was determined to make the 2600 version as faithful a reproduction as I could.

"By this time in my Atari tenure, I had made some social inroads into the coin-op group, so I received help from the original *Missile Command* programmer, Dave Theuer. He helped with the missile motion and the smart bombs, whose tantalising weaving around the player explosions give *Missile Command* its 'easy to learn, tough to master' feeling, which was the trademark of any good Atari game from that era. I actually 'signed' *Missile Command*; if a player selects Game 13 and receives no points, my initials appear in the lower right corner."

Rob Fulop, programmer

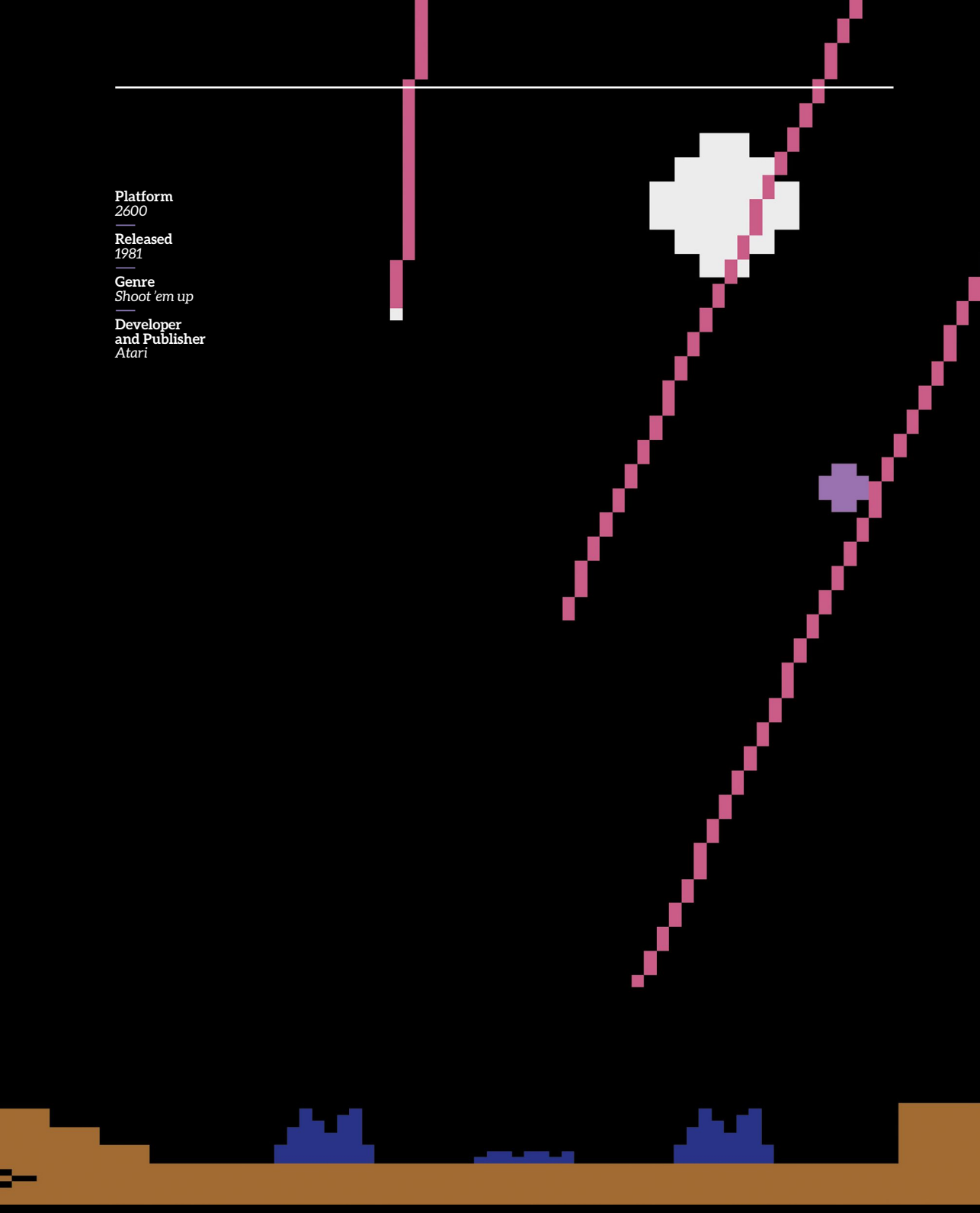


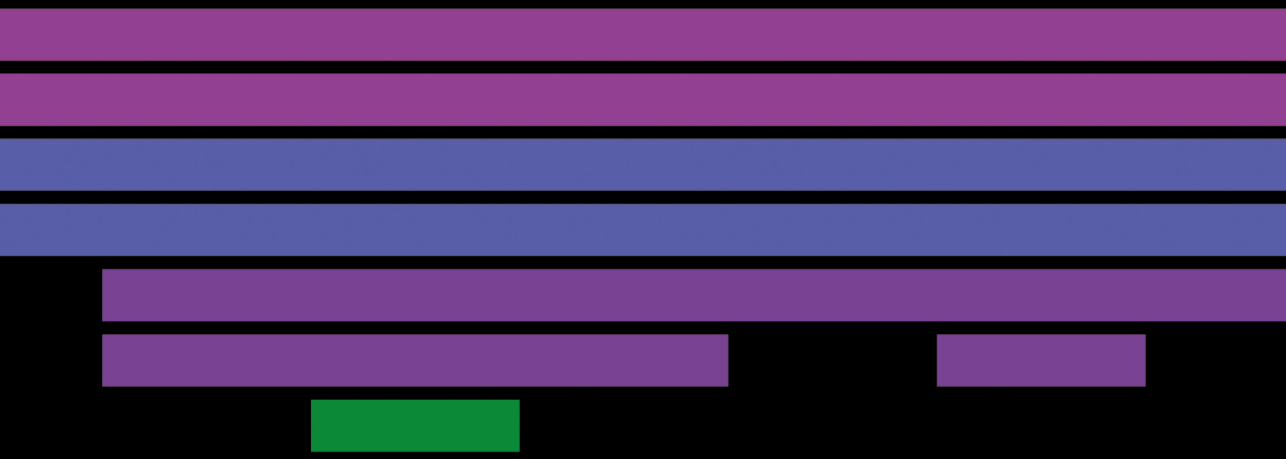
Platform
2600

Released
1981

Genre
Shoot 'em up

Developer and Publisher
Atari





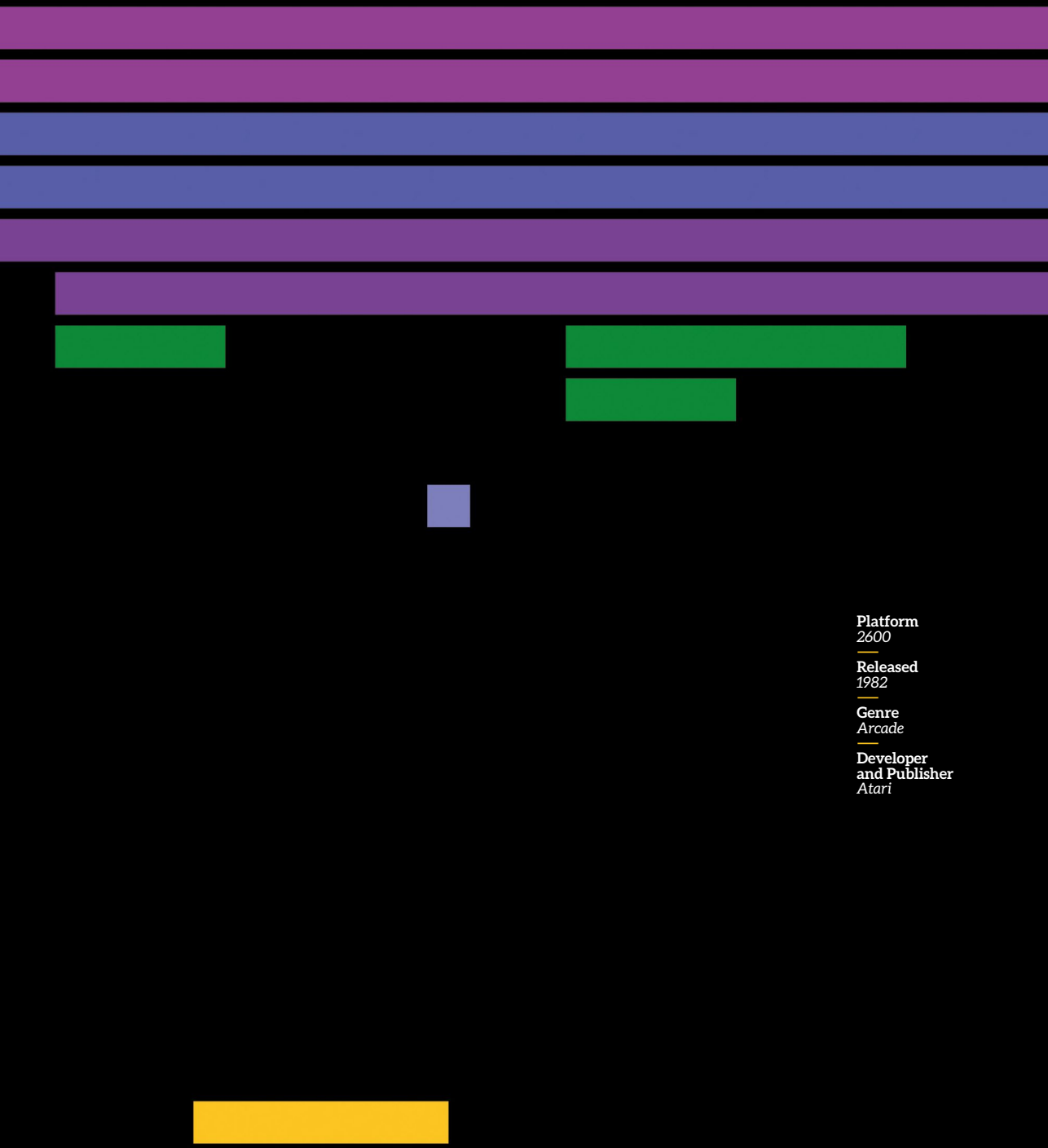
Super Breakout

"Ostensibly *Pong* for people without any friends, *Breakout* became 'Super' in the arcades by virtue of stretching the concept to breaking point through variations on the basic theme. In the Atari 2600 take, you get standard *Breakout* (smack a ball against a wall of bricks), Double (two balls, two bats), Cavity (release balls trapped within the wall), and some children's versions that ease up a bit on the difficulty level.

"The main draw at the time, though, was arguably Progressive. In this mode, rather than the wall staying still – as walls usually do – it will abruptly scroll towards you, ramping up the tension. (This, gaming history fans, was also something of a dry run for what would later become *River Raid*, since the *Super Breakout* kernel prototyping was worked on by Carol Shaw.)

"As if all that wasn't tricky enough, your amusingly square ball will, after the requisite number of hits, instantly jump from sluggish bouncer to hyperspeed, and sometimes even phase through bricks for good measure. Still, sneak the thing through a gap, and it bounces about in the manner of a crazed fly, satisfyingly obliterating bricks while your Atari 2600 beeps its little heart out, like a deranged Kraftwerk robot."

Craig Grannell, games journalist



Platform
2600

Released
1982

Genre
Arcade

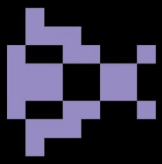
Developer and Publisher
Atari

Yars' Revenge

"The key thing for *Yars' Revenge* was this was my first game, and my goal was not just to make a good game – which is always my goal – but to establish myself as a video game designer, as a recognised person who can be trusted or believed in to create something worthwhile. So I felt a lot of pressure to do that when I was creating *Yars' Revenge*, and, while it didn't go that way initially, it was able to come around eventually to be a game that I think was very worthwhile.

"*Yars' Revenge* will always be one of the most meaningful games for me because I think I did establish myself as a very credible game designer and programmer at Atari. *Yars' Revenge* is also notable for the fact that it created so many firsts: it was the first game with a pause mode, the first full-screen explosion, the first game to have an auxiliary product with it – it was the first to include a full backstory elaborated in a comic book. There were a lot of things about *Yars' Revenge* that were noteworthy."

Howard Scott Warshaw, designer and programmer

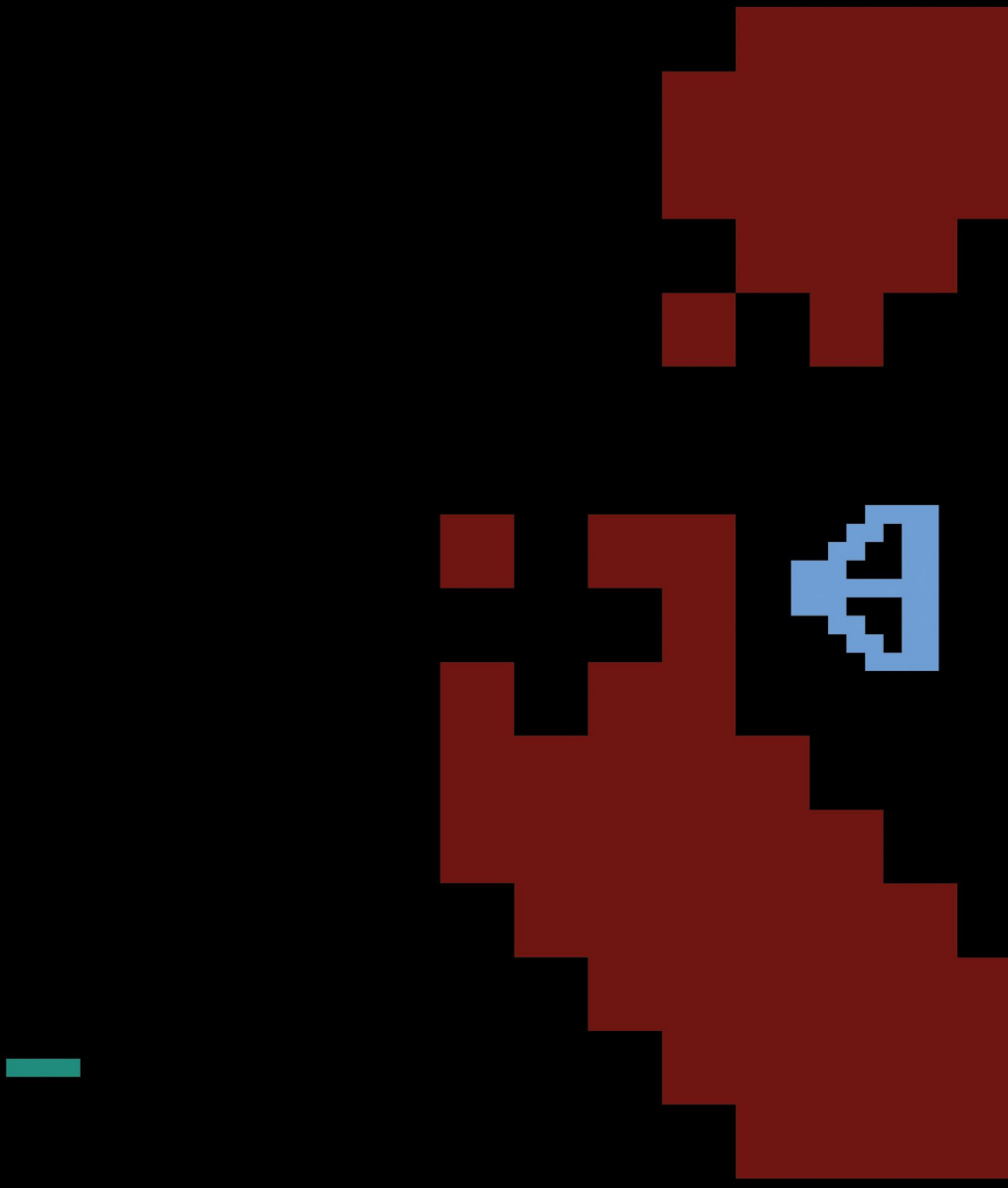


Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Atari

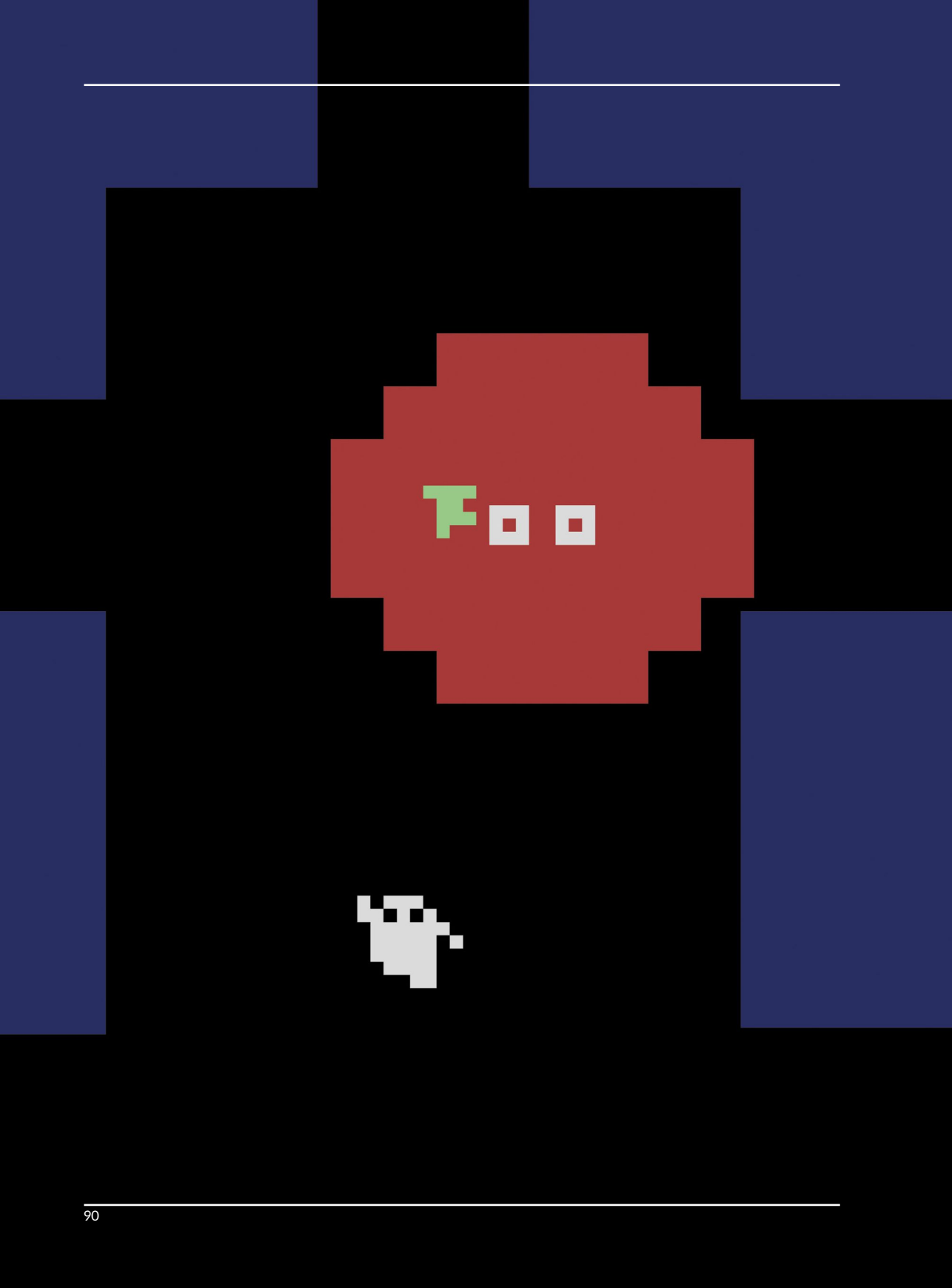


Atari 2600 game cartridges

Prepared exclusively for [redacted]iva@sharesc[redacted]

> **"The Atari 2600 was the first system that really put games out in the world and was widely distributed."**
>
> *Howard Scott Warshaw, designer and programmer*

Prepared exclusively for anuroopsahay@sharecollections.org, Transaction, 2020-04


Foo

Haunted House

Widely credited as being the very first survival horror game – a genre people still love to this day, with the likes of *Resident Evil* and *Dead Space* topping the charts – *Haunted House* is a perfect example of how innovative the Atari 2600 was in its early years. The game sees you trying to navigate the haunted mansion of the late Zachary Graves to recover three pieces of an urn. The mansion is pitch black inside, and all you can see is the whites of your eyes.

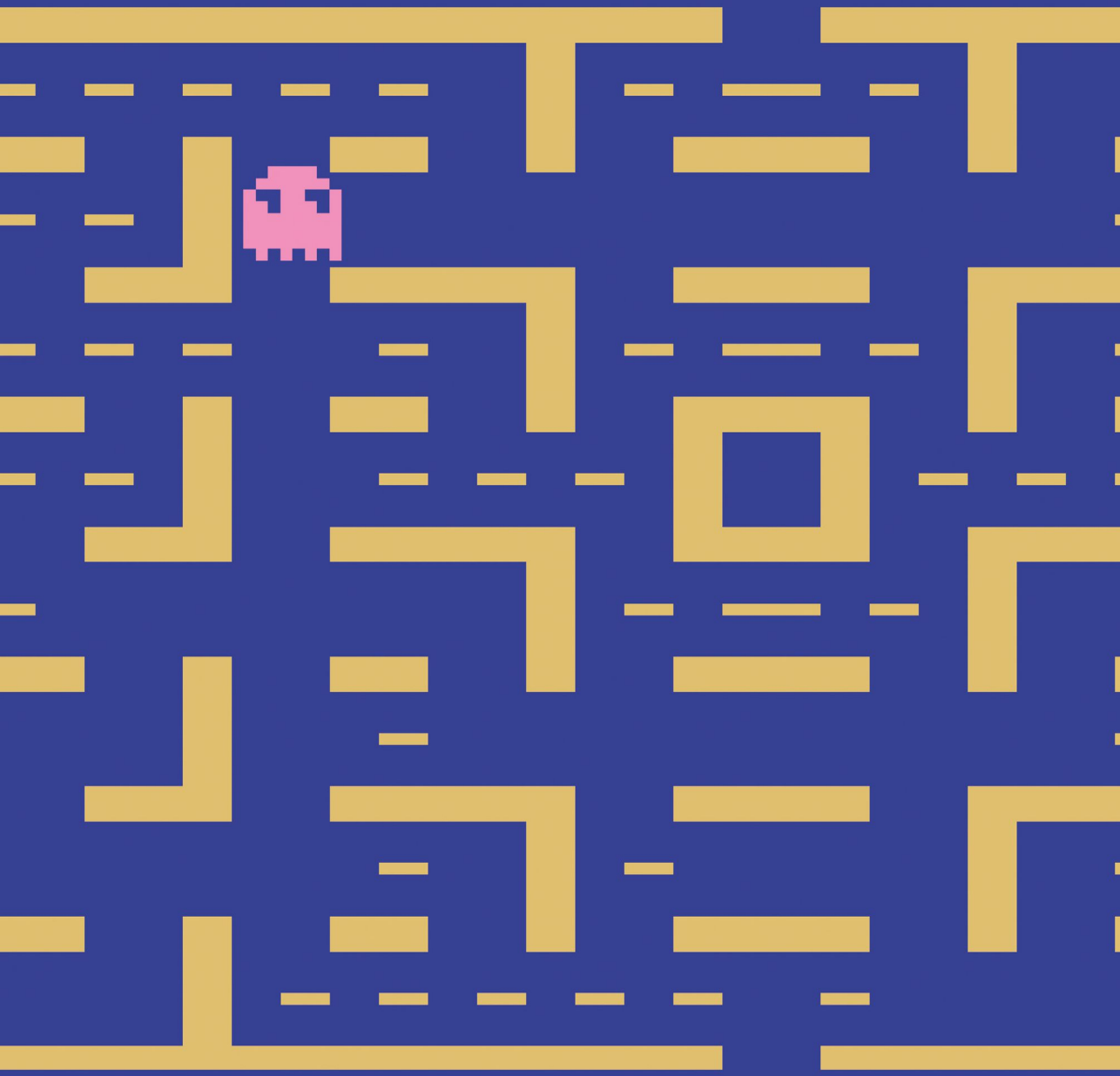
Thankfully, you took a box of matches to help light the room around you, but your vision is still very limited. It also turns out that the spooks that lurk there don't much like the light and use a ghostly wind to blow out your flame whenever they enter the room. The house is comprised of three floors and a basement, and many of these rooms contain useful objects, such as keys to open doors and a cross to ward off evil spirits. With nine difficulty levels, each of which makes the house more perilous, *Haunted House* will challenge even the most accomplished player. Are you afraid of the dark?

Platform
2600

Released
1982

Genre
Adventure

Developer and Publisher
Atari



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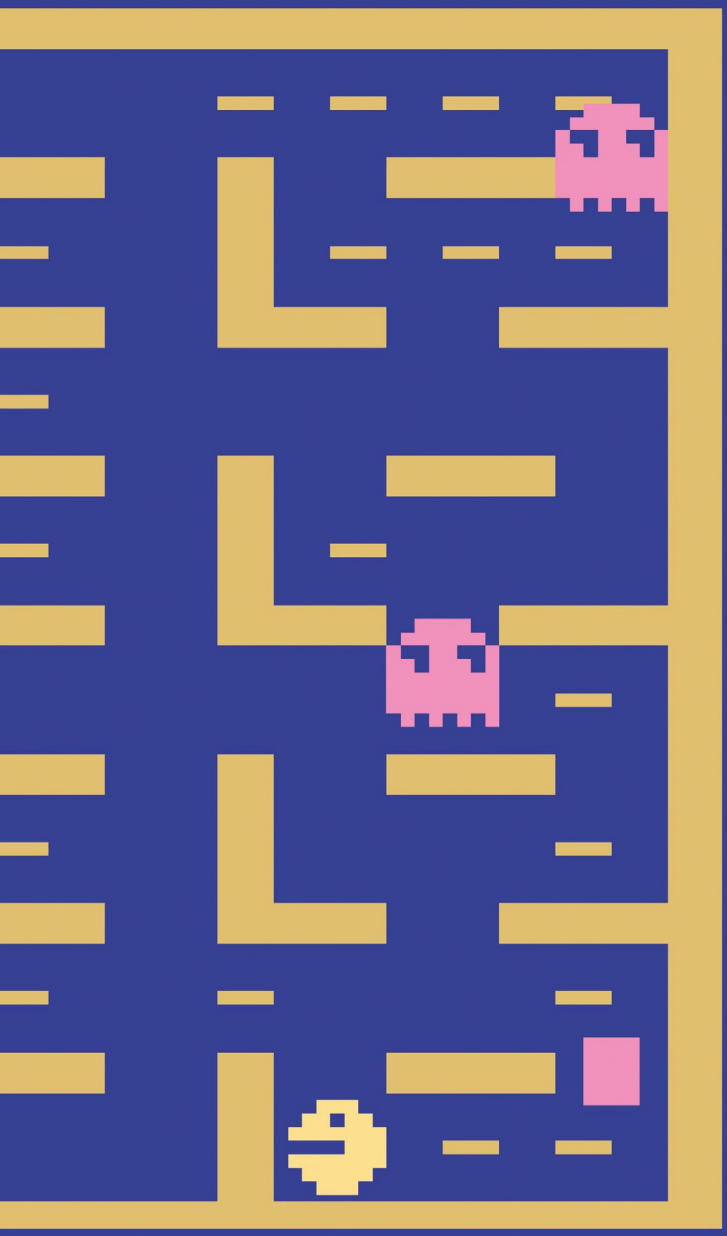

Pac-Man

"So, by today's standards, many could see the Atari 2600 port of *Pac-Man* as 'less than favourable'. But let's take a look at the viewpoint from the '80s. There are several positives to consider in its favour. First off, it helped the Atari 2600 get into the hands of more retailers. They were enticed by the idea of making *Pac-Man* a selling point to a number of consumers. And, even though the dot-muncher was more of a dash-muncher, that still led to some proper convincing. Secondly, the model of *Pac-Man*, as flickery as it might have got, wasn't too shabby for its time. The game was playable to a great extent, and did keep the general rules of play, allowing fans to chow down on ghosts and build up a high score. And it also served as a model for bigger *Pac-Man* games to come in the years ahead, including *Ms. Pac-Man* and *Jr. Pac-Man*. But, most importantly, the home version of *Pac-Man* built upon its legacy. More people were attracted to the arcade game as a result, and, even with the demise of the 2600 a couple of years later, the arcade scene hustled and bustled with high-score champions.

"So while *Pac-Man* wasn't exactly the home port that set an example at the time, by '80s standards, it did a lot more than players give it credit for. It did provide the gameplay that most people expected it to, and its addition to the overall legacy – which also included everything from a Saturday morning cartoon to cereal – can't be denied."

Robert Workman, games journalist

Platform
2600

Released
1982

Genre
Arcade

Developer and Publisher
Atari

Originally by
Namco

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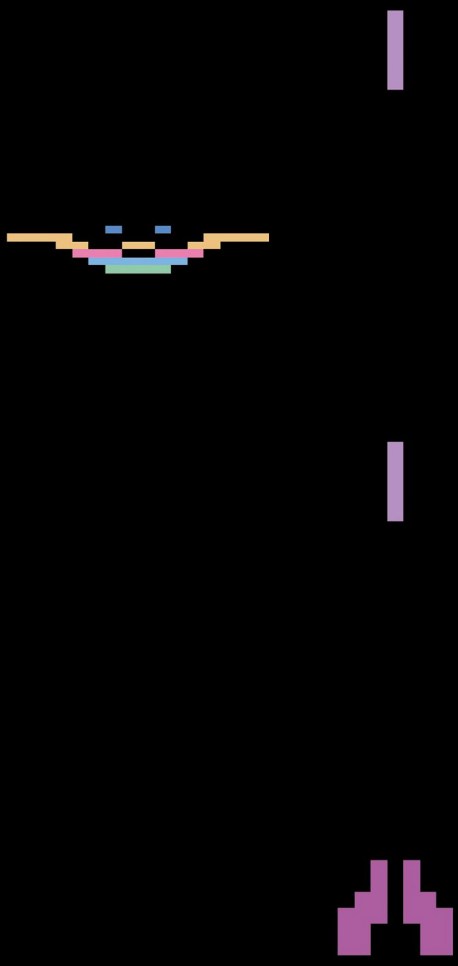

Demon Attack

"*Demon Attack* was our first game for Imagic, and I was determined to make a game so good that Atari would cry when they saw it. My goal was to model the frantic 'death from above' play mechanic introduced in *Galaxian*, a popular coin-op reminiscent of *Space Invaders*. I also wanted to showcase some graphic and motion effects I had learned to do while making *Missile Command*.

"The game featured 84 waves of different invaders – beating all the waves resulted in the game shutting itself off. I never thought anybody would finish all 84 waves. The first call we received that somebody had finished *Demon Attack* came maybe three days after we released it. Oops! So I took out the 'shut off' feature and we had to release another version of the game. Thus, there are two different versions on the market – if you have one that shuts off after 84 waves, it signifies it's the original version. Since I was credited as the author, I felt no reason to 'sign' the game in the form of an Easter Egg."

Rob Fulop, designer and programmer

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Imagic

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

An interview with Carol Shaw

The word 'pioneer' is often bandied about in gaming, but it feels appropriate to describe Carol Shaw in this way. In 1978, while at Atari, she created one of the earliest known video games that was designed and programmed by a woman – although it wouldn't receive a public release for nearly two decades. Then, just a few years later, she ushered in the era of the vertically scrolling blaster, with the seminal River Raid*, created during her stint at Activision. We spoke with Carol to find out more about her trailblazing career, from her earliest interest in video games and computers to the moment she decided to leave the industry behind.*

How did you first get into computers?
I did well in maths in junior high, entering contests and winning awards. We had some computers, into which we typed BASIC programs, and we also used them to play games like *Star Trek*. When I went off to college at UC Berkeley, I took a computer course, programming in FORTRAN with punch cards. Later, we programmed in C, typing on terminals, and I also got to work on an Intel 4004. There we had to hand-assemble the program, and type in the machine code by hand. I always enjoyed working with computers because it seemed like challenging work – and they were interesting problem-solving tools.

What path took you to Atari?
UC Berkeley had an engineering cooperative work-study programme. We'd spend six months working in industry, full-time, and then go back to school for six months. So I worked on diagnostic programmes at Amdahl and got experience in assembly language at ESL. I think that's how I got the job at Atari – not only did I have a degree, but I also had industry experience with assembly language programming.

As for how that role came about in the first place, Atari must have been advertising at UC Berkeley. When I was finishing my masters, I interviewed for several jobs, and Atari was one of those that gave me an offer. And it was also the most fun: wow – I get paid to play and create games! By then, I had my own games system at home – a Radio Shack that played titles similar to *Pong* on my black-and-white TV set. I'd not at that point programmed anything similar of my own, but I had the skills and was interested in games.

You mostly worked on the Atari 2600. What are your memories of that system?
It was very flexible. The Atari 2600 was originally designed to play *Tank* and *Pong*, and that was about it. The people who created it didn't realise you'd be able to do all these other things with it, but the machine was versatile, and you could do a lot with the software. It let you be very creative.

But it was also very exacting work. You had to generate each line on the TV screen in the software and define what was going to happen at each point. And there were all sorts of things to bear in mind if you wanted to store graphics in the register ahead of time. There was lots of counting things out – you didn't have a bitmap of the whole frame laid out for you!

Why were your early games Atari 2600 versions of board games?
My first game for Atari was actually *Polo* – a tie-in for Ralph Lauren. [See page 199 for the full story.] But video game board games just seemed like interesting projects. I particularly enjoyed working on the computer opponent, trying to find out things like whether the first player really could always win at *3-D Tic-Tac-Toe*.

These games actually played pretty well, too. I mean, I'm sure a really good checkers player could beat my *Video Checkers* game, even back then. But, for anybody who wasn't so experienced... It could clobber me, for example! The game did get pretty slow at the higher levels, though, when it was looking more moves ahead.

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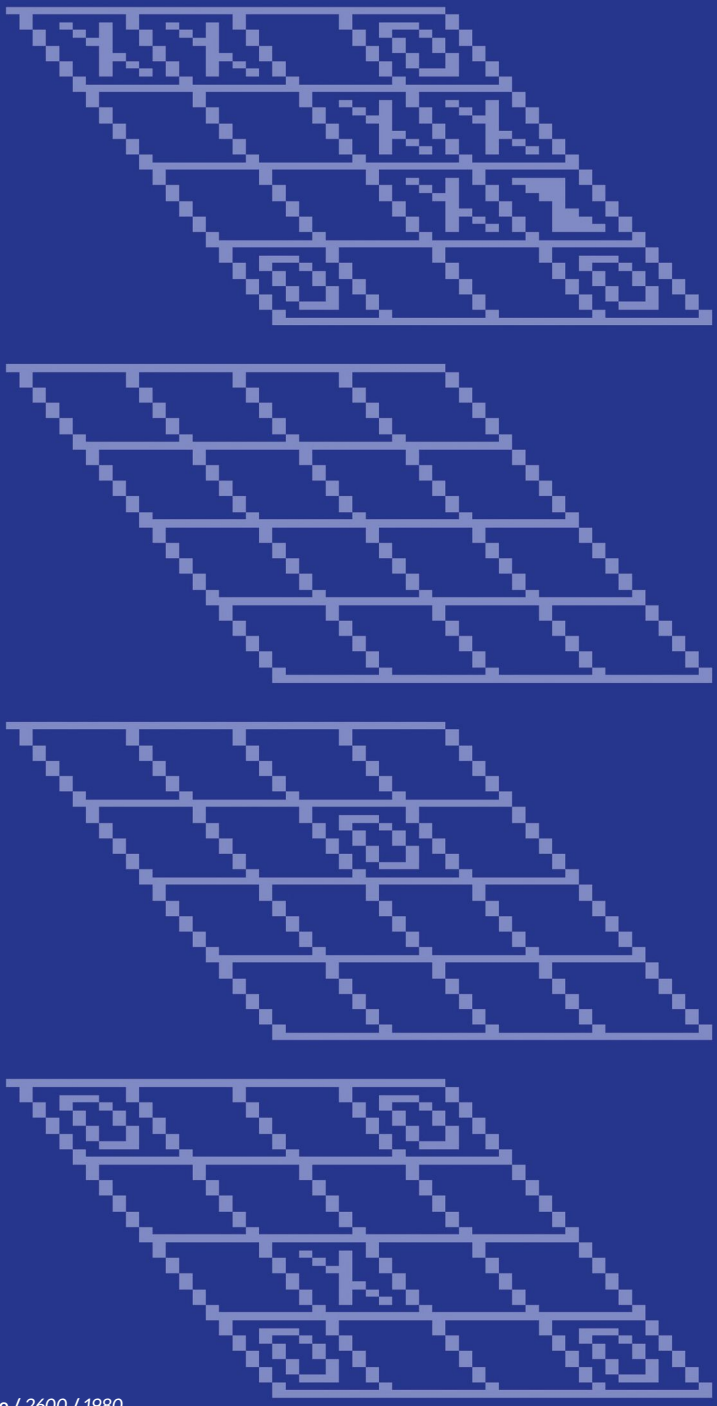

3-D Tic-Tac-Toe / *2600* / *1980*

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How did you approach the graphics of these games?
Well, there's not a lot of action to them, so they were fairly simple. With *Video Checkers*, I went for a little crown motif when you kinged a player, rather than a stack of checkers. *3-D Tic-Tac-Toe* obviously had to have a more 3D layout!

Some of the technical stuff was more interesting. In *Video Checkers*, I was able to do alpha-beta pruning, which is a more complex algorithm that makes the game evaluate moves much more quickly. That was pretty sophisticated for the time – whereas *3-D Tic-Tac-Toe* was only 2kB of ROM for the program, *Video Checkers* was 4kB – a whole 4kB!

Super Breakout *was next – quite a change of pace!*
I did the kernel – the part that generates the display on the TV set. Really, it was a feasibility study to show it could be done, that you could display all the balls and bricks at the same time. You can sort of think of it as the precursor to *River Raid* as well because the bricks can actually scroll down the screen.

Why did you leave Atari?
I did *3-D Tic-Tac-Toe* on the Atari 800 and wanted to do *Video Checkers*. But Atari, at the time, didn't want the Atari 800 to be a game machine and cancelled *Video Checkers*. I wasn't really looking for another job, but the manager I'd worked for at ESL had moved to Tandem Computers, called me up, and asked if I'd go and work with him.

That lasted about 16 months, and then I got a call from Activision. It turned out the people who left Atari to form Activision had promised they wouldn't hire anyone away from Atari. But I'd gone to Tandem, and so they could hire me from there. I didn't really plan it – but that's the way it all worked out! They made me an offer, and that's where I did *River Raid*.

River Raid *was very different from your other work – an original title, arcade blasting, fast. Why was that the game you wanted to do at Activision?*
I thought, if I was going to interview at Activision, I should try other places as well. So I interviewed at Imagic, but they said I'd not done any action games, and so they didn't hire me. From that, I got the idea that maybe I should do an action game!

In the arcades, there was a horizontally scrolling shooter I liked called *Scramble*, and so I decided I'd do a scrolling shooter. But the playfield on the Atari was in four-pixel increments. If you scrolled horizontally, it would have been kind of jerky. But, vertically, you could scroll one line at a time, and it would be very smooth. So I thought, well, I'll scroll the game vertically.

Then I was looking at what I could do with the playfield and decided one side of the screen could be the mirror image of the other, or identical. But, with a mirror image, what was on screen looked like a river with islands in the middle. So that's where I came up with the idea of a river.

Originally, it was going to be a boat going up the river, but Activision didn't like my boat – it was kind of dull. So I decided to use an airplane. That started out as the one from Bob Whitehead's *Sky Jinks*, but David Crane suggested making it a jet, and so I made it a jet. And then, rather than in *Scramble*, where you just move around the screen, I made it so your jet would sit fixed to the bottom, but you could accelerate and decelerate. So that was the innovation!

Another change from* Scramble *is the impressive length of the game. How was the map created?
Basically, it's a random number generator. There's a 16-bit number that defines things like the river's width and the placement of objects like enemies and fuel. Then you do a couple of rotates and an add, and that determines how things are going to change. Even with very little memory, this let me generate quite a variety of landscapes, and I could quite easily change the difficulty level by lowering the number of fuel tanks as you got further along the river.

Refuelling's interesting, too, in you having reworked an idea from* Scramble. *Rather than blowing up tanks to refuel, you fly over them – although they can also be shot for extra points. This turns the entire game into a balancing act.
Well, I actually have a ROM with an earlier version of *River Raid*, where you just shoot the fuel. But it felt just like everything else, and it was actually far less interesting. By making you fly over the fuel, it does result in a much better game – you have to remember not to just shoot everything!

There are quite a few other on-screen elements in* River Raid *– but, very noticeably, no glitching!
On the Atari 2600, you basically have two multi-coloured sprites called players, which, in *River Raid*, means one for the jet and one for all those other objects. In games where iterations of a player overlap, they have to flicker. But in *River Raid*, you have bands on the screen that separate them all – you never have two enemy objects in the same horizontal line. So I ended up with this game that smoothly accelerates and scrolls, with sharp and bright colours – and no flicker.

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Were those visual elements designed on graph paper?
Yes. We didn't have any kind of paint or draw program back then, and so we blocked everything out on graph paper, and hand-assembled it – converted it to hex, typed it into our program, and saw what it looked like on the screen. You could type things in on the development system, make adjustments, and see how that worked out; but it was so tedious that you were discouraged in making too many changes to your graphics.

There's a video on YouTube where someone scripted a playthrough of* River Raid. *At a million points, the game freezes, and the score changes to exclamation marks. Was that programmed in?
That was programmed in! People have done that. You get a million points, and it just stops.

That's quite an abrupt ending when you've spent hours getting a million points!
Well, there wasn't a lot of ROM!

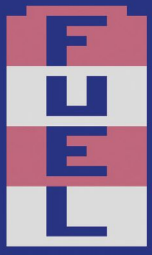
Given the lack of space, was there anything you omitted from* River Raid*?
Not on the Atari 2600. We would have done more with the Atari 800 version if we'd had more time. I did put in tanks on the bridges, and made the river wiggle back and forth a bit. Other than that, it's basically the same game.

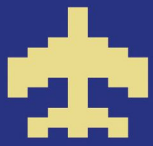
I did have the idea of having the river fork and go in completely different directions as well. It would have just forked out and out and out and out, and not ever come back. That's not topologically possible, but then *River Raid* is a game! In the end, though, I had to do pretty much the same as on the Atari 2600 because of the deadline I was under.

The response to* River Raid *was glowing, and it's now considered a classic of the era. Were you happy with how it turned out?
Mm-hmm. Although what happened with it was I announced I was done, but the senior game designers at Activision said they wanted a few more changes. I can't remember specifically what was changed, but I do have an earlier version of the ROM that has things like the river banks being in all different colours.

After creating such a hit, why did you leave gaming?
I did *Happy Trails* on the Intellivision and also *River Raid* on the Atari 800 and the Atari 5200. I had started to work on another game, but then came the collapse of the video game industry in '83. Activision went public and had a money-losing quarter. At that point, things just weren't so fun anymore!

> *"Originally, it was going to be a boat going up the river, but Activision didn't like my boat – it was kind of dull. So I decided to use an airplane."*





River Raid / *2600* / *1982*

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

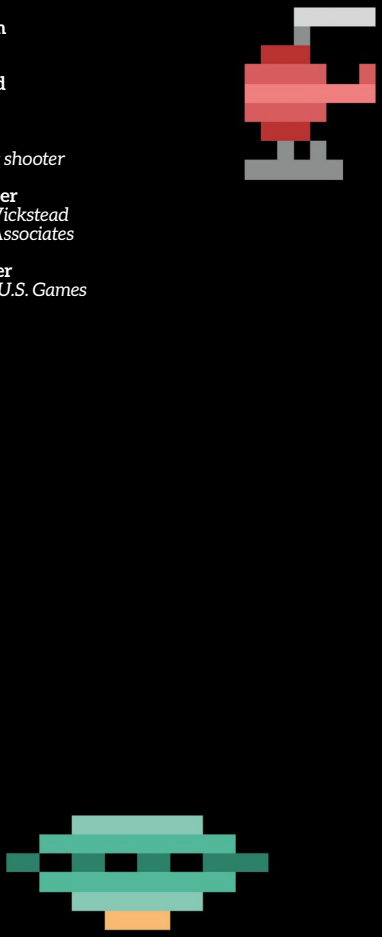
Platform
2600

Released
1982

Genre
Scrolling shooter

Developer
James Wickstead Design Associates

Publisher
Vidtec / U.S. Games



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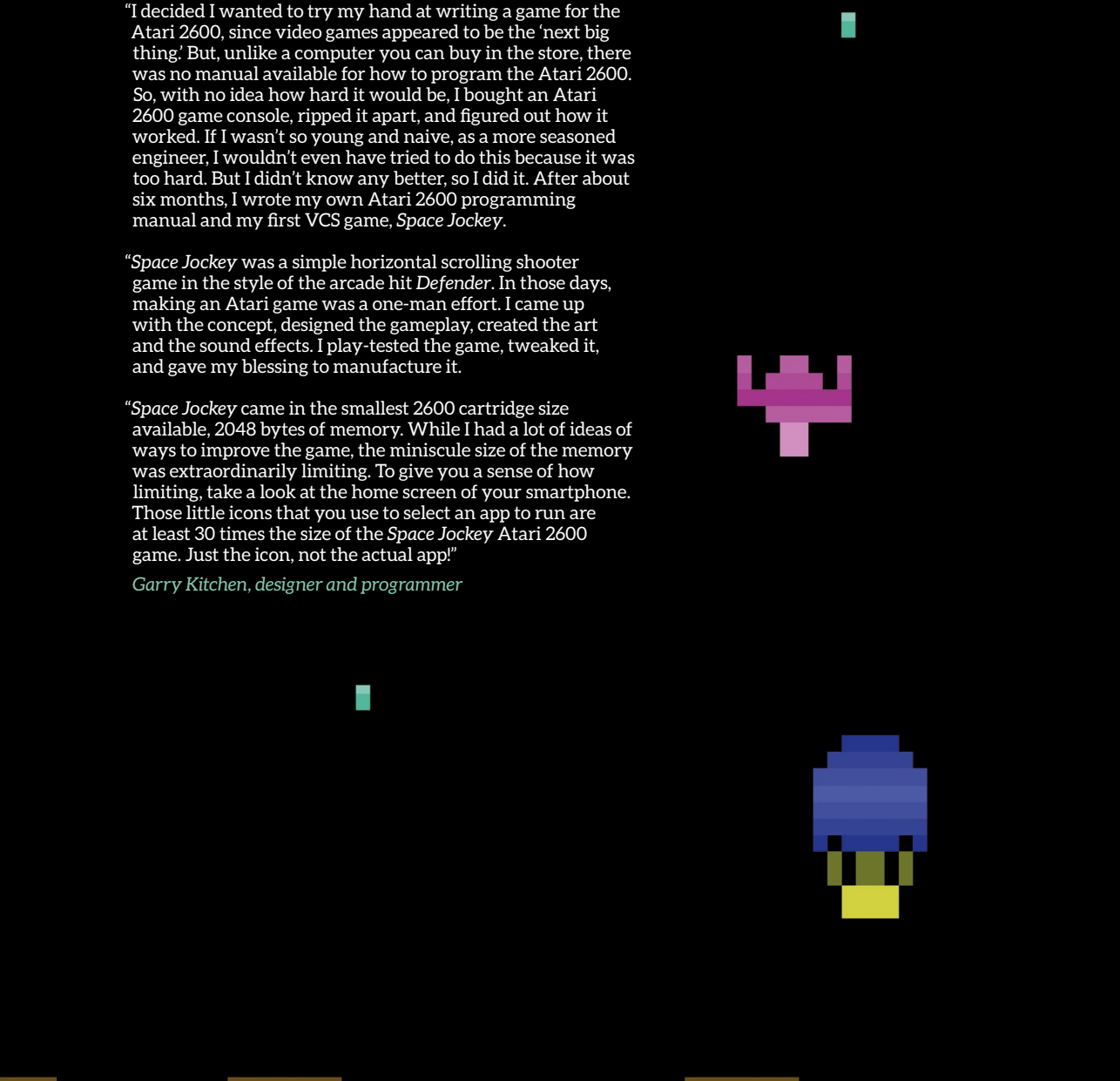
Space Jockey

"I decided I wanted to try my hand at writing a game for the Atari 2600, since video games appeared to be the 'next big thing.' But, unlike a computer you can buy in the store, there was no manual available for how to program the Atari 2600. So, with no idea how hard it would be, I bought an Atari 2600 game console, ripped it apart, and figured out how it worked. If I wasn't so young and naive, as a more seasoned engineer, I wouldn't even have tried to do this because it was too hard. But I didn't know any better, so I did it. After about six months, I wrote my own Atari 2600 programming manual and my first VCS game, *Space Jockey*.

"*Space Jockey* was a simple horizontal scrolling shooter game in the style of the arcade hit *Defender*. In those days, making an Atari game was a one-man effort. I came up with the concept, designed the gameplay, created the art and the sound effects. I play-tested the game, tweaked it, and gave my blessing to manufacture it.

"*Space Jockey* came in the smallest 2600 cartridge size available, 2048 bytes of memory. While I had a lot of ideas of ways to improve the game, the miniscule size of the memory was extraordinarily limiting. To give you a sense of how limiting, take a look at the home screen of your smartphone. Those little icons that you use to select an app to run are at least 30 times the size of the *Space Jockey* Atari 2600 game. Just the icon, not the actual app!"

Garry Kitchen, designer and programmer



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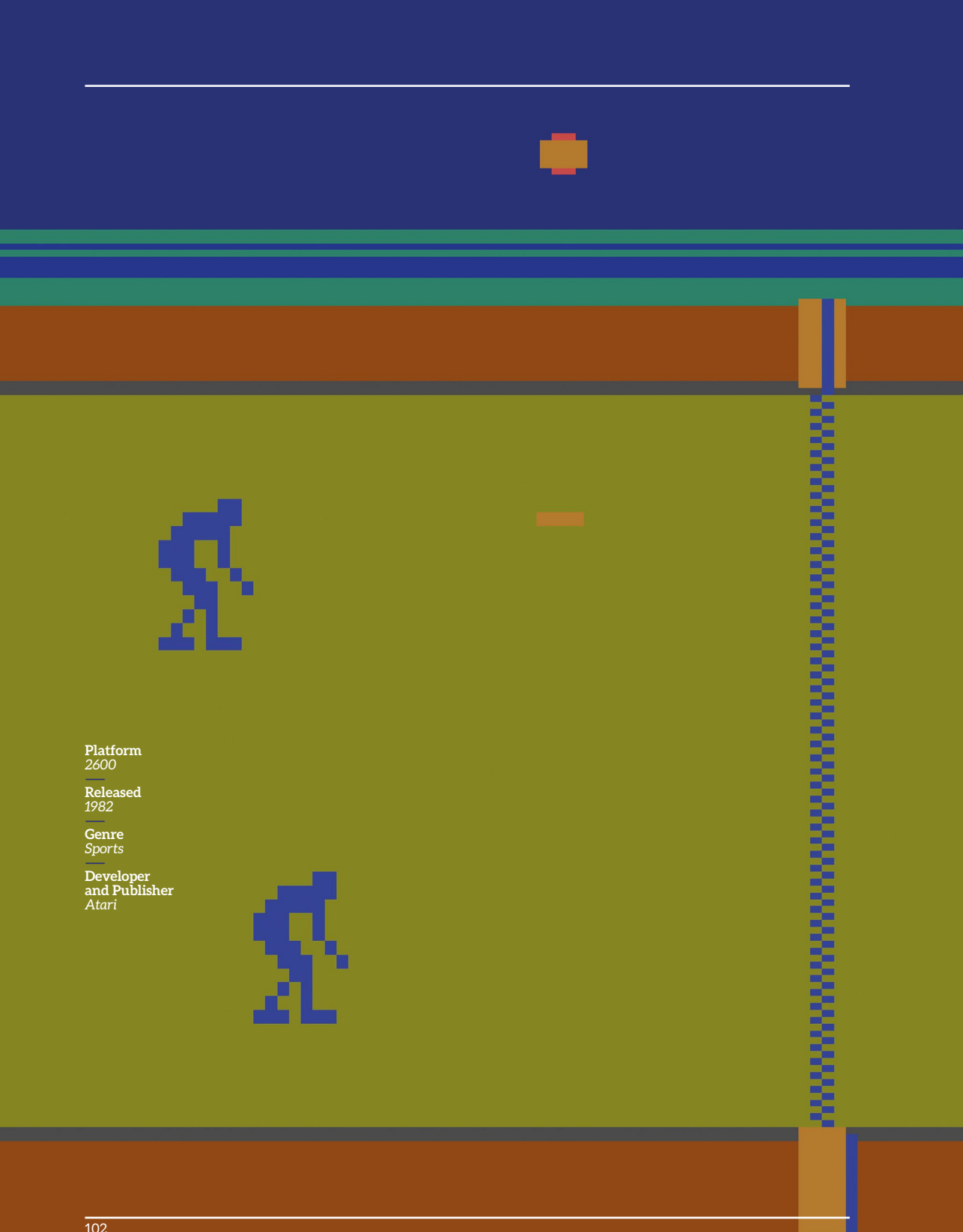

Platform
2600

Released
1982

Genre
Sports

Developer and Publisher
Atari

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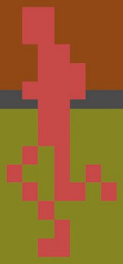
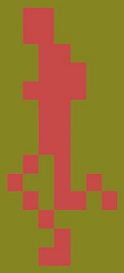


RealSports Volleyball

The very first title to be released in the popular RealSports series – which was created purely as a response to Mattel's aggressive advertising campaign for the Intellivision that mocked Atari's sports titles – this was actually a resurrection of a previously abandoned project by Bob Polaro. A recreation of the more visually pleasing beach-based variation of volleyball, it features two-on-two action for both one and two players.

To get around some of the limitations of the Atari 2600, you actually move both your players at once, which seems a bit strange at first, but you soon get used to it. Although the players are nothing more than stick-like figures, the animation of them is particularly good. There are some other nice graphical effects here, too, including the crashing waves in the background, a setting sun and even a shark that appears from time to time! The audio also deserves some special credit as you can actually hear those waves coming into shore behind you! The one-player game here is pretty challenging and plenty of fun, but, as always with sports-orientated games, *RealSports Volleyball* very much comes into its own with the addition of a second player.



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Dragonfire

"*Dragonfire* was based on the child's game '*Jacks*' – the idea was to gather spread-out objects in the quickest and most efficient manner. Instead of a bouncing ball being used as a timer, I used a dragon shooting fireballs to provide tension. I also admired the flowing controller motions of a good *Missile Command* player; I wanted an intuitive gestalt for a game mechanic. One of the big advantages of the 2600 was that we were able to check the controllers 60 times a second – it made for a very responsive controller, which was essential for *Dragonfire*. It was also one of my more technical cartridges, using a moving four-character block (the dragon). That was a big deal on the 2600, and I got a mention in *IEEE Spectrum* for that kernel!

"The castle scene was not part of the original design. At Imagic, the 2600 designers shared a lab and played each other's games extensively. We all thought the game needed a bit more, but ROM space was tight, so I came up with the castle scene. The best part of the castle was its cost in ROM – a low resolution castle/bridge, and colour changes to indicate the level, took up next to no program space."

Bob Smith, programmer

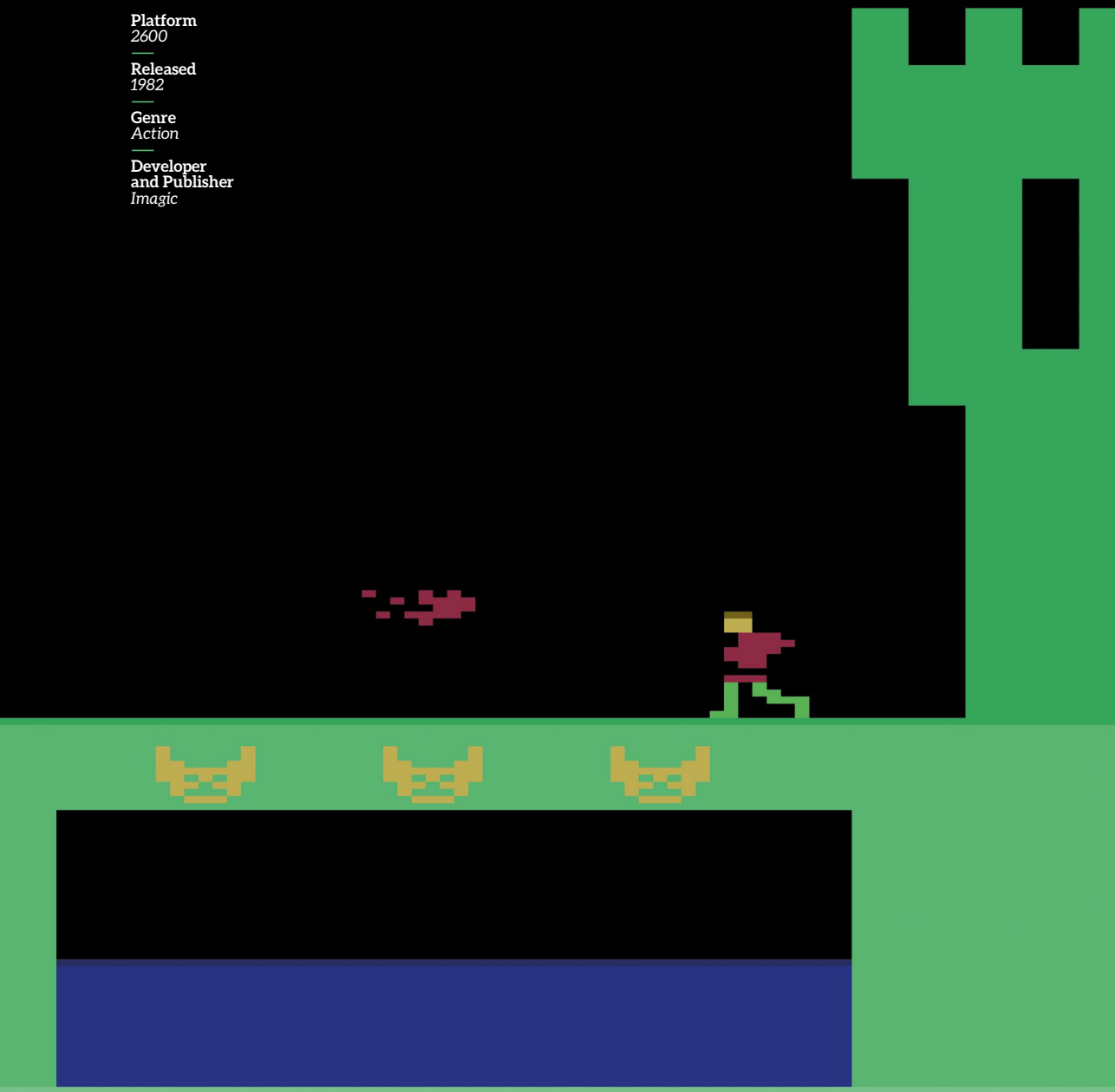
Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1982

Genre
Action

Developer and Publisher
Imagic



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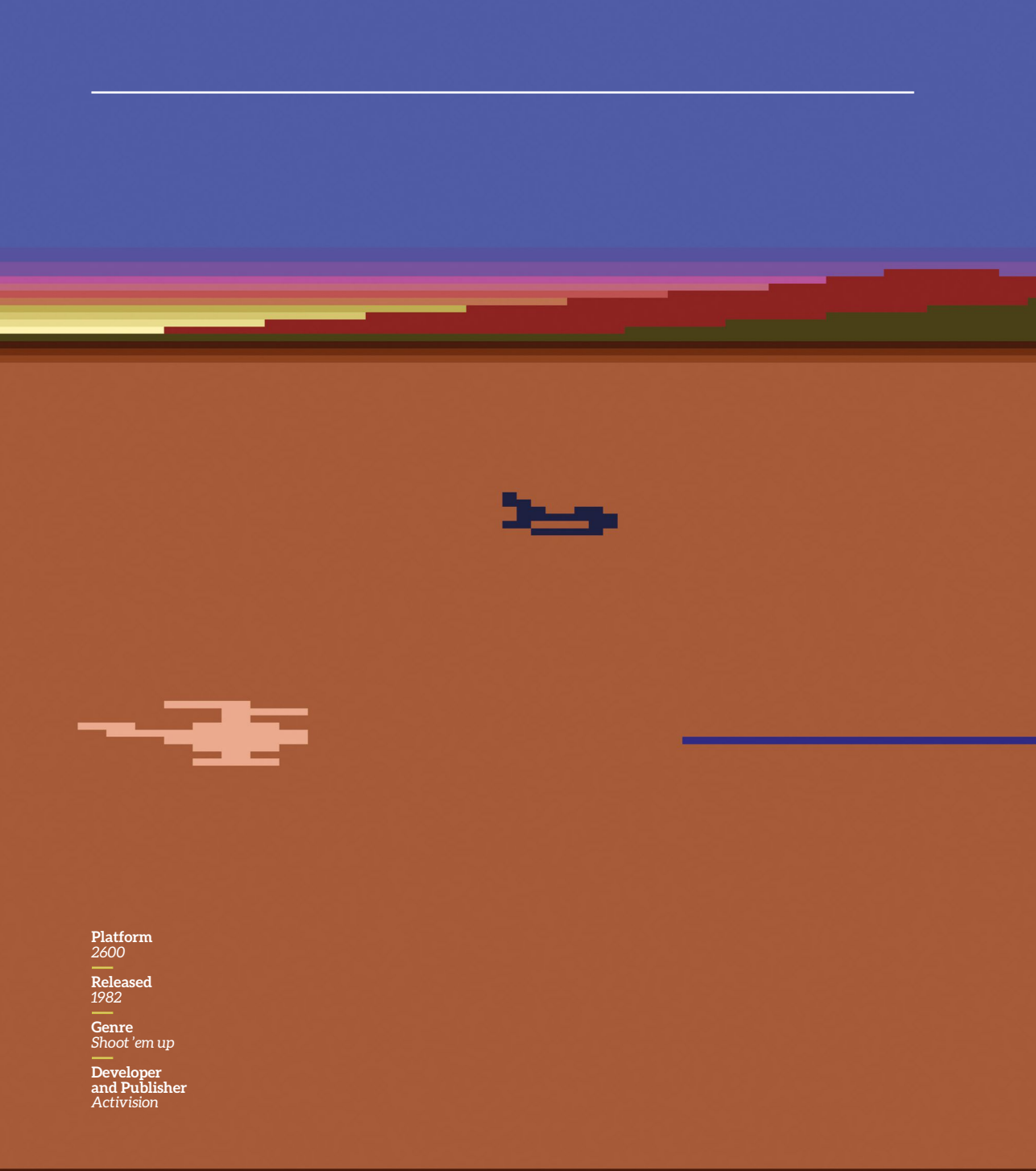

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Activision

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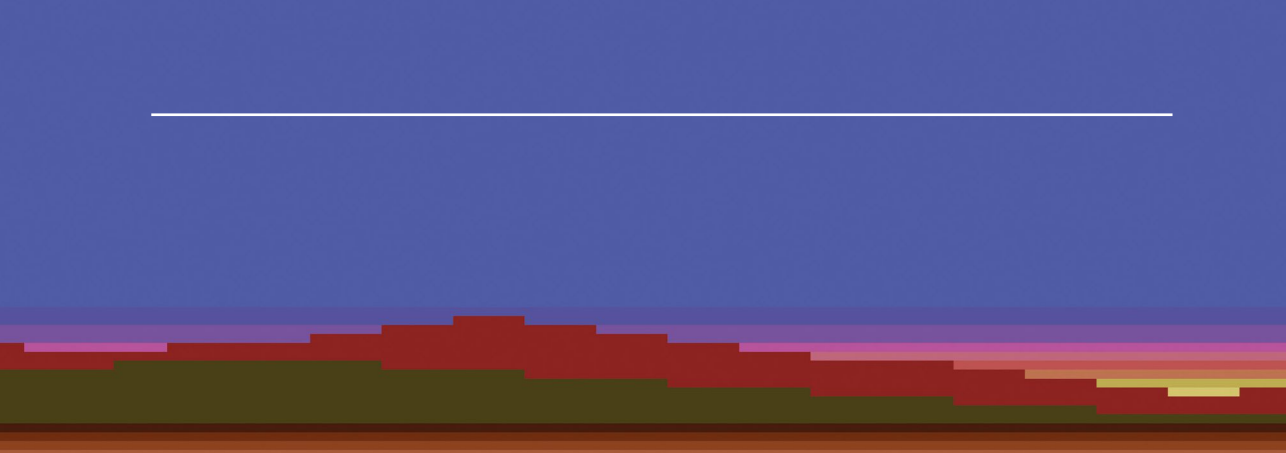

Chopper Command

"One of the better horizontal scrolling shoot 'em ups on the system, *Chopper Command* is basically Activision's take on *Defender*, and it easily trumps Atari's hamstrung port of the arcade classic. The gameplay is essentially the same, except here you're piloting a helicopter instead of a spaceship, blasting enemy aircraft instead of alien ships, and protecting a convoy of moving supply trucks versus rescuing humans. A desert setting with a glorious sunset backdrop replaces the starry night sky of *Defender*, and a radar screen is similarly present, but moved to the lower third of the screen. With its lack of smart bombs or the need to rescue folks, however, *Chopper Command* feels more like a straight-up shooter, but its simplicity is its strength.

"The game's controls admittedly take a while to get the hang of, as the helicopter has a slight glide to it, but, with time, it becomes second nature and actually feels rather tight. Thankfully, its designer and programmer, Activision co-founder Bob Whitehead (who previously worked at Atari and later founded Accolade), included a rapid-fire function when holding down the shoot button, which makes a world of difference. Still, *Chopper Command* quickly becomes challenging. Back in the day, skilled players who reached 10,000 points could mail a photo of their achievement to Activision for a 'Chopper Commandos' iron-on patch. Sadly, I was never that good."

Sam Kennedy, games journalist

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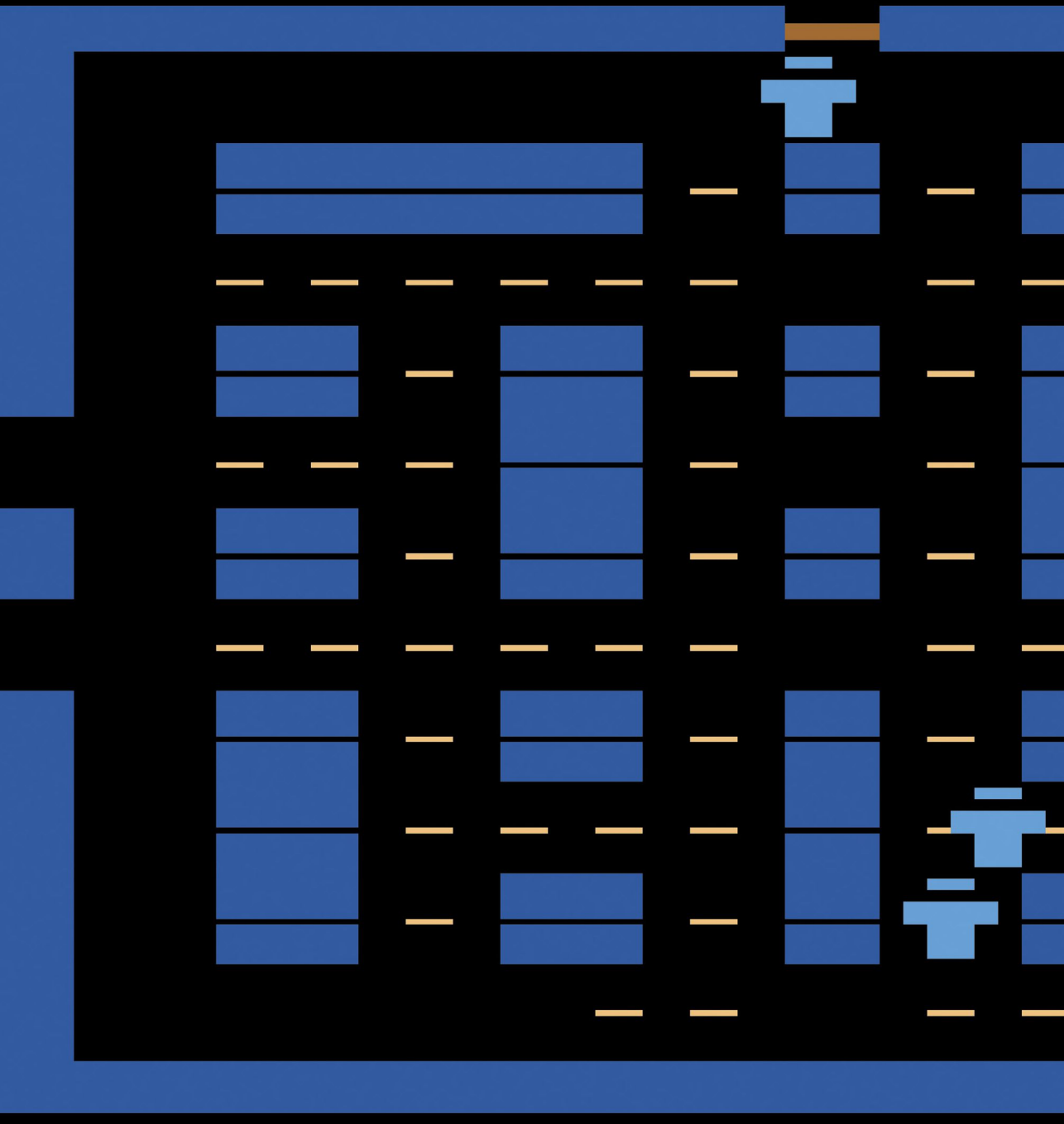

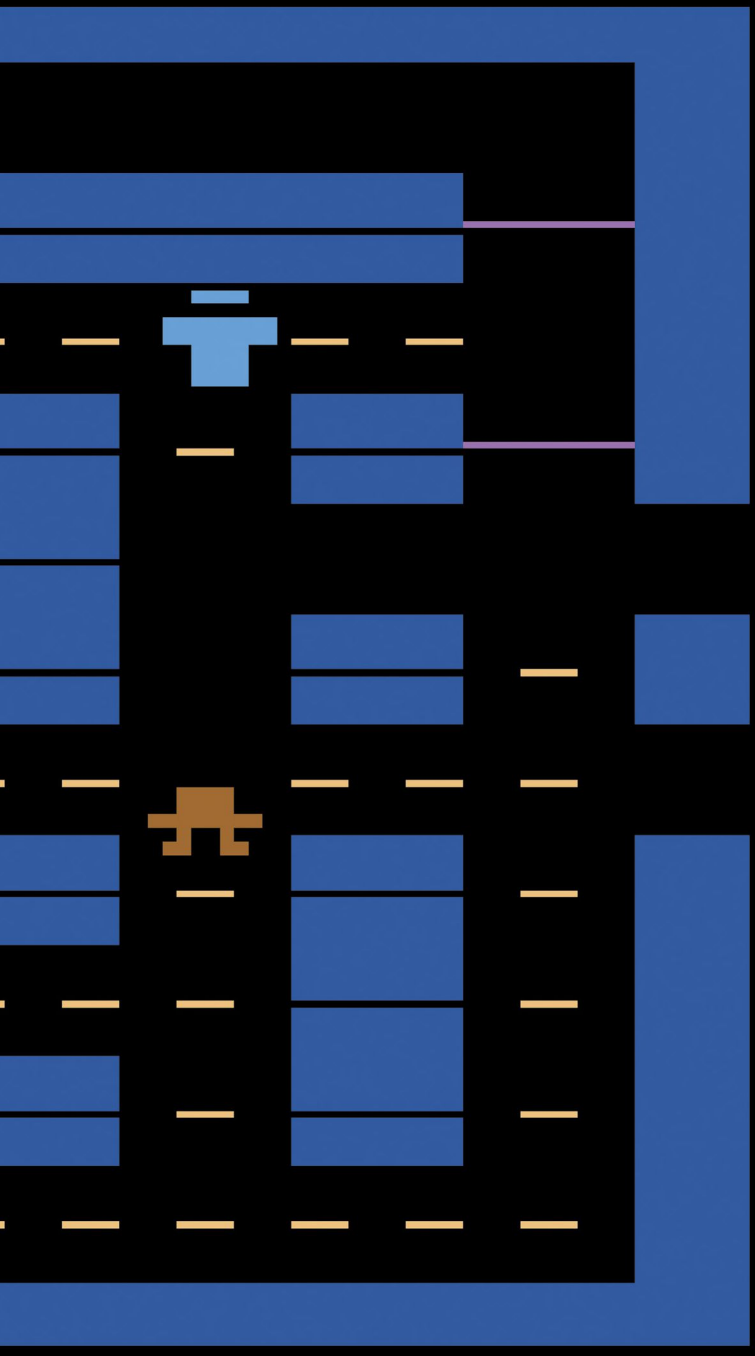

Lock 'n' Chase

The year is 1981, and every man and his dog is trying to come up with their own version of *Pac-Man*. While some tried to rip off the game completely, others such as Data East at least attempted to enhance the tried-and-tested formula with some new gameplay elements.

While *Lock 'n' Chase* seems pretty familiar at first, with its single-screen maze, four pursuing enemies and dots to collect, there are some welcome changes that make it very much feel like its own game. Rather than playing as a good guy, you're actually nothing more than a thief who's trying to rob a series of bank vaults and not get caught by the cops. The primary feature of the game is the doors that can be slammed shut to stop the police in their tracks, and any two can be shut at once. You also need to wait for items to appear in the safety deposit box in the middle of the screen if you're going to maximise your score.

The graphics in this 2600 port have been simplified a great deal, but it still plays a mean game and is certainly more playable than Atari's own *Pac-Man* conversion.

Platform
2600

Released
1982

Genre
Arcade

Developer
Mattel

Publisher
M Network

Originally by
Data East

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Atari

Star Raiders

"Released in 1979 for Atari 8-bit computers, *Star Raiders* was a very impressive 3D space shooter when such games felt like an impossibility – and the Atari 2600 port is surprisingly good. The game shipped with a 12-button Video Touch Pad with overlay so that players had access to all the features found on the 8-bit computer original. Pilots hunted 10-40 Krylon ships during each game, hell-bent on destroying the friendly space station in a nearby quadrant.

"Players tracked the bogeys using a star map, warping from sector to sector to engage in intense dogfights before their prey could escape. If your energy got too low, you had to hightail it back to your space station to heal up – that's assuming your space station hadn't been blown up already. Lowering the shields or turning off the computer to save energy was an option, though the former was often a suicidal move. The whole thing made you feel like you were in the midst of a *Star Trek* or *Star Wars* battle scene. Some of the Krylon ships even looked like TIE Fighters!

"*Star Raiders* on the 2600 was extremely ambitious and extremely enjoyable. The Video Touch Pad was never used for another game on the system, although the idea returned in 1993 when Atari's Jaguar controller featured a similar 12-button keypad, complete with the ability to swap out game-specific overlays."

Greg Sewart, games journalist

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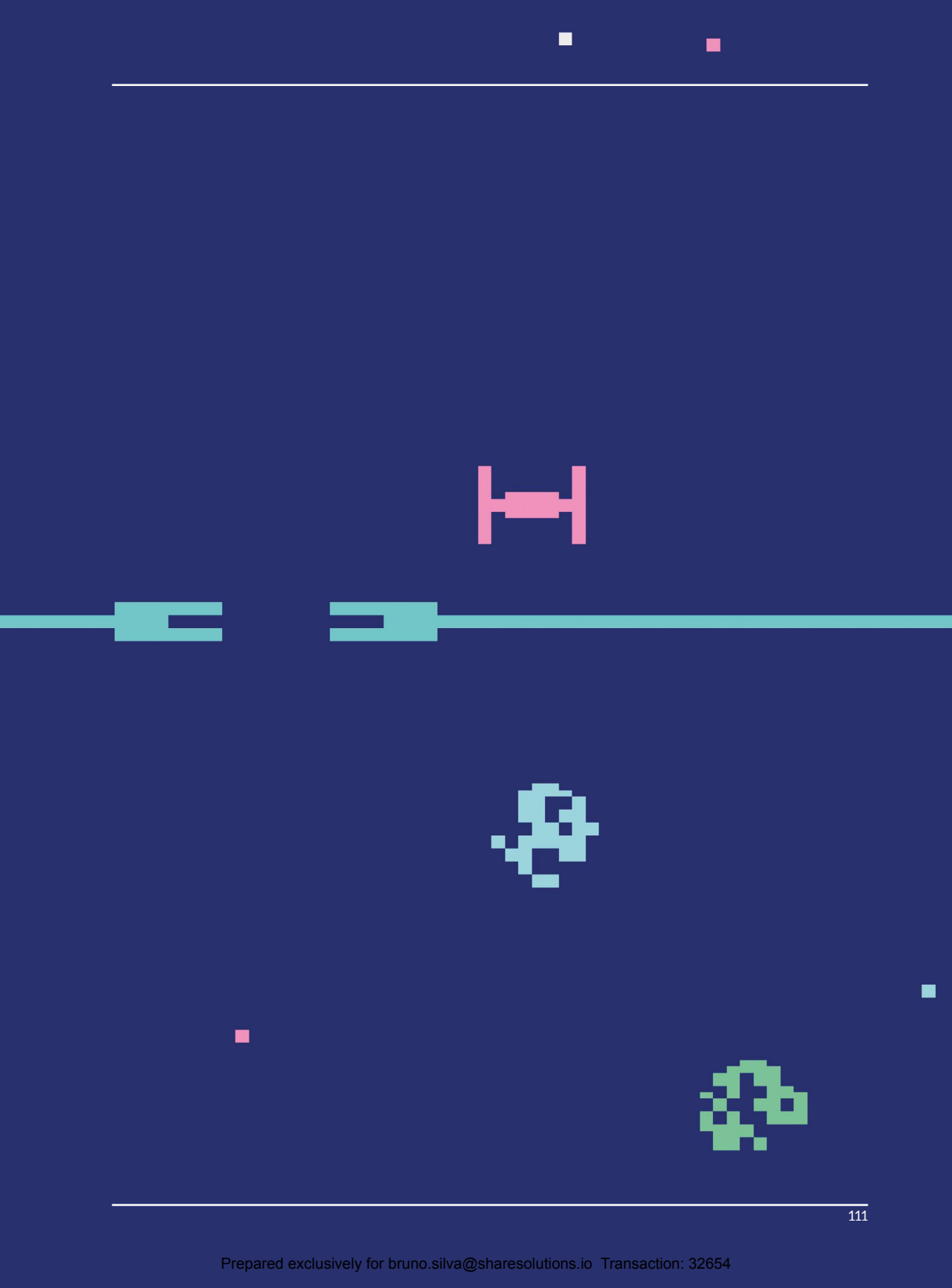

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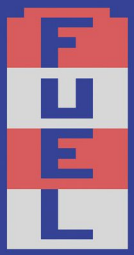
Platform
2600

Released
1982

Genre
Scrolling shooter

Developer and Publisher
Activision



River Raid

"*River Raid* is an Atari 2600 game with innovation bursting from every pixel. It moves at a fair lick, the scrolling is as smooth as silk, and the screen is packed with animated elements. Even the blasting added a layer of strategy over what you'd have expected in the early 1980s, with fuel tanks you could fly over to refuel, or vaporise for extra points (only to risk running out of gas seconds later).

"Easily forgotten, though, is that *River Raid* is one of the earliest vertically scrolling blasters on any platform – and yet it's interesting to know why this design came to be. As Carol Shaw outlines elsewhere in this volume, the Atari 2600 just wasn't cut out for horizontal scrolling – it would judder along in jerky fashion. But vertical scrolling could be implemented line by line. Because of a limitation of the hardware, then, combined with Shaw's approach of working within and getting the most from said limitations, we got an adrenaline-fuelled, action-packed, visually dazzling point on the gaming map. This eventually evolved into every flavour of vertically scrolling blaster we enjoy today. But, that the original *River Raid* itself still proves compelling decades later is testament to Shaw's superb design."

Craig Grannell, games journalist

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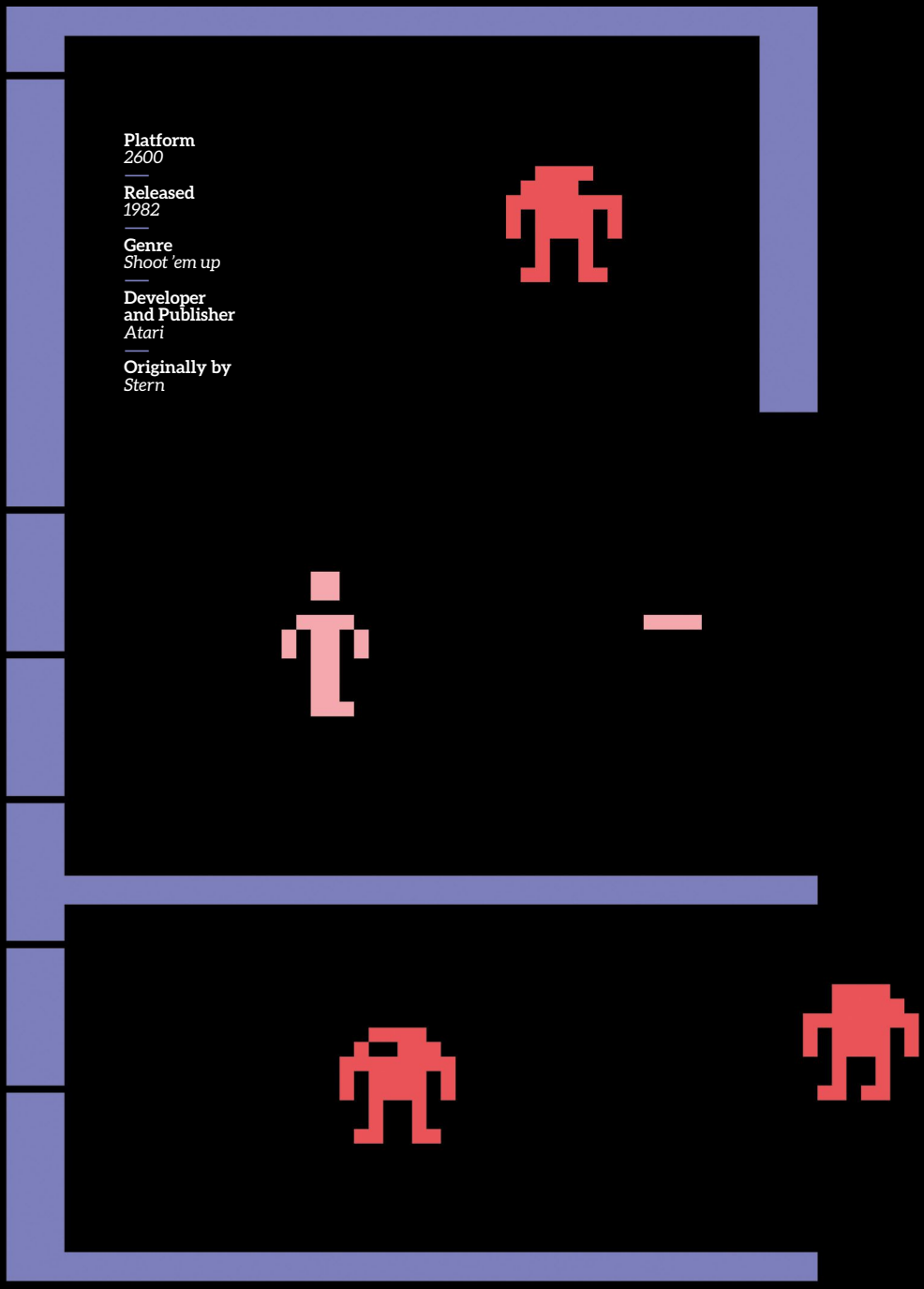


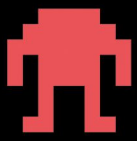
Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Atari

Originally by
Stern



Berzerk

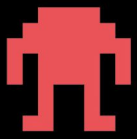
"Arcade conversions to the Atari 2600 can be hit or miss, but, thankfully, *Berzerk* is one of the better ports. This single-player shooter will have you running and gunning at a fast pace for high scores and to escape the menacing Evil Otto.

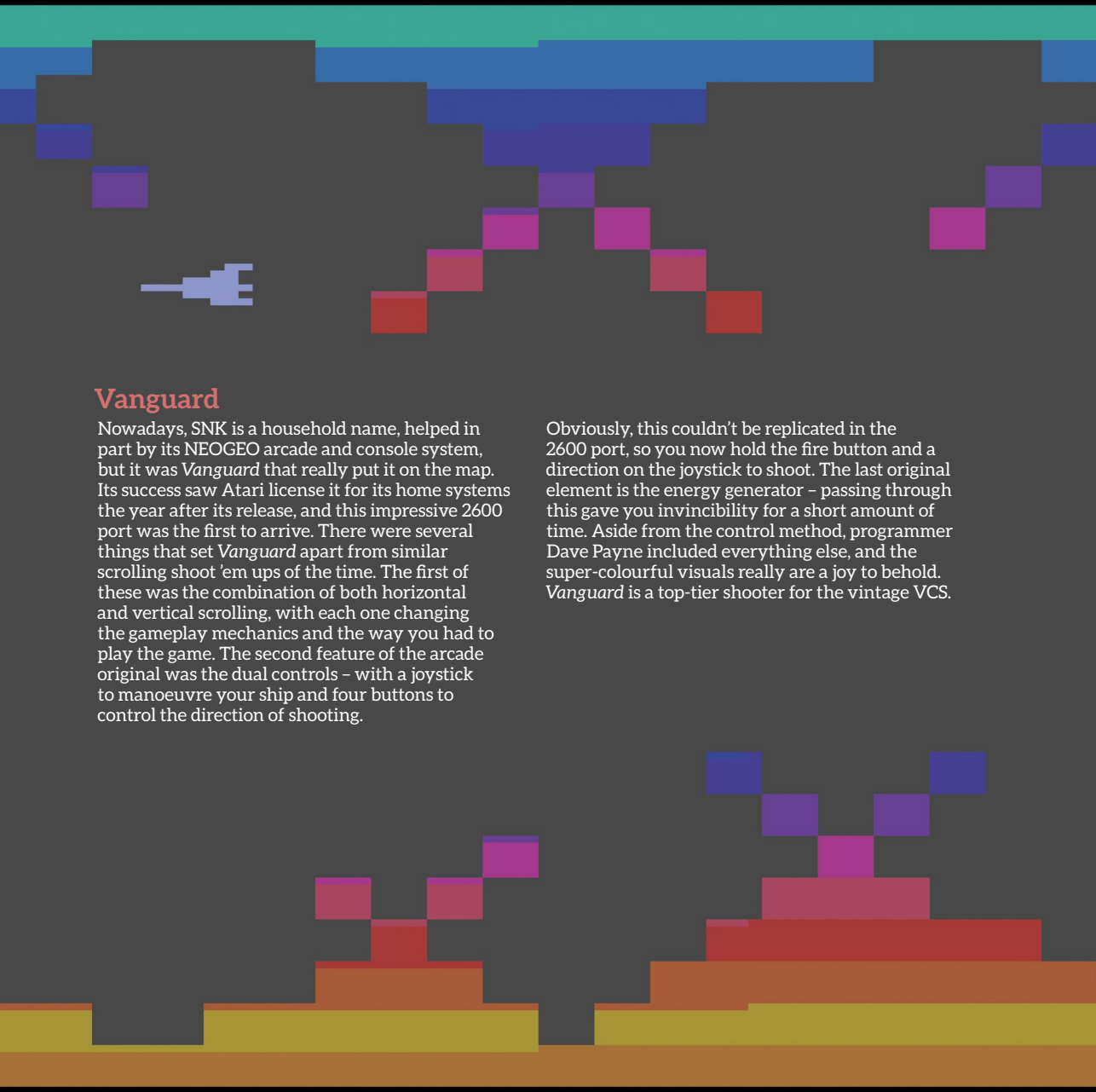
"Surprisingly, there's a pretty deep back story to *Berzerk*. According to the instruction manual, you are the last human survivor on an uninhabitable planet full of androids. This mechanised threat is controlled by an unkillable entity called Evil Otto, who is driven to capture and imprison you on the planet forever.

"You must use your laser gun and fast reflexes to make your way through the hundreds of randomly generated rooms. Destroy the androids before they zap you, but don't stick around too long or else Evil Otto (represented by a smiley face) will appear. Since Evil Otto cannot be killed, and even has the ability to go through walls, your only option is to run.

"*Berzerk* is a fun romp that can prove challenging with its electric walls and the constant threat of Evil Otto. It also plays well whether you use the standard Atari joystick or a SEGA Genesis controller."

David Giltinan, games journalist

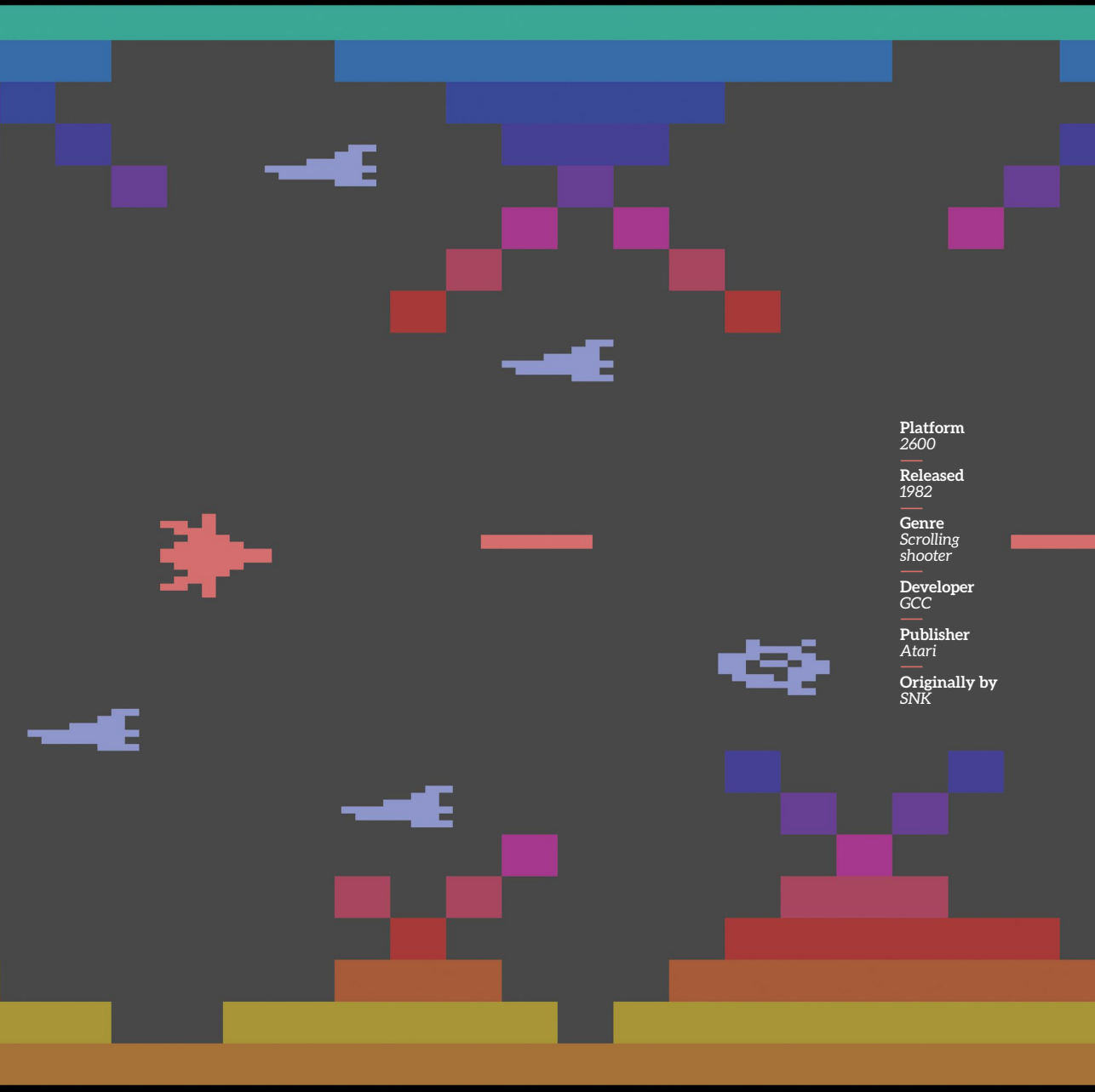




Vanguard

Nowadays, SNK is a household name, helped in part by its NEOGEO arcade and console system, but it was *Vanguard* that really put it on the map. Its success saw Atari license it for its home systems the year after its release, and this impressive 2600 port was the first to arrive. There were several things that set *Vanguard* apart from similar scrolling shoot 'em ups of the time. The first of these was the combination of both horizontal and vertical scrolling, with each one changing the gameplay mechanics and the way you had to play the game. The second feature of the arcade original was the dual controls – with a joystick to manoeuvre your ship and four buttons to control the direction of shooting.

Obviously, this couldn't be replicated in the 2600 port, so you now hold the fire button and a direction on the joystick to shoot. The last original element is the energy generator – passing through this gave you invincibility for a short amount of time. Aside from the control method, programmer Dave Payne included everything else, and the super-colourful visuals really are a joy to behold. *Vanguard* is a top-tier shooter for the vintage VCS.



Platform
2600

Released
1982

Genre
Scrolling shooter

Developer
GCC

Publisher
Atari

Originally by
SNK

Activision isn't just one of the biggest third-party publishers in the world; it's the first-ever third-party publisher, full stop. While, today, it's famous for brands like* Call of Duty, Skylanders *and* Destiny*, when it first started, it was all about smashing the status quo and challenging the accepted order – and it all began with some high-profile defections from within Atari's ranks.

The Atari VCS (later known as the 2600) revolutionised home entertainment, bringing arcade-quality gaming to television sets all over the globe and kickstarting a craze for video games which would turn Nolan Bushnell's company into a worldwide name. However, when Bushnell was ousted by Atari's new owner, Warner Communications, and replaced with a no-nonsense CEO in the form of Ray Kassar, it started a chain of events that lead to the foundation of a company that was both a rival and an ally at the same time.

Kassar turned Atari into the fastest-growing company in US history at the time, and oversaw an explosion of interest in the Atari VCS. However, his handling of the people who actually created the million-selling games that powered Atari's business ruffled more than a few feathers. He spoke disparagingly about designers and programmers, and tried as hard as possible to distance them from the products they so painstakingly crafted – akin to exhibiting a painting in an art gallery but refusing to divulge the identity of the artist. *"Prior to founding Activision, I was part of a group of four Atari game designers to approach Atari management to insist on both credit for our work and financial compensation commensurate with that contributed to Atari's bottom line by our creations,"* explains David Crane, creator of *Outlaw*, *Canyon Bomber* and *Slot Machine* during his time at Atari. *"We were rebuffed; told that we were no more important to Atari's success than any other employee. We already had one foot out the door, but that clinched it."*

Crane was something of a superstar within the walls of Atari, the kind of artist that Kassar should really have been bending over backwards to retain. *"I was working away at some game, intensely concentrating on my terminal or game screen, when I became aware of a presence behind me,"* he recalls. *"I turned around to find Jay Miner, the designer of the Atari 2600 chipset. He was shaking his head and muttered, 'I had no idea that my chip could do any of the things you guys are doing with it.'"*

Around the time that Crane and several other Atari designers were thinking about striking out alone, something significant happened in the home video game industry. Taito's *Space Invaders* hit the arcades and became a global smash hit, and was snapped up in 1979 for conversion to the VCS – the first example of a high-profile coin-op being licensed for home hardware. Up until this point, it was a given that every single game that came out on a console would be created by the company that made that system. But *Space Invaders* – with its gripping gameplay and instantly recognisable visuals – proved that there was merit in allowing the intellectual property of other companies onto home systems like the VCS. *"It was pretty clear at the time that development of game console hardware and development of game software were two distinct processes,"* comments Crane. *"There is no reason why every game made for a game system should be made by the same people who build the hardware."*

In 1980, Crane and fellow Atari legend Alan Miller (*Basketball*, *Surround*) departed the company to begin work on their own development system. They undertook this task in Crane's spare bedroom in his apartment in Sunnyvale, California, just a few blocks from where Activision's first office would be located. With the assistance of Jim Levy – who would serve as Activision CEO – $1 million in venture capital was secured, allowing the company to start work in earnest. Bob Whitehead (*Football*,

> *“Activision isn’t just one of the biggest third-party publishers in the world; it’s the first-ever third-party publisher, full stop.”*

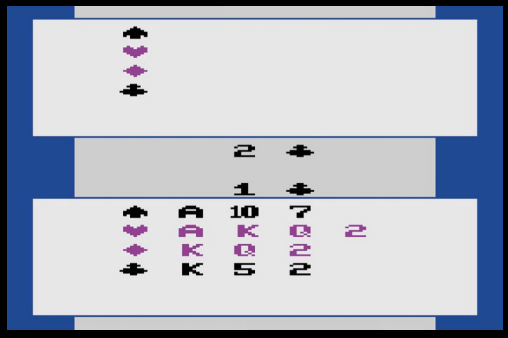
Star Ship) left Atari to join at this point, and, by the close of the year, Larry Kaplan (*Air-Sea Battle*, *Street Racer*) had also jumped ship to team up with his former co-workers.

Activision actually began life as Computer Arts, Inc., a placeholder name that would suffice until the team could think of a proper title. Initially, VSync, Inc. was the lead choice as the most probable moniker for the fledgling firm; however, amid concern that the name would be incomprehensible to the average person on the street, Levy’s suggestion of fusing the words ‘active’ and ‘television’ to come up with ‘Activision’ found favour and eventually became the official name of the company. Midway through the same year, the team already had products to show, and, somewhat unsurprisingly, they were all for the Atari VCS – Activision had created the concept of third-party publishing virtually overnight, and the industry would never be the same again.

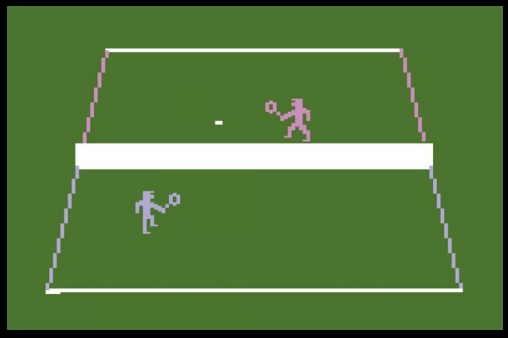
“It wasn’t an easy step to leave the mother ship and strike out on our own, building every aspect of a company with game development, publishing and distribution,” Crane says. *“The Activision designers innovated every day on the game side; but wearing business, marketing and sales hats, CEO Jim Levy did the same on the business side.”*

Innovation was one thing, but Crane and his Activision companions were faced with a unique problem back in the early ’80s. *“Atari’s primary game design philosophy was to make home versions of their arcade hits,”* he says. *“As a young, tiny startup, Activision didn’t own any arcade hits. That forced us to make creative, original game titles and, ultimately, led us to become the industry creative leader. Being creative every minute of every day is hard enough, but doing games for the Atari 2600 also required technical innovation. We developed new programming techniques for nearly every game. The 32-bit moving object in* Dragster *paved the way for other large game objects, as well as giving every subsequent game for a decade a high-resolution, multi-digit on-screen score. The large characters in* Boxing *were made with a pioneering feature that made the shark in* Fishing Derby *possible, as well as dozens of characters in other companies’ games. The fishing line in* Fishing Derby *made possible the lasers in* Laser Blast *as well as the vine in* Pitfall! *There are dozens of other technical challenges that we faced and overcame that changed the face of gaming.”*

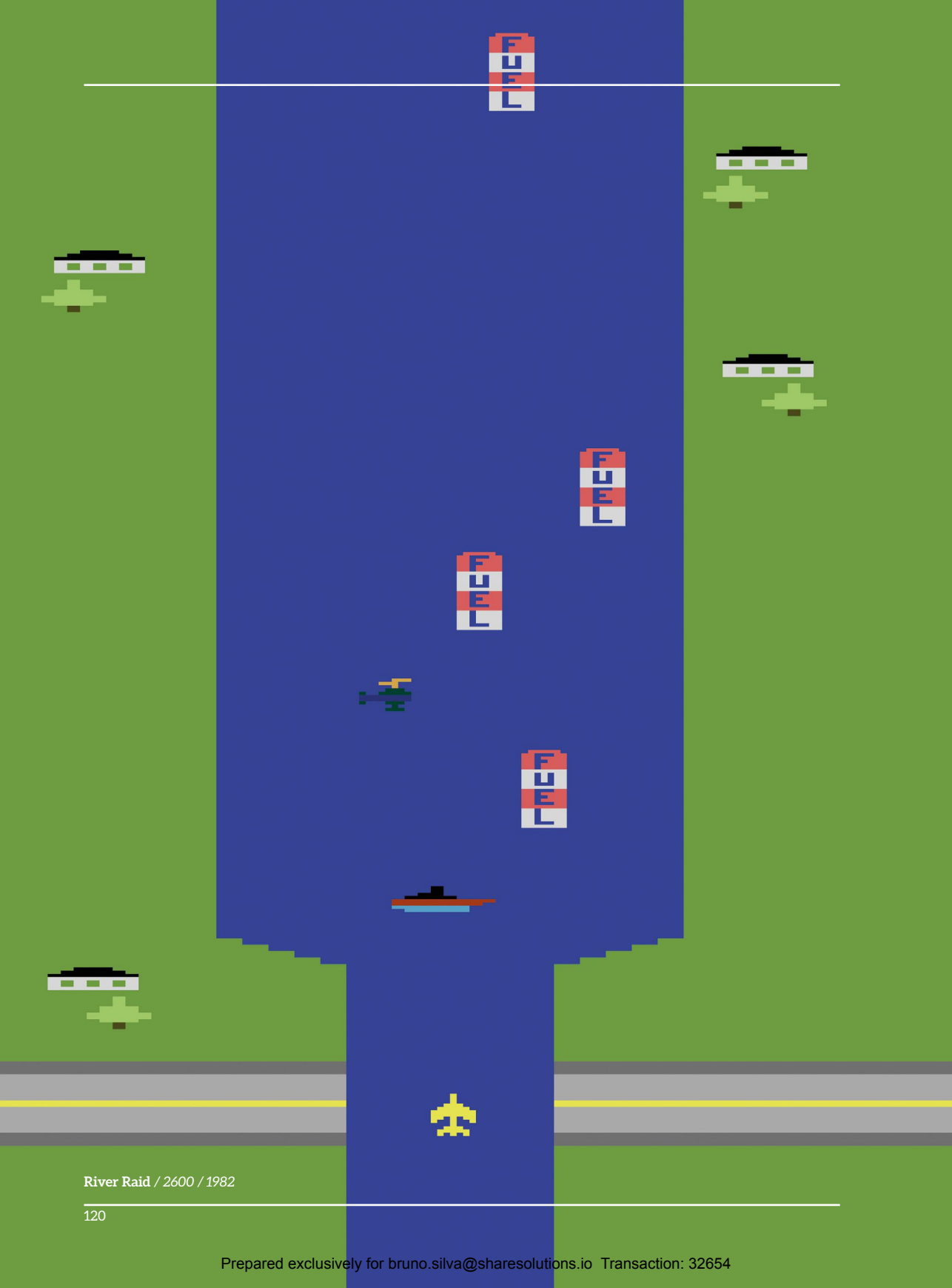
Activision’s output was so impressive that it would go from zero to $150 million profits in three years – a remarkable achievement. Even Atari’s attempts to prevent Activision from doing business couldn’t throw a spanner in the works. *“Before we founded Activision, we checked with several lawyers, including Aldo Test, one of the most respected patent attorneys in Silicon Valley,”* recalls Crane. *“They all told us that we would be sued, but, if we followed a few simple guidelines – such as leaving with nothing but the clothes we were wearing – we would prevail. The simple matter is that no one can stop a person from leaving one company to pursue his craft at another. That is what we did. We budgeted for a lawsuit, and it had no effect on us whatsoever.”*



Bridge / *2600* / *1980*



Tennis / *2600* / *1981*



River Raid / *2600* / *1982*

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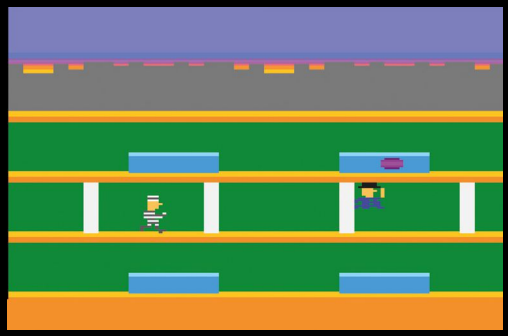
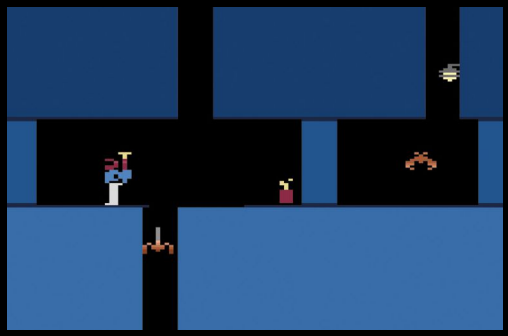
Kaboom! / *2600 / 1981*

Pitfall! / *2600 / 1982*



Keystone Kapers / *2600 / 1983*



H.E.R.O. / *2600 / 1984*

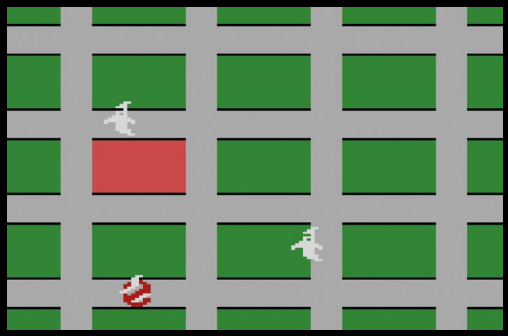
Despite Atari's protestations, the emergence of Activision was, undoubtedly, a good thing for owners of the console and the home games industry in general. With their undeniable talent, the four founders produced a string of hits, which were sold in brightly coloured packaging, making them instantly seem more exciting than rival VCS titles. In contrast to Atari, which kept its developers in the shadows, Activision ensured that the person who created the game would get full credit and even a page in the instruction manual. *"Creating a video game is the creative work of an author, not the work of a nameless engineer,"* explains Crane. *"The author's name is featured prominently on the cover of a book; it should be the same for the creative work that is a video game. One of the founding principles of Activision was to credit a game's designer for the authorship of his work. The rest of the industry soon followed suit."*

Activision also made sure that it formed a tight bond with its customers, encouraging them to mail in a photograph proving they had completed the game or beaten a certain score in order to receive an embroidered patch in return. A priest in America submitted a photo to Activision showing several of these patches sewn onto his vestments, which he would proudly wear during sermons. Soon, Activision's office walls were plastered with photos from its fans, a clear sign that its software was hitting the mark.

> *"Activision's output was so impressive that it would go from zero to $150 million profits in three years – a remarkable achievement."*

Activision's initial run of games were simple in nature, with titles like *Checkers*, *Tennis*, *Boxing* and *Bridge*. However, 1982's *Pitfall!* – created by Crane – would prove to be the company's true breakthrough, and would eventually sell over four million copies. Crane says that *Pitfall!* – credited as being the first platformer, essentially making it the forefather of Super Mario and Sonic – took him ten minutes to conceptualise, but around 1,000 hours to create

Pitfall II: Lost Caverns / *2600 / 1984*



Ghostbusters / *2600 / 1985*

and perfect. Other notable titles – such as Miller's *Starmaster* and Carol Shaw's *River Raid* (both released in 1982) – would help Activision grow in stature, and, by the following year, it was generating around $60 million in revenue. The company may have frustrated Atari with its actions, but its titles enriched the VCS library and unquestionably attracted many more players. Activision's success would end up changing the world of interactive entertainment forever, but this seismic shift would ironically come back to bite the company – and the games industry in general.

When Activision proved that third-party development wasn't just possible, it was also perfectly legal, a whole host of rival firms appeared, sensing the tantalising potential for profit. The VCS was the number-one console in North America, and, with an install base in the millions, there was a clear incentive to try and grab a share of the pie by becoming a third-party publisher. However, the myriad software houses established during this 'gold rush' period lacked the talent of Activision and Atari, and the market was soon flooded with poor-quality software. And not even Atari was immune from this, as the famously bad *Pac-Man* and *E.T.* games proved - two games that many associate with the infamous video game crash of 1983. Retailers found the excess of stock hard to shift and, as a result, hacked prices down to cut their losses – a practice which hurt Activision as it still took pride in its games but found it was competing against massively discounted (but markedly inferior) titles from other publishers.

> *"Activision proved that third-party development wasn't just possible, it was also perfectly legal."*

By this stage, Activision had wisely decided to diversify its business and was producing games not only for the rival Intellivision and ColecoVision consoles, but also for home computers. Regardless, the crash still had an impact, and the 'Gang of Four' began to splinter. Miller and Whitehead found their stock had been massively devalued, and, in 1984, decided to leave to form a new company, which they called Accolade. Kaplan had left the previous year to rejoin Atari, ostensibly due to his interest in hardware development – something he could not satisfy at Activision.

Activision weathered the storm, but the effects of the crash of '83 were nonetheless keenly felt, and, following a corporate merger between the firm and famed text adventure studio, Infocom, Levy was replaced by Bruce Davis. Davis' tenure began positively enough, and he successfully secured a profit in his first year in charge – a much-needed reversal after 16 consecutive quarters of multimillion-dollar losses. However, he was keenly opposed to the Infocom deal and rubbed many of Activision's remaining talents up the wrong way. Crane, the creator of the company's breakthrough hit *Pitfall!*, found him hard to work with and eventually left to join Absolute Entertainment in 1988. It was around this time that Activision resumed Atari 2600 development, bringing the likes of Capcom's *Commando* and Technōs' *Double Dragon* to the console. These were ported by Imagineering, which would be absorbed by Absolute Entertainment in 1992.

The company continued to diversify its portfolio, with the inclusion of business and productivity applications, and, in 1988, the decision was made to rebrand under the name Mediagenic. However, the move wasn't enough to prevent further decline, and, in 1991, Bobby Kotick and a team of investors purchased the ailing Mediagenic for half a million dollars. Kotick saw the value in the Activision brand and reverted back to the famous name

shortly after the purchase was made. Through some canny business moves, Kotick not only succeeded in clearing the previous debts, but also took Activision to a successful public offering; shares were put up for sale on the NASDAQ in October 1993, raising around $40 million. An interesting footnote to this period is that, in the previous year, Activision published *Ghostbusters II* and *Acid Drop* in Europe (the latter coming via Salu, the German division of Activision's holding company, Mediagenic), two of the last Atari 2600 titles. The company that had done so much to disrupt Atari's business ended up being the last one to support its veteran platform.

Kotick restored the Activision name to its former glory, and, since the '90s, has seen the company grow further in stature; today, it's closely associated with some of the biggest franchises the games industry has ever seen. Despite its immense size and clout, it's worth remembering Activision's humble beginnings all those years ago in 1980, when four friends decided enough was enough, and unwittingly set about changing the games industry forever. *"Aspects of third-party publishing that are commonplace today can all trace their roots back to early work done at Activision,"* concludes Crane. *"While it was the work of many people, I am proud to have been a part of Activision's pioneering of the third-party video game publishing business."*

Double Dragon */ 7800 / 1989*

"Pitfall! – credited as being the first platformer, essentially making it the forefather of Super Mario and Sonic – took him ten minutes to conceptualise, but around 1,000 hours to create and perfect."

Rampage */ 7800 / 1989*

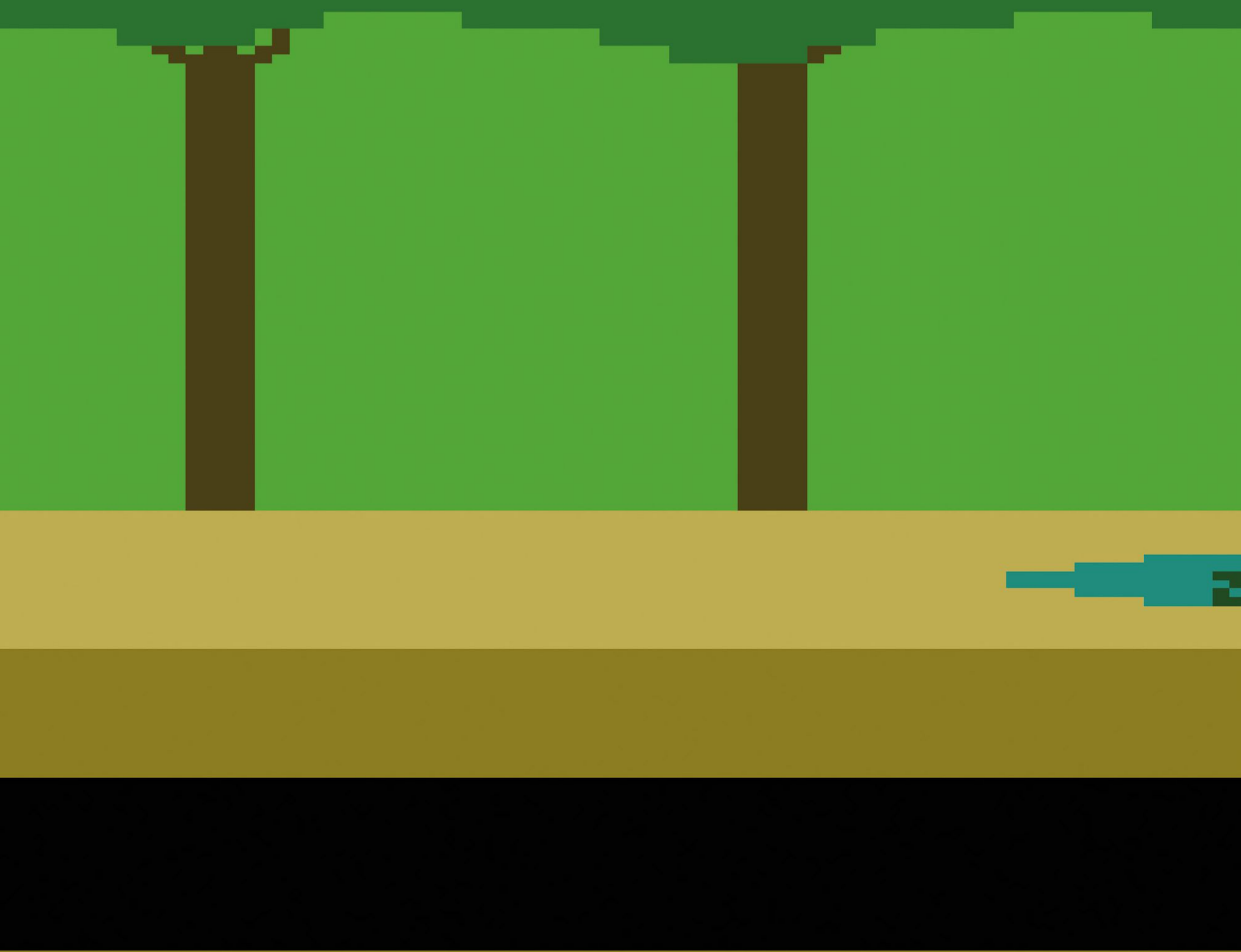
Pitfall!

"*Pitfall!* is widely considered to be the game that spawned the genre of games known as 'platform games'. The game came about because, for years, I had tried to create a realistic human character for a video game. Making a human figure look good in 8 bits is a bigger challenge than you might think. Even after I had my 'little running man,' it took a few attempts to put him in a game. I tried him in a cops and robbers game (with him in black-and-white stripes), but the game didn't pan out.

"Eventually, I settled on a side-view, screen-to-screen adventure through a jungle. The selection of a side-view perspective allowed me to render trees in a jungle, a path with implied depth, and a cutaway for an underground tunnel. I added a vine to swing on, Tarzan-like, quicksand, tar pits, an alligator pond, treasures and other hazards.

"What made *Pitfall!* special was that there was always another screen in the world in either direction. In your imagination, you never knew what might be lurking on the next screen. The genre became so successful because, as game consoles improved and memory increased, there seemed to be no limit to where you could go by simply running right or left."

David Crane, designer and programmer



Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1982

Genre
Action

Developer and Publisher
Activision

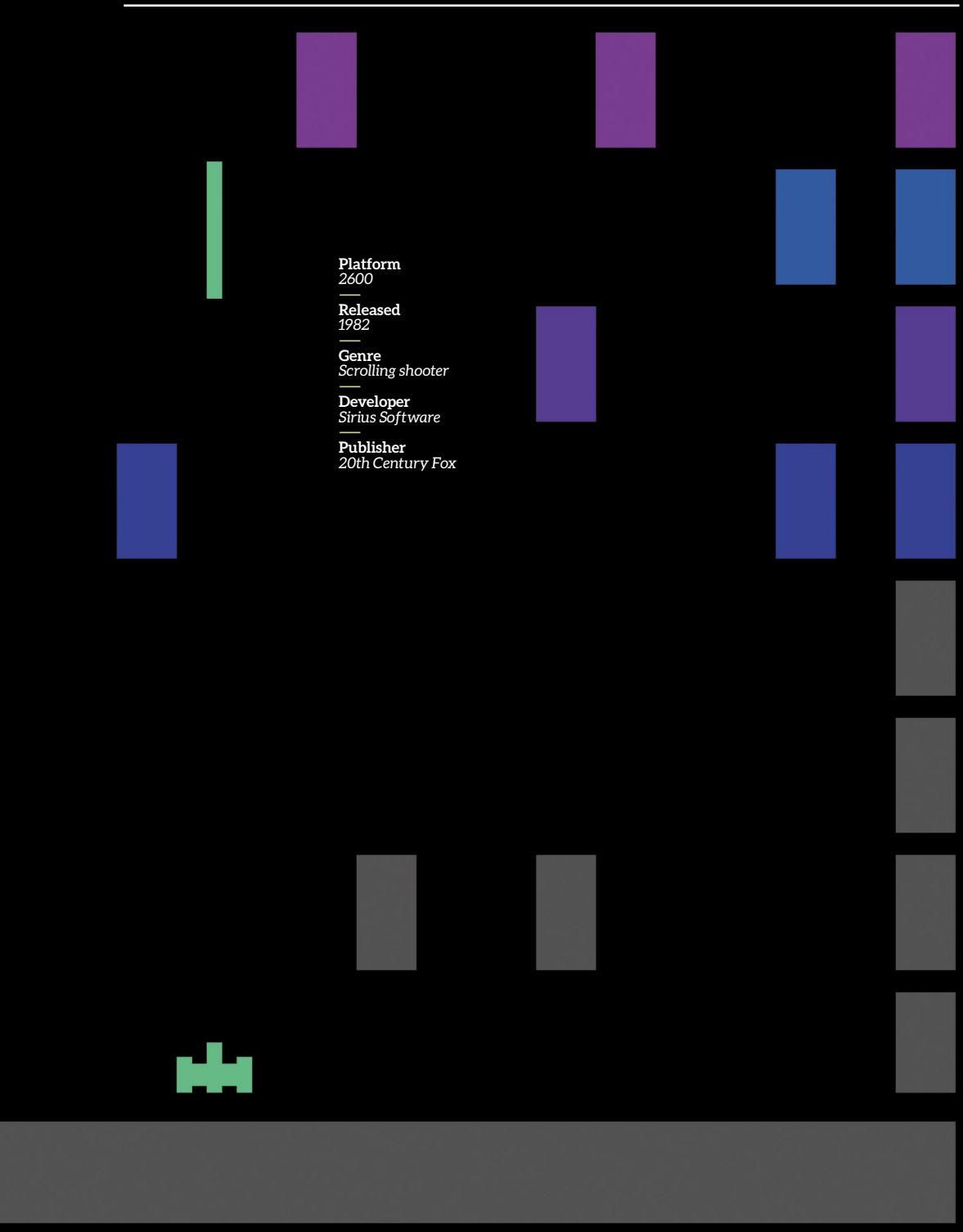
Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Worm War I

"*Worm War I* was inspired by some very cool things that will only be appreciated by a dedicated group of 2600 fans. Let's start with the black lines. As you know, every time an object (player register) is positioned using the fine-positioning hardware, the 2600 produces a short black line on the left side of the screen. Programmers have various options for handling this. They can ignore the issue, allowing the black lines to jump around. Or they can hit that register on every single scanline so there's a black strip down the side of the screen. I came up with a third solution. I didn't use fine positioning at all (the coarse positioning places an object every 8 pixels: fine positioning handles the exact location within that block). I realised that, if I used an object that I could move through animation, I wouldn't need to use fine positioning. That's how I came up with worms. The animation sequence of bunching up also gives them the illusion of moving. So the whole game was spawned by a desire to avoid dealing with the black lines. (Note that, even if I used fine positioning, you'd only notice the lines during a screen flash since the background in the game is black. But that wasn't the point. The point was I was determined to find a way around the problem).

"I think I managed to put a few other nice touches in the game, including a two-player co-operative mode and a pause feature (though it's possible I didn't actually put in that feature until a later game). For a first game, it wasn't bad. No sequel was planned."

David Lubar, designer and programmer



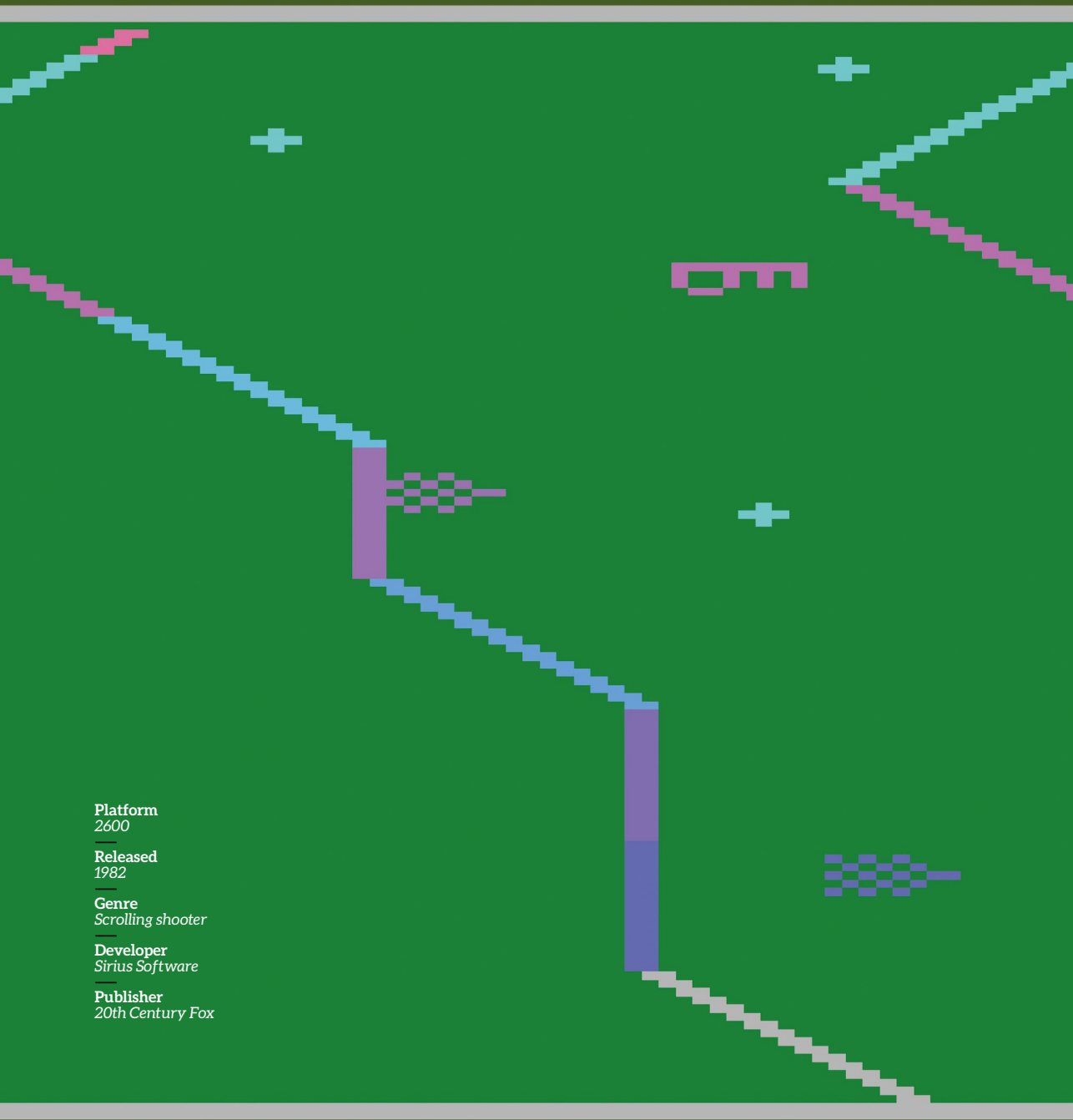
Platform
2600

Released
1982

Genre
Scrolling shooter

Developer
Sirius Software

Publisher
20th Century Fox



Platform
2600

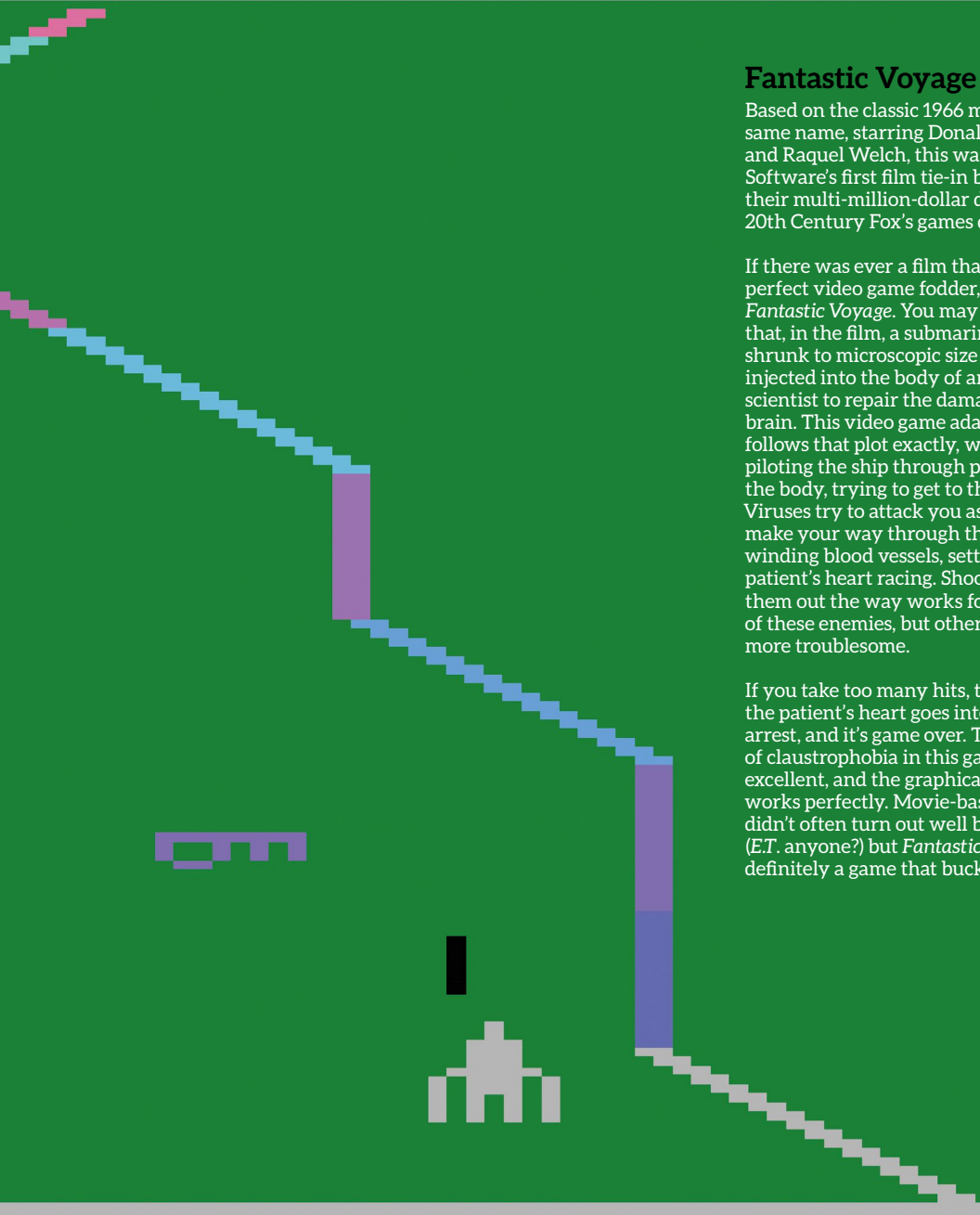
Released
1982

Genre
Scrolling shooter

Developer
Sirius Software

Publisher
20th Century Fox

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654



Fantastic Voyage

Based on the classic 1966 movie of the same name, starring Donald Pleasance and Raquel Welch, this was Sirius Software's first film tie-in born from their multi-million-dollar deal with 20th Century Fox's games division.

If there was ever a film that made perfect video game fodder, it was *Fantastic Voyage*. You may remember that, in the film, a submarine crew is shrunk to microscopic size and then injected into the body of an injured scientist to repair the damage to his brain. This video game adaptation follows that plot exactly, with you piloting the ship through parts of the body, trying to get to the brain. Viruses try to attack you as you make your way through the narrow, winding blood vessels, setting the patient's heart racing. Shooting them out the way works for some of these enemies, but others prove more troublesome.

If you take too many hits, then the patient's heart goes into cardiac arrest, and it's game over. The feeling of claustrophobia in this game is excellent, and the graphical style works perfectly. Movie-based games didn't often turn out well back then (*E.T.* anyone?) but *Fantastic Voyage* is definitely a game that bucks the trend.

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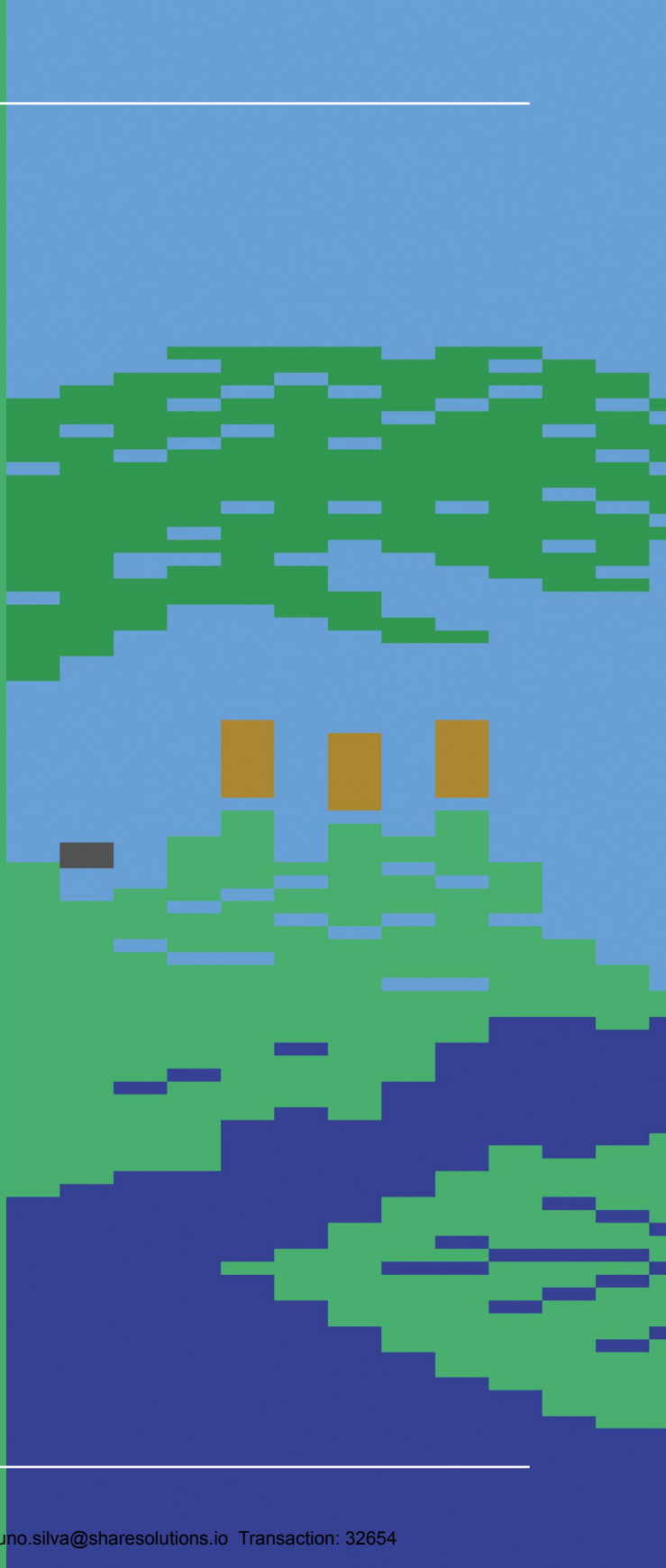
Frogs and Flies

Another game that follows Mattel's mantra of renaming its Intellivision games for the Atari 2600 is this one, which was originally known as *Frog Bog*. The game itself is an evolution of the ancient SEGA/Gremlin coin-op, *Frogs*, in which you're competing against either another player or the computer for the top score.

On screen, you see two lily pads with two frogs perched upon them and surrounded by water and reeds. Not long after you start the game, flies start to drift across the screen and, by using the joystick directions, you can perform different jumps to move around. A press of the fire button then sees your long tongue shoot out, and, if you manage to catch one of those tasty flies and eat it, you're awarded a point. Whoever catches and eats the most flies before the time runs out is declared the winner, and gets the bragging rights as king of the pond!

Frogs and Flies is one of those games that benefits dramatically from the addition of a second player – in fact, we can't really imagine playing the game without one. So loners need not apply here!



Platform
2600

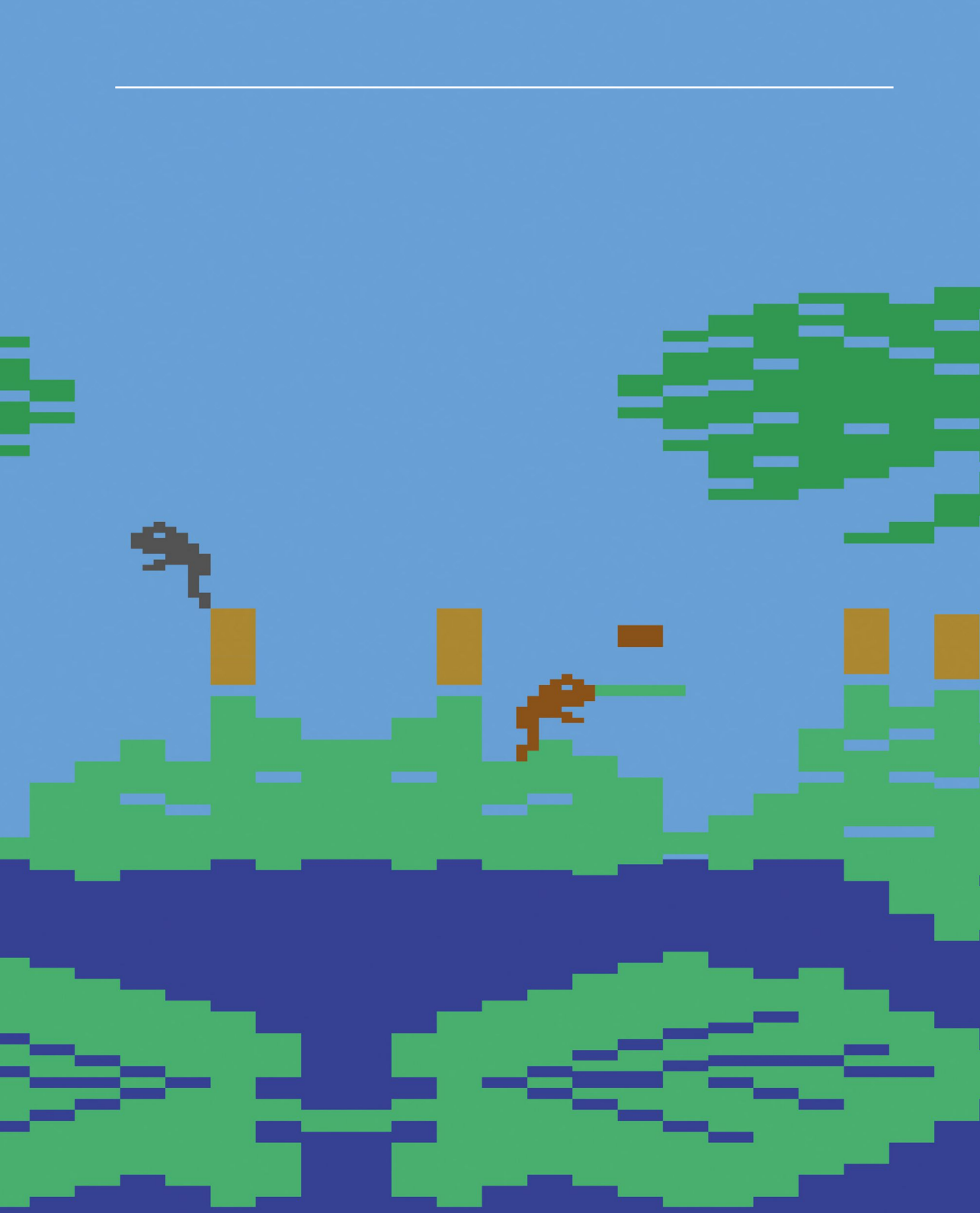
Released
1982

Genre
Action

Developer
Mattel

Publisher
M Network

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654



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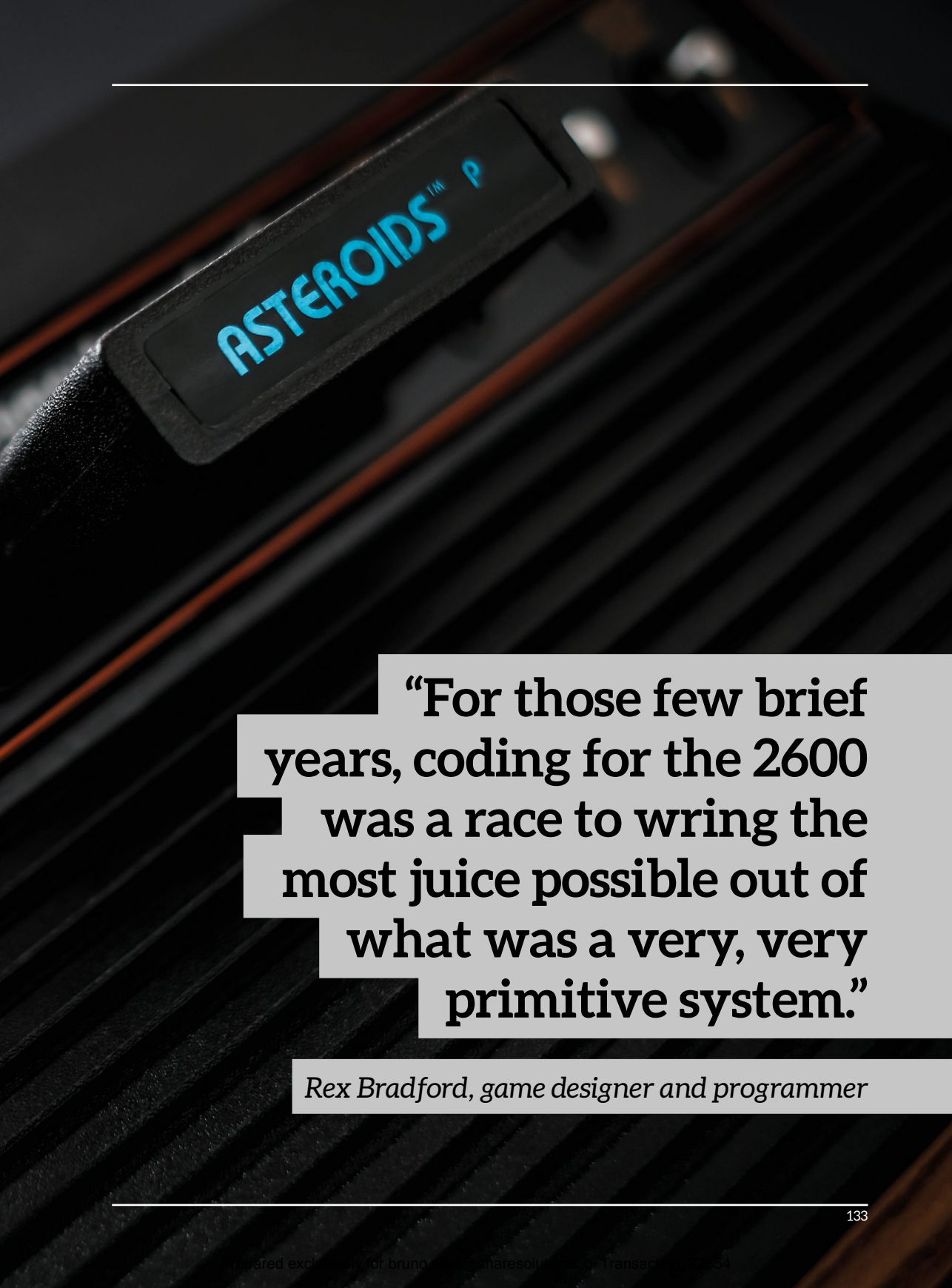
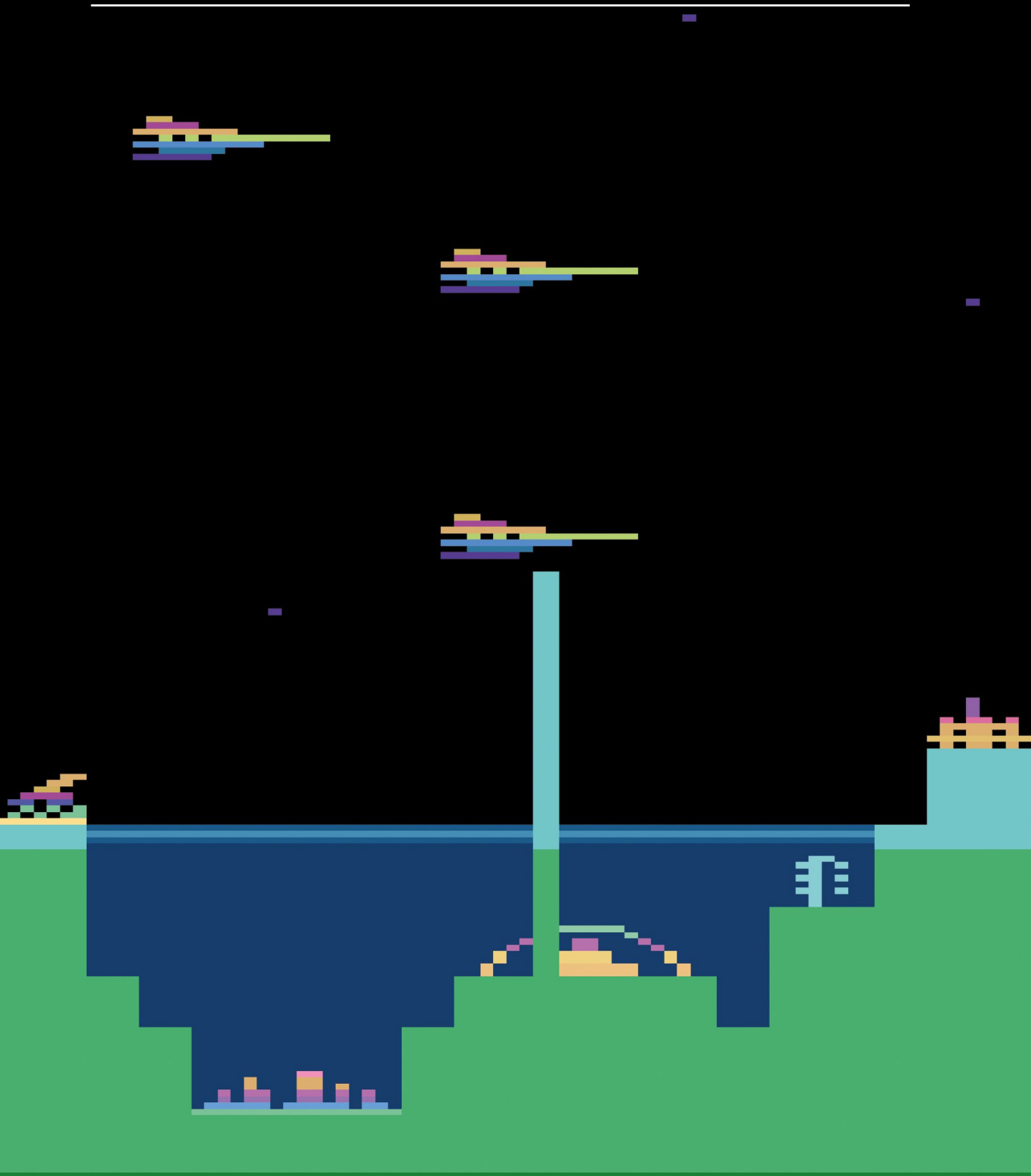
Atari 2600 console / *1977*



> **"For those few brief years, coding for the 2600 was a race to wring the most juice possible out of what was a very, very primitive system."**
>
> *Rex Bradford, game designer and programmer*

Prepared exclusively for bruno@anaresolutions.com Transaction 0000064



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Atlantis

"*Atlantis* was designed to be a very simple game, and it did incredibly well – we sold something like two million copies. Imagic had a huge contest, which was held in Bermuda, and I was flown there along with the contestants. That was the first time I realised just how incredibly good the players were out there. There was no way that any of the game developers at Atari, with one or two exceptions, could ever really compete with consumers. These guys started the tradition of playing these games 8, 10, 12 hours a day. They were younger than we were and had better reflexes. I got to Bermuda, and I realised these players were incredible; they could literally play this game all day long – far beyond what I ever designed it for. So, they had me make a special cartridge – dubbed *Atlantis II* – before I got to Bermuda, to challenge the players that had made it through all the eliminations. My natural reaction was, *'Well, I'll just speed up the ships; I'll make the time shorter'* – basically, just apply some simple physics to it. I underestimated how good these people really were! They could play my advanced version all day long, and they kept finding bugs that were never, ever supposed to show up; they'd rack up millions of points of score."

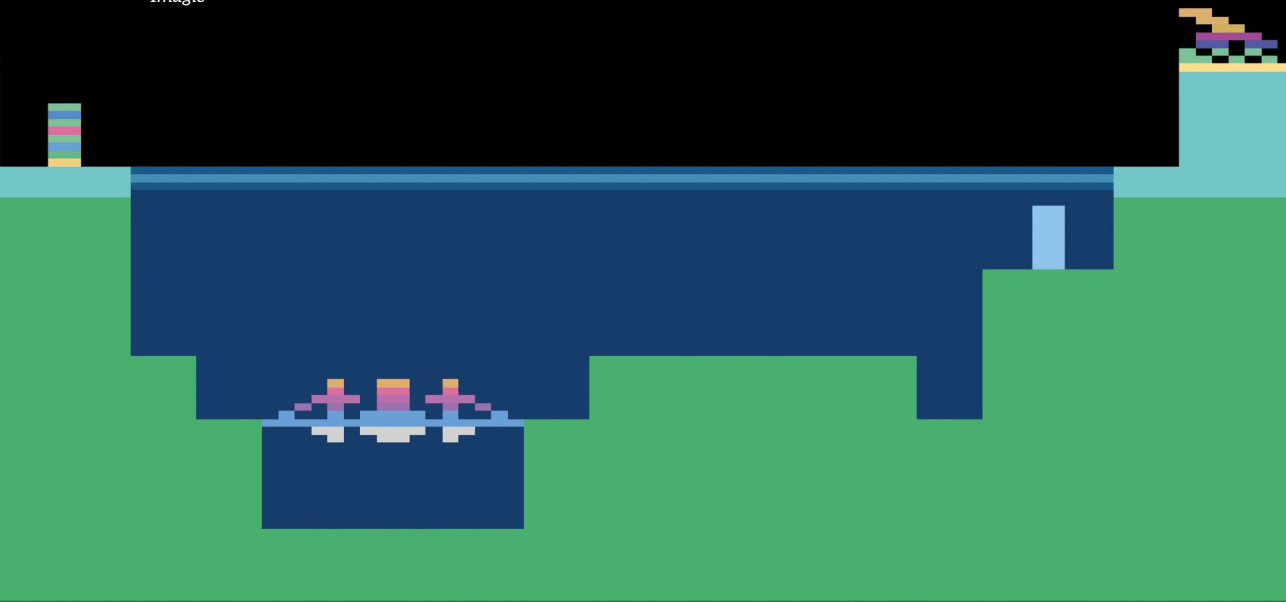
Dennis Koble, designer and programmer

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Imagic



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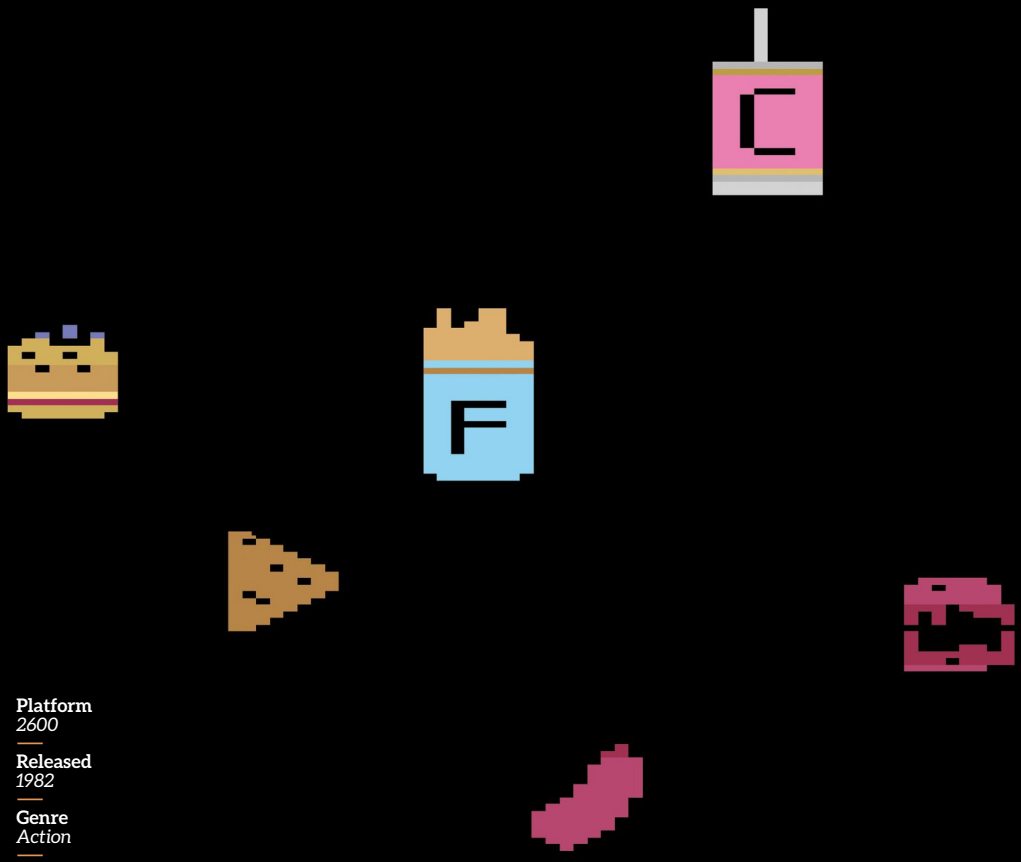
Fast Food

It has to be said that Telesys is rarely mentioned among the upper echelons of third-party publishers for the VCS. But one game that's often talked about in high regard is *Fast Food*. In fact, the game has become a bit of a cult classic and even received a fan-made sequel in 2017 for the 2600's little brother, the Jaguar, in the form of *Fast Food 64*. It's hard to plonk this one into a specific genre (I suppose you could call it an eat 'em up!), and that's a testament to its originality. You control a mouth on screen, trying to gobble up as much grub as possible.

Your appetite is insatiable, and you'll eat everything from ice creams to cheese burgers as they fly across the screen towards you. But there's one thing you won't eat: the dreaded purple pickle! These give you the worst kind of heartburn and quash your hunger, so you need to do your best to avoid them. As the levels progress, the food moves faster, making the pickles much harder to avoid. *Fast Food* is a fun and addictive game that will have you chasing high scores for some time to come.



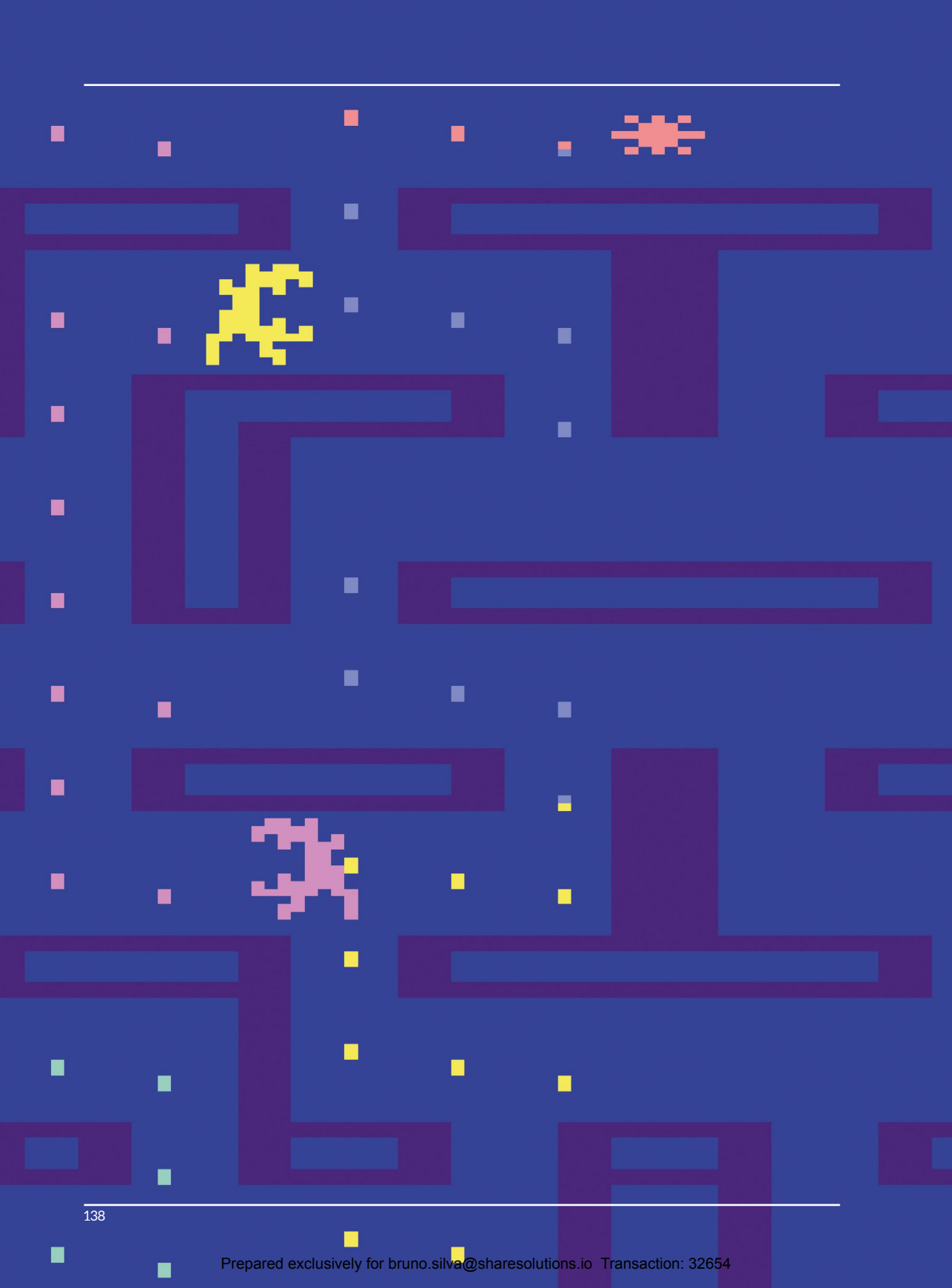
Platform
2600

Released
1982

Genre
Action

Developer and Publisher
Telesys

YOU'RE GETTING FATTER



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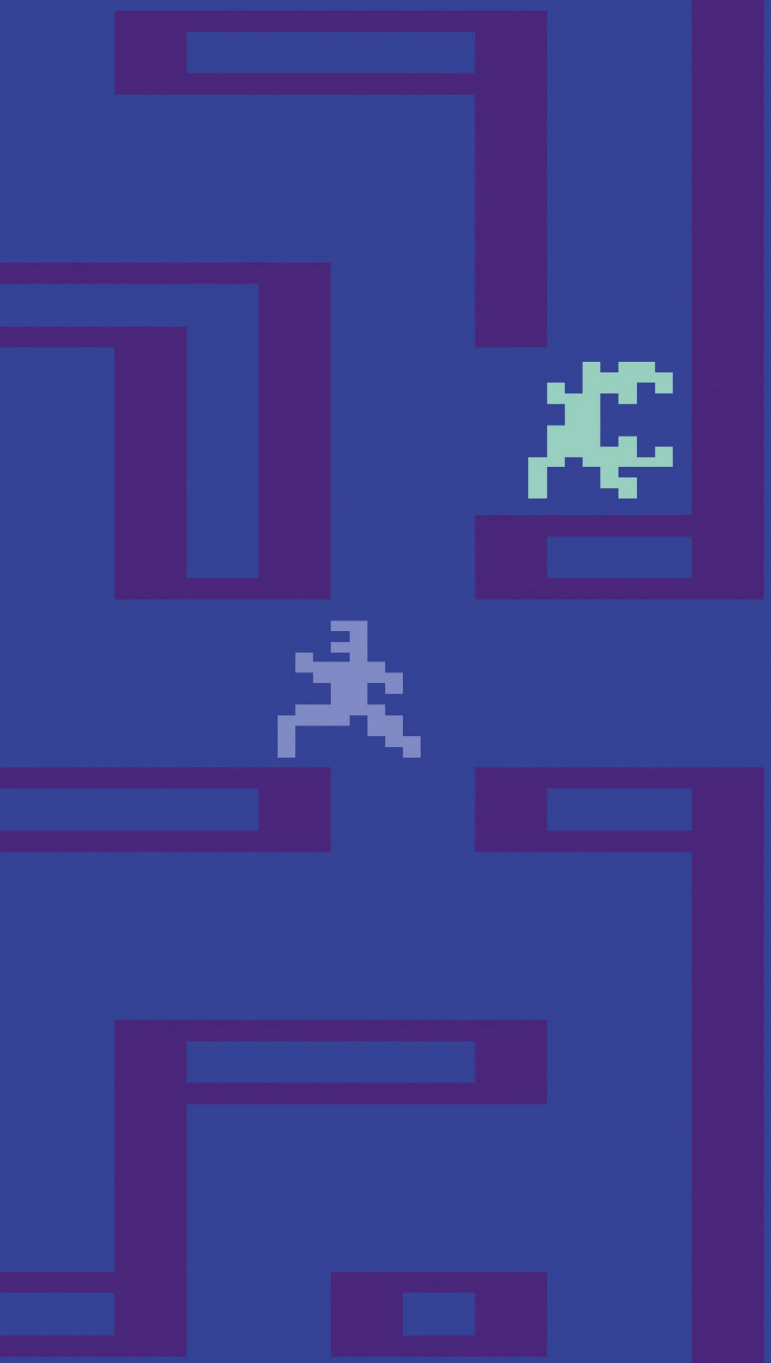


Alien

"Ridley Scott's 1979 film is a tension-filled masterpiece that absolutely redefined what sci-fi horror could be. This is a straight-up *Pac-Man* clone. To say that this game adaptation was shamelessly uninspired would be an understatement – but, amazingly, it isn't half bad, especially considering how disappointing the actual 2600 *Pac-Man* conversion was.

"The game features the typical *Pac-Man* grid maze, but replaces our yellow dot-chomping friend with Ellen Ripley, and the ghosts with shadow puppet-looking xenomorphs. And the gameplay is about as *Pac-Man* as it gets: Ripley has to grab all of the dots (rationalised as smashing tiny xenomorph eggs) to clear each stage. Remember that scene in the movie where Ripley grabs the power pellet to turn the tables on the aliens, and they turn purple, and she kills them by running into them? No, me neither, but *Pac-Man* does it, and so Ripley can here too. The only thing *Pac-Man* doesn't have that Ripley carries with her here is a flamethrower – except it's basically useless.

"*Alien* does mix things up a bit with a *Frogger*-style bonus round, but, ultimately, grows tiresome rather quickly, thanks to little variety in the levels. Still, it's better than the 2600 version of *Pac-Man* and does have aliens, so there's something to be said for it."

Sam Kennedy, games journalist

Platform
2600

Released
1982

Genre
Arcade

Developer and Publisher
20th Century Fox

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Frogger

"Parker Bros. was one of the stronger third parties on the Atari 2600 front, but it wasn't just known for its licensed fare. It also brought a solid port of SEGA's arcade game *Frogger* to the system. And though it may not be as big a draw as its follow-up, *Frogger II: Threeedeep!*, to collectors, it's still a romp when it comes to getting your frogs home safely. It also involves an interesting design decision: to make the game feel at home on Atari 2600 hardware, Parker Bros. redesigned the lead character to be, um, as big as the cars he's trying to avoid. Yep, the frog is big here. But never mind; the general goal is still the same, as he avoids traffic, snakes, crocodiles and other dangers as he tries to make his way to safety within the time limit.

"As stages go on, the difficulty picks up, with new obstacles and faster enemies entering the fray. But the game's design keeps up the pace, with a colourful layout that never becomes too much for the player. And the controls are just about right for the Atari 2600, with the joystick acting properly enough when it comes to frog movement. There's not much in the way of sound, though, as the opening theme only plays once when you start the game. But no matter. The team at Parker Bros. did a serviceable job with *Frogger* on Atari's console, so fans will definitely want to – ahem – hop to it. Super-sized frog and all."

Robert Workman, games journalist

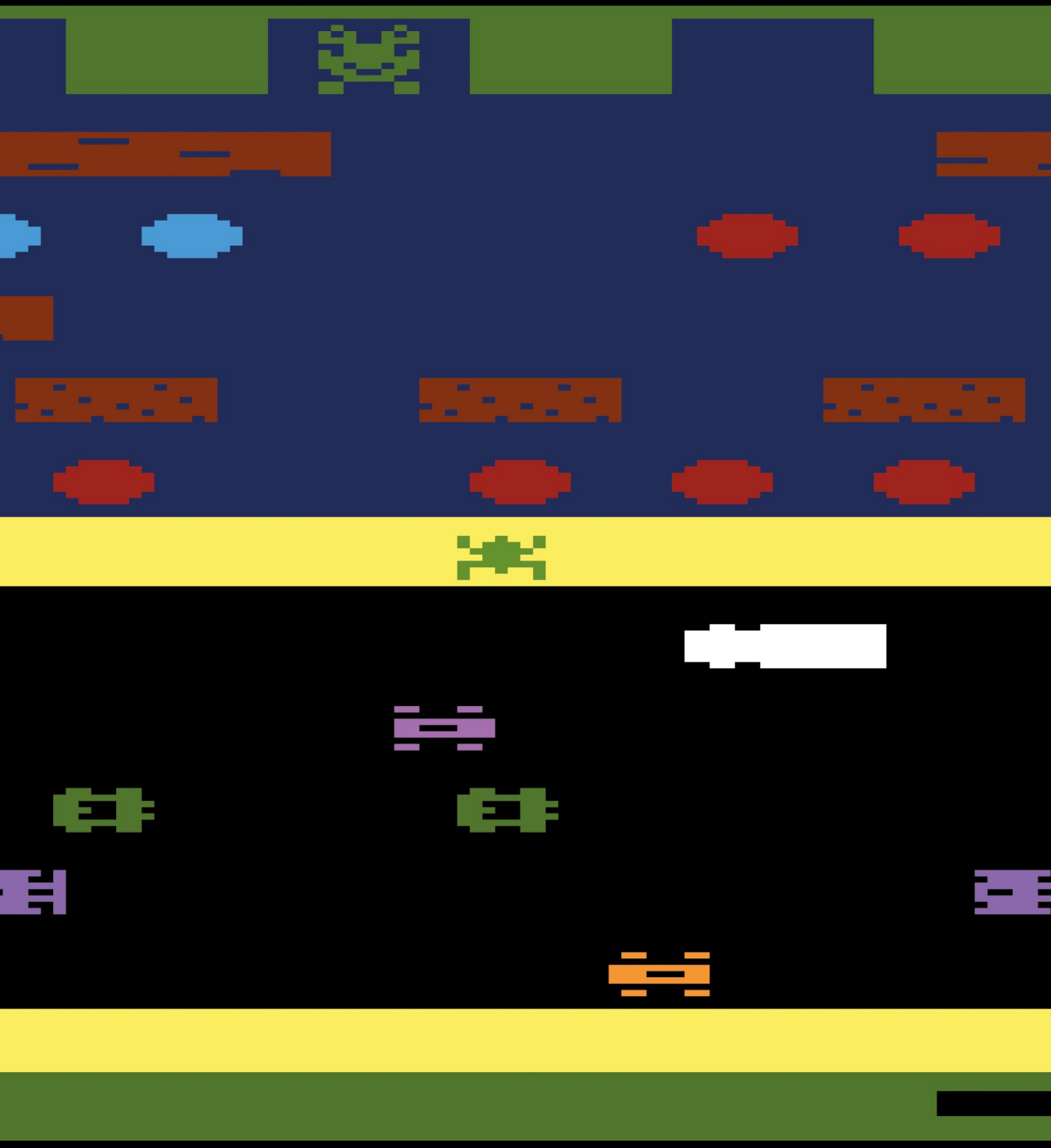
Platform
2600

Released
1982

Genre
Arcade

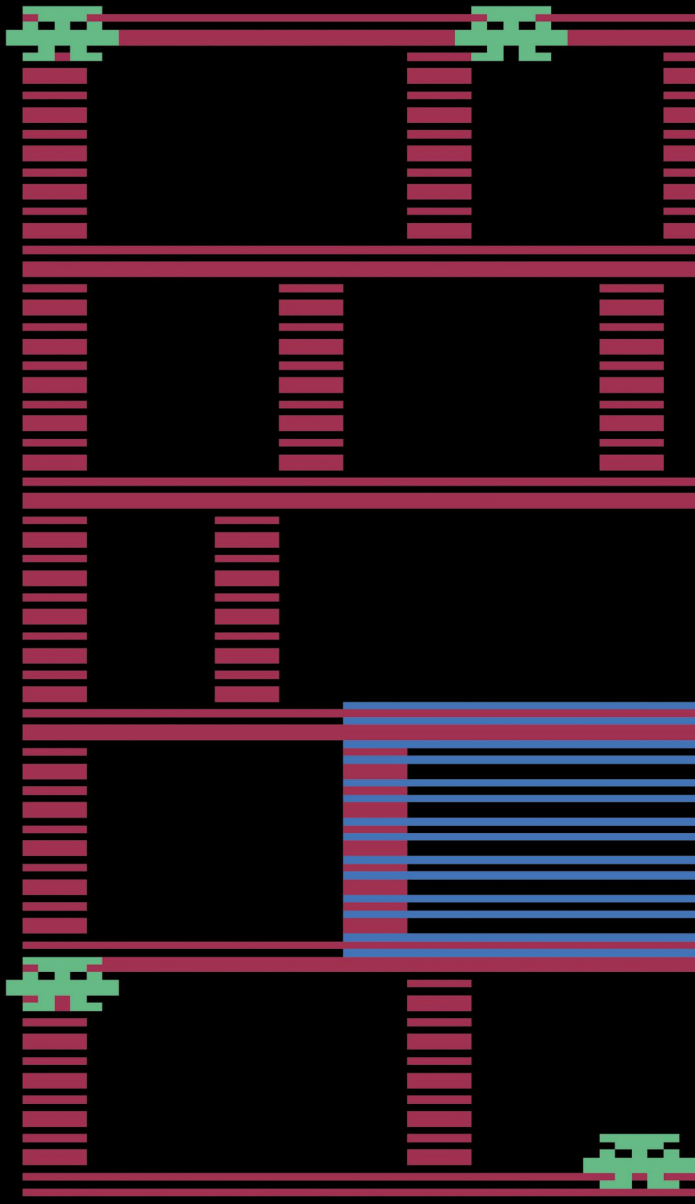
Developer and Publisher
Parker Brothers

Originally by
Konami



Amidar

Like us, you may have wondered where the name *Amidar* comes from, as it doesn't appear to relate to the game. However, a bit of Google-Fu reveals that the name derives from Amidakuji, a classic Japanese style of lottery that visually resembles a series of ladders, which kind of makes sense, given the look of the playing field. Although it's also a character-based maze game, *Amidar* is a very different affair to *Pac-Man*, despite many obvious similarities. The idea is to move around the screen, colouring in all the squares. You do this by moving around the whole perimeter while avoiding the enemies that get in your way. In *Amidar*, there's no way to kill the enemies; a press of the fire button renders them harmless for a very short time, although this is limited to four times per life. As the levels advance, the mazes become more complex, and the enemies get more aggressive. One nice feature of *Amidar* is the special techniques you can discover, such as colouring the corners first to trigger a bonus game. One of Konami's earliest arcade creations, *Amidar* is a hugely fun and addictive little game.



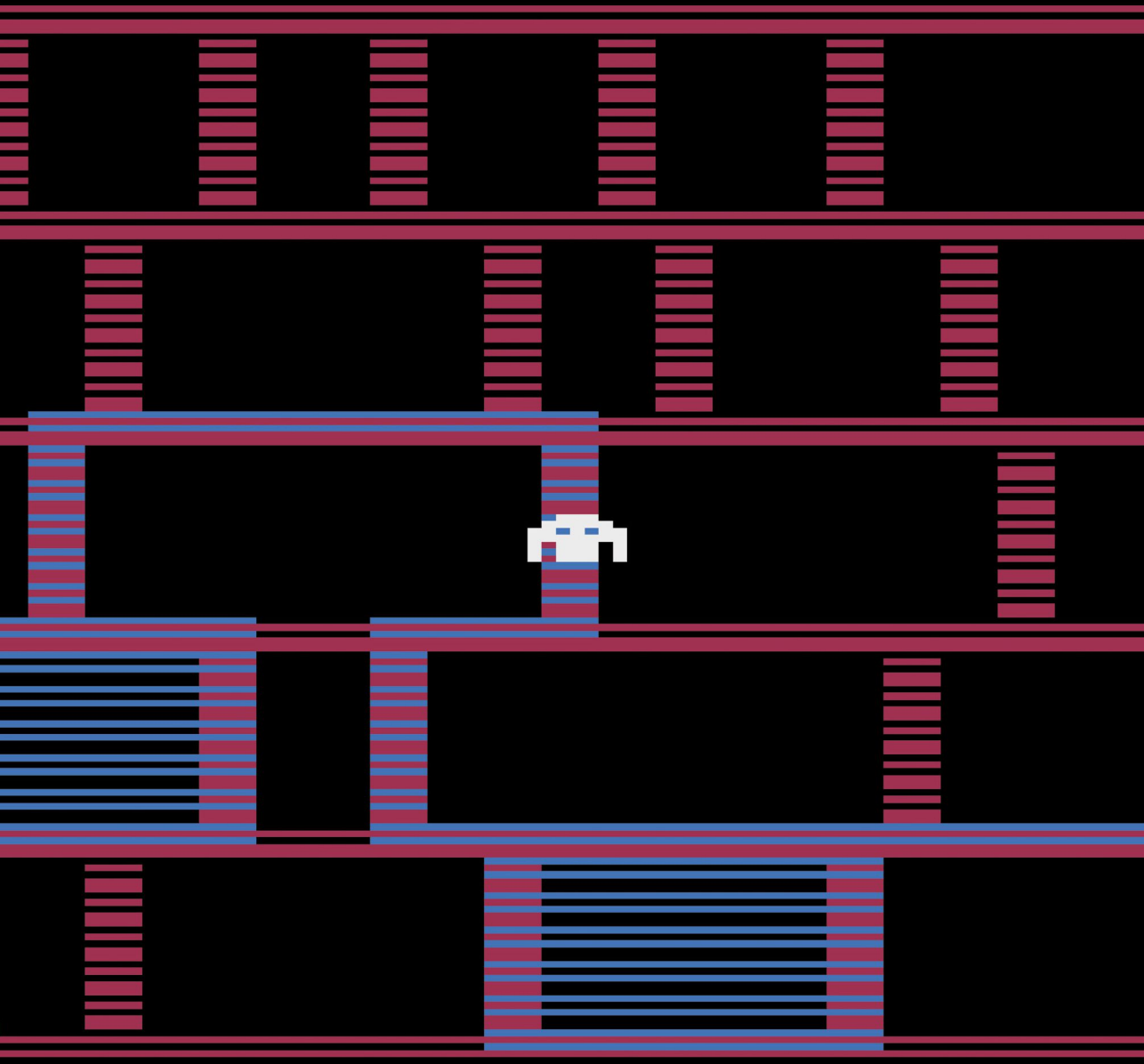
Platform
2600

Released
1982

Genre
Arcade

Developer and Publisher
Parker Brothers

Originally by
Konami



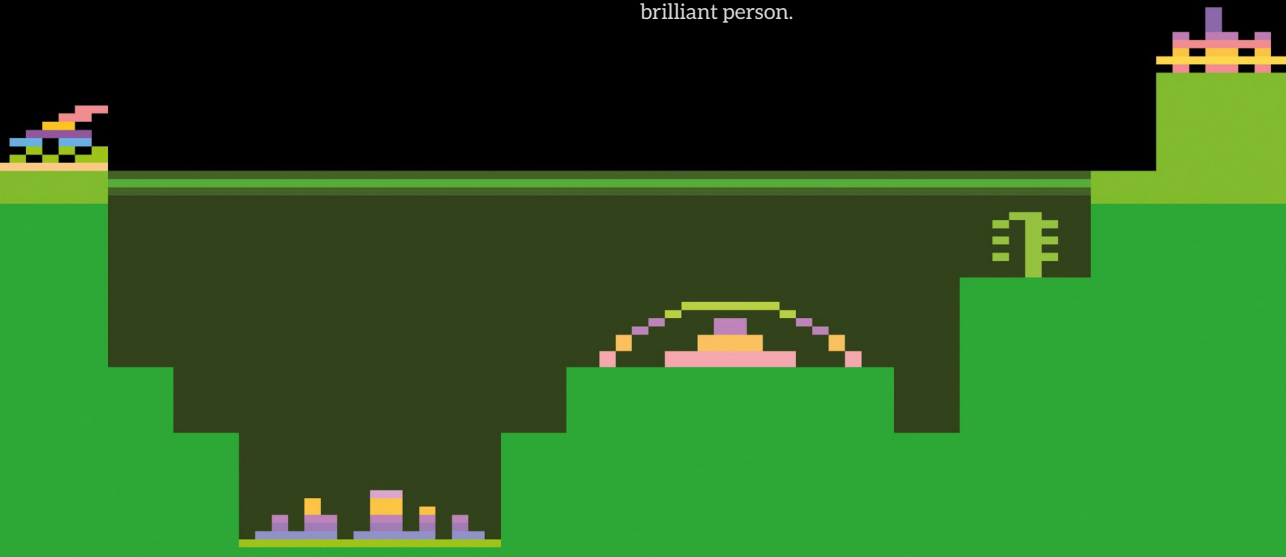
An interview with Dennis Koble

Dennis Koble was one of Atari's earliest programming hires and would rise to the top of the firm's consumer division, overseeing the production and development of VCS titles during the boom years of the firm. He co-founded Imagic, one of the first third-party publishers working on the VCS, and would later rejoin Nolan Bushnell at the short-lived Sente. He established Sterling Silver Software in 1988 with Lee Actor, and has also worked at Electronic Arts and Universal Studios during his long and illustrious career.

How did you get involved with video games?
When I joined the company, there were fewer than 100 people at Atari, and it was a very family-orientated, small facility; very comfortable. I was the fourth programmer they hired. I was working in the defence industry in Sunnyvale, California, as a programmer, and I had a friend who worked at Atari – he invited me over. He wasn't really offering me a job or anything, he just said, *'Why don't you come over here and see what we're doing?'* I did, and, at first, it was absolutely fascinating as I wasn't familiar with Nolan Bushnell's *Computer Space* arcade machine. Atari had been around for a few years at that point, but they were a very small company – they were literally all in one building up to the point that I joined, and, at that point, they decided to expand and make an investment in more products.

The engineering group, which totalled about 30 people when I joined, had literally just split from the main building over in Los Gatos, California, and so it was the first group that was not part of the main manufacturing facility. That's when they announced that Warner had bought the company, and, of course, everything changed. I worked my way up through Atari, and eventually became the manager of both the computer and game software divisions. When that split apart, I stayed with the games part of it.

I took over the consumer group when it was about 30 people, and I won't tell you every one of them was a star, but there was a number of strong programmers in there. They don't get a lot of attention in the history of video games, but people like Carol Shaw… she's an absolutely brilliant person.



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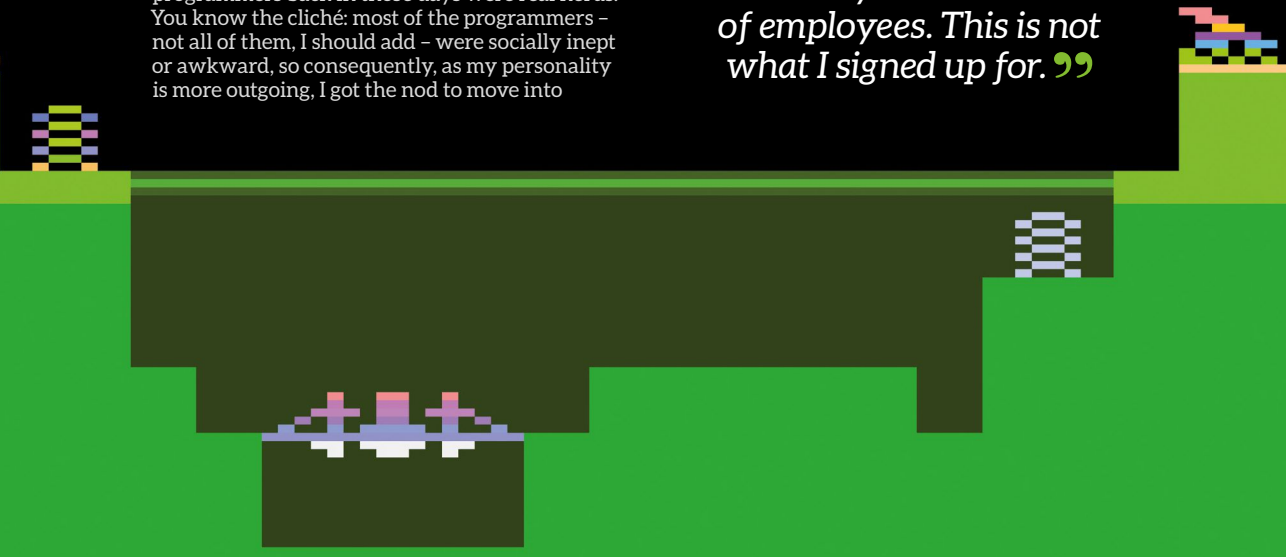
She decided she wanted to work on a checkers game, while Ed Logg – who was famous from Atari's coin-op days and was interested in the technical challenge of creating VCS games – did the VCS chess game. This wasn't simply ahead of its time; it was truly excellent. I remember discussing the checkers game with Carol, and she kept asking if she should add in some aspects of the championship checker games. I encouraged her as much as I could because, to this day, that checkers game is an absolute beast – especially when you consider the platform it's running on and the amount of options that are available in it.

What caused you to leave Atari and form Imagic? Well, five and a half years later, Atari was a five-billion-dollar-a-year company, and we literally had thousands of employees. This is not what I signed up for. I remember going to a meeting in the last six months or so that I was there, and I went into this 100ft-by-200ft room, and there was a huge table surrounded by people. I couldn't tell you how many people were there, and these were all the managers and VPs, directors and various heads of departments. At the head of this massive, U-shaped table was Mike Moon, who'd just been hired by Ray Kassar to run the company. I found out as I got there that we were supposed to go around this huge auditorium and report on our different visions, and it just struck me that this was not where I saw myself.

I never considered myself managerial material or anything like that; by nature, most of us programmers back in those days were real nerds. You know the cliché: most of the programmers – not all of them, I should add – were socially inept or awkward, so consequently, as my personality is more outgoing, I got the nod to move into management. I have degrees in Computer Science and Electrical Engineering from UC Berkeley, so I had a very technical background. Consequently, the nature of that meant putting me in managerial positions, and it was not something I was really looking for. Of course, I liked the salary and everything, but it came with its own set of headaches. I always kept my foot in the technical end of it and was always working on games, even while I was a manager.

Consequently, I reasoned that Atari had been good to me, and I decided, *'Well, they're big enough now to promote one or two development groups.'* So I wrote up a business plan, and I got to the section on marketing and sales and realised I knew absolutely nothing about that. So, I gave it all to Bill Grubb, who I kind of knew through the whole consumer games thing; he was the VP of marketing at that point. One evening, I asked him if he could spare a couple of minutes and fill me out on a couple of marketing and sales things, help fill out this business plan I was creating. We started talking, and, about an hour into the conversation, Bill says, *'Dennis, why are you doing this under Atari? Why don't you just go out and start a company?'* This was, for me, a radical idea. I'd never even considered that.

> *"Atari was a five-billion-dollar-a-year company, and we literally had thousands of employees. This is not what I signed up for."*



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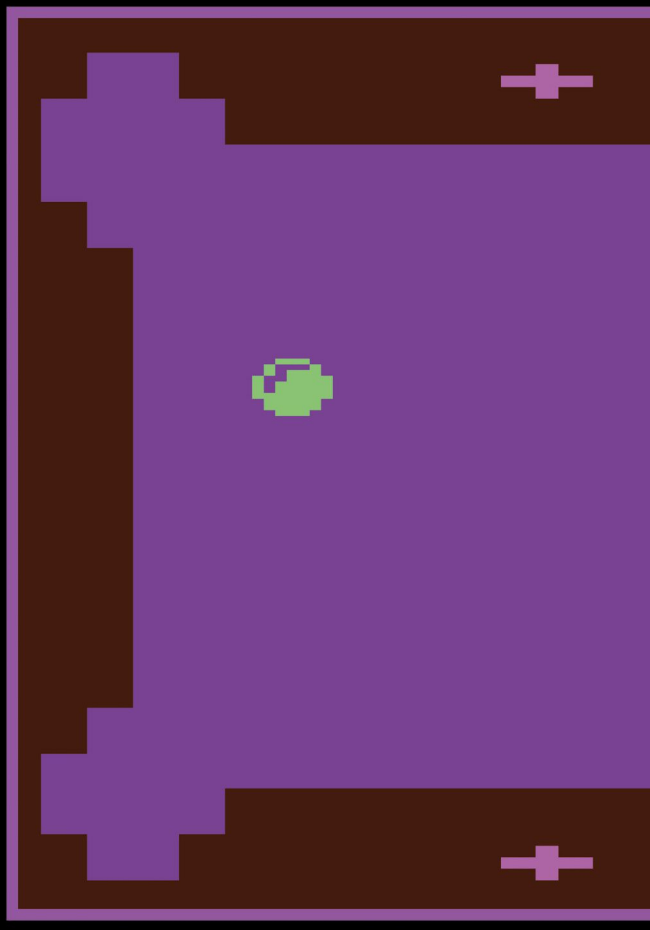
> *“While I was developing Trick Shot, I was also growing Imagic and hiring people – the company was exploding.”*

Can you tell us about how Imagic was founded?
Bill was the CEO. I was recruited from Atari, and Brian Dougherty – who I hadn't met before – came in from Mattel, as well as a lawyer friend. We went out and it literally took us one to two weeks at most to raise around $3 million venture capital money to start a company. Brian Dougherty and I started hiring people we wanted to work with – or had respect for – from the group of people we had hired or worked with before in our previous roles at Atari and Mattel. Consequently, we brought on the 14 people who founded Imagic, and that included, on my side, people like Rob Fulop, who did *Demon Attack* and had his own successes over the years. We started to grow the company.

What was it like working on the Atari VCS?
Well, *Trick Shot* was my first VCS game at Imagic. I remember it was very stressful because, although I have a minor in Physics and Maths, I found it challenging to implement any sort of reality in a VCS-based game. You've got 128 bytes of RAM. You had a processor that didn't really do too much. Atari was so focused on hardware in those days because it was a consumer product, and, consequently, if they could save a resistor or a capacitor, that was like a major win for them, because they were making millions of these things – cutting back on component costs really adds up. It was very difficult to program, though. I was reasonably happy with it, but it was a stressful time; while I was developing *Trick Shot*, I was also growing Imagic and hiring people – the company was exploding.

When did you realise Imagic was going places?
We went to our first game show, CES, about one year before. We thought we were going to go big because the whole business was just exploding. Meanwhile, Activision – which was basically David Crane, Larry Kaplan, Alan Miller and Bob Whitehead, the four guys that ostensibly worked for me when I became manager for the division – they were obviously doing really well at that point. So we showed up at that CES, and we were the only other third-party company at that point. We introduced our initial products, which were *Trick Shot*, *Demon Attack* and Bob Smith's *Riddle of the Sphinx*.

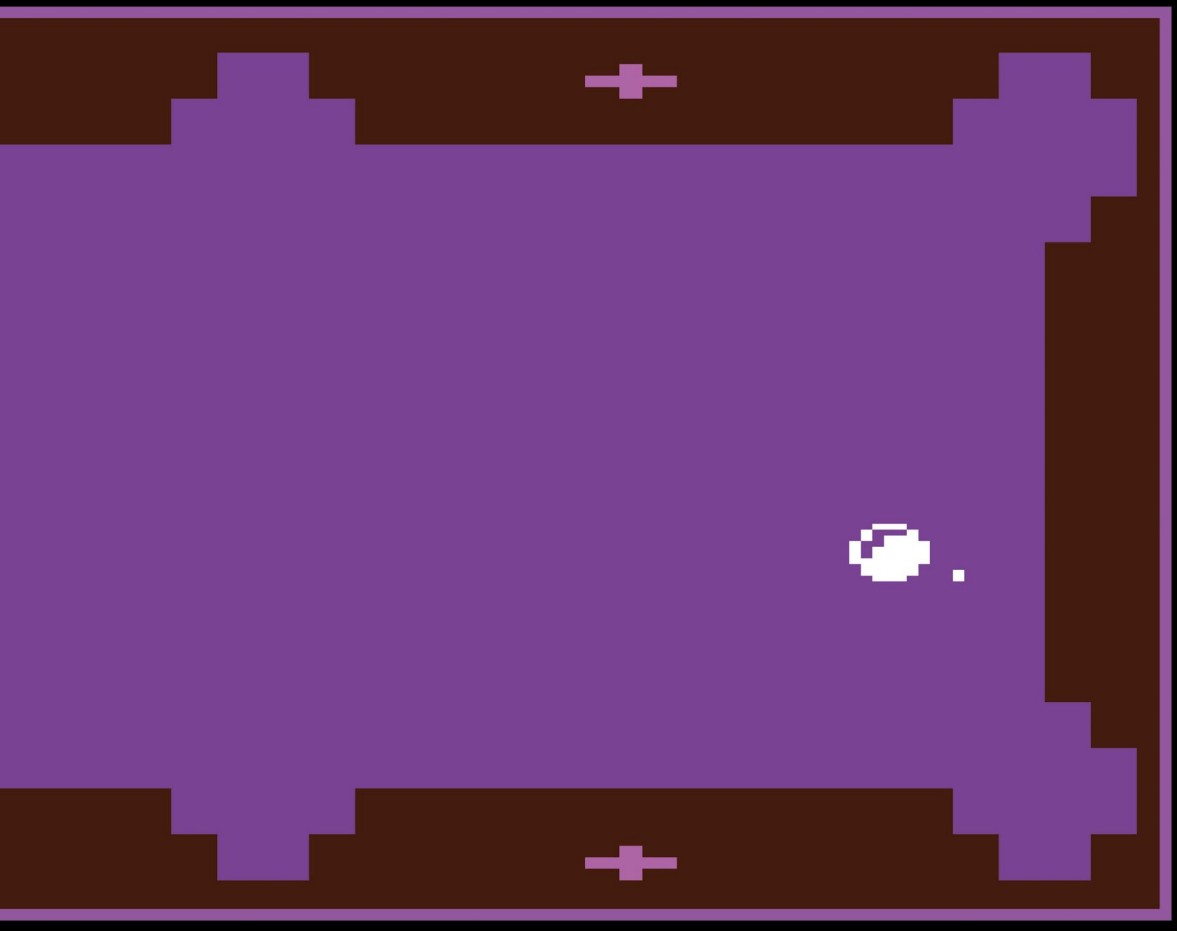
Was there any kind of rivalry with Activision?
The main thing from our programming and engineering standpoint – and from theirs, I would imagine – was that we strived to produce new technical ideas and new advances to show how good we were. The guys at Activision knew they were the best and they, of course, came up with new technical aspects and things that supposedly couldn't be done. We would turn up to trade shows with the anticipation of seeing what they had done, and, we always imagined, they showed up with an anticipation of what we had done. We were rivals in a way, and that's how the whole thing developed. The four guys who founded Activision became very good friends of mine. I'd actually known Larry for quite a while prior to that, and I thought David was incredibly arrogant – which he was. But he was one of those people who could back up that arrogance! I eventually became very good friends with David.



Trick Shot / *2600* / *1982*

Would you say this was the peak of the company?
An Imagic practice we inherited from our Atari days was that we would go down to the beach. There were a couple of places where people from Atari – and from Imagic, and probably from Activision – would go and have brainstorming, sessions. We'd rent a couple of the condos there and we would spend a couple of days thinking up game ideas and things like that. And I remember once, we had just had a day of brainstorming and I was walking along the beach with Bob Smith, and it all of a sudden hit me. I turned to Bob and I said, '*This is probably the best this is ever going to be, right at this instant.*' And Bob said, '*Yeah, probably you're right.*' It turned out to be quite prophetic.

Where did it all go wrong for Imagic?
The other side of the coin that most people don't realise is that, as fast as you go up, you can plummet just as fast. For example, Atari was expanding at a rate that was simply unsustainable. It was kind of like the Dutch tulip thing back in the 1500s. There just weren't enough people in the world to buy all of the product they were making. Aside from that, Atari was basically not happy with us – more so than even Activision – and the reason primarily was, as far as I can deduce, that Atari was particularly unhappy with Bill Grubb. They felt that he had betrayed them. He was the VP of Marketing and was a very affable guy, and, while I don't know all the particulars, Skip Paul and Ray Kassar seemed to have had it in for Bill in particular – and maybe me, too.



Anyway, I think some of the higher-ups had a personal vendetta against Bill, so, consequently, when we announced that we were going to go public, they went out of their way to try to scuttle the offering – and they succeeded at the cost of destroying their own $5.5-billion business, amongst other things.

That's interesting - Rob Fulop is of the same opinion...
In retrospect, I'm rather glad that we didn't go public for a number of reasons. People tend to focus on the fact that, all of a sudden, you're worth 15 or 20 million dollars. I remember being out looking for houses with my wife and all we were doing was arguing! It was like, 'This porch isn't big enough' or 'That one doesn't have enough room', stuff like that. And I honestly don't think that's good for a relationship. When the whole thing finally fell through, it was discouraging. I remember I had to give up the Porsche 928. I remember the day – my wife remembers it more than I do – that I turned in the car, and I traded it for a Volvo. That was a bit of a shock to her, apparently! But, in retrospect, I ended up doing incredibly well in my future years, and so I literally have no complaints. I'm quite happy with the way things turned out.

You then stepped away from management?
At that point, Imagic had grown so large that they had moved their main offices. We started up in some little town called Saratoga, which was near Los Gatos. It was a charming little place, but we quickly outgrew the building when we got to about 40 people, and so they moved most of the people and stuff down to Los Gatos. We at engineering, at least on the Atari side of things, stayed at the Saratoga facility. The last year or so I was in Imagic, I lived in Cupertino, which was kind of a straight shot to Saratoga. So, every day, I'd hop in my car, drive over to the facility at Saratoga, and there would be a note waiting for me – this literally occurred every day – and it would say 'There's an emergency meeting at the main headquarters over in Los Gatos.' So I'd hop in my car and drive the distance between Saratoga and Los Gatos, which was probably under five miles. I'd go into the meeting, and it was like unrelenting bad news. *'The 600,000 chips we've ordered from a place in Taiwan, we couldn't cancel the order even though our clients had cancelled it and the market had crashed and everything.'* And then, the next day, we'd hear that some other bad thing had happened. It was unrelenting bad news every single day. There's a lot of literature about torture and things like that, and this fits right into those categories. We were just pounded on a day-by-day basis. Finally, I just decided that it was time to move.

What happened after you left Imagic?
My biggest success financially and everything came later with Lee Actor, who I met at Sente. Lee's an extremely arrogant person also; he's up there with Dave Crane – he's really good and he knows it, and he's not afraid to tell the world that, and he doesn't deal with idiots, which he considers to be most people! I started at Sente as the Director of Software, and Lee and I became fast friends, and we eventually left to form our own company. We started as Sterling Silver Software in 1988, eventually became PolyGames, and we had many extremely successful years together. We kind of became the top hired guns in the industry. If you needed something done, even an impossible schedule or technically beyond the ability of groups to do it, if you couldn't find enough cash… in other words, if you needed it done, you call us. And we charged accordingly, so we made a very good living. At one point, our games controlled roughly five per cent of the global games market, which was our peak. We sold millions of everything. We stepped in with SEGA at the point when the delivery of *Sonic 3* had been delayed; they were desperate, so they came to us and offered us an incredible deal. That was *Sonic Spinball* – not a truly great product, but it was a good product, and it ended up selling millions.

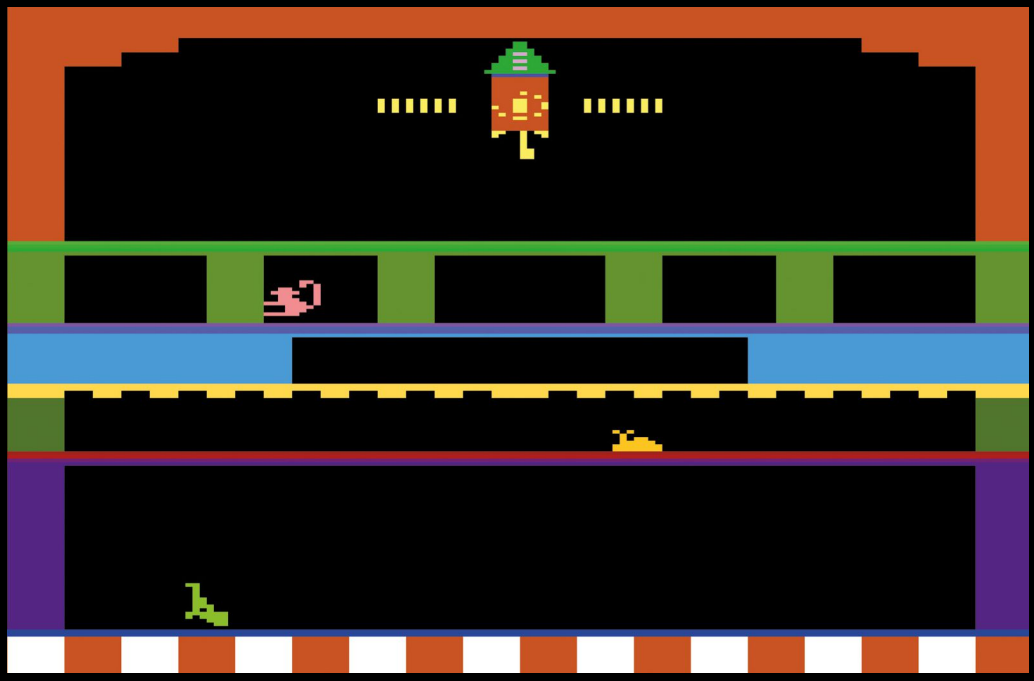
Why is the Atari VCS is so fondly remembered?
By the time the VCS came out, Atari had already established itself in the collective mind of the consumers. You knew that Atari was a games company; it had a lot of success with its coin-operated games up to that point - people knew the Atari name, and they knew *Pong*. I think the public was prepared, in a sense, for when the VCS came out, and it was reasonably priced for the time. Atari did a very good job with marketing in those days; they, of course, piggy-backed off the success of the coin-op division, which was only producing gold-standard games at that point. A game didn't get released via Atari's coin-op division unless it was absolutely first-rate compelling – literally an iconic game. In the consumer division, we would typically take those ideas and do the best job we could on VCS.

Atari might not have been the first to market with a console, but it was the first one that got it right. It's like with smartphones; everybody has a smartphone today, but people don't remember that, before the iPhone came out, there were already loads of mobile phones. People tend to forget all the build-up when something explodes on the market and, all of a sudden, presents itself as something that everybody wants. The VCS was the right product at the right time; it wasn't the first and it wasn't necessarily the best – quite frankly, both the ColecoVision and Mattel Intellivision were better.

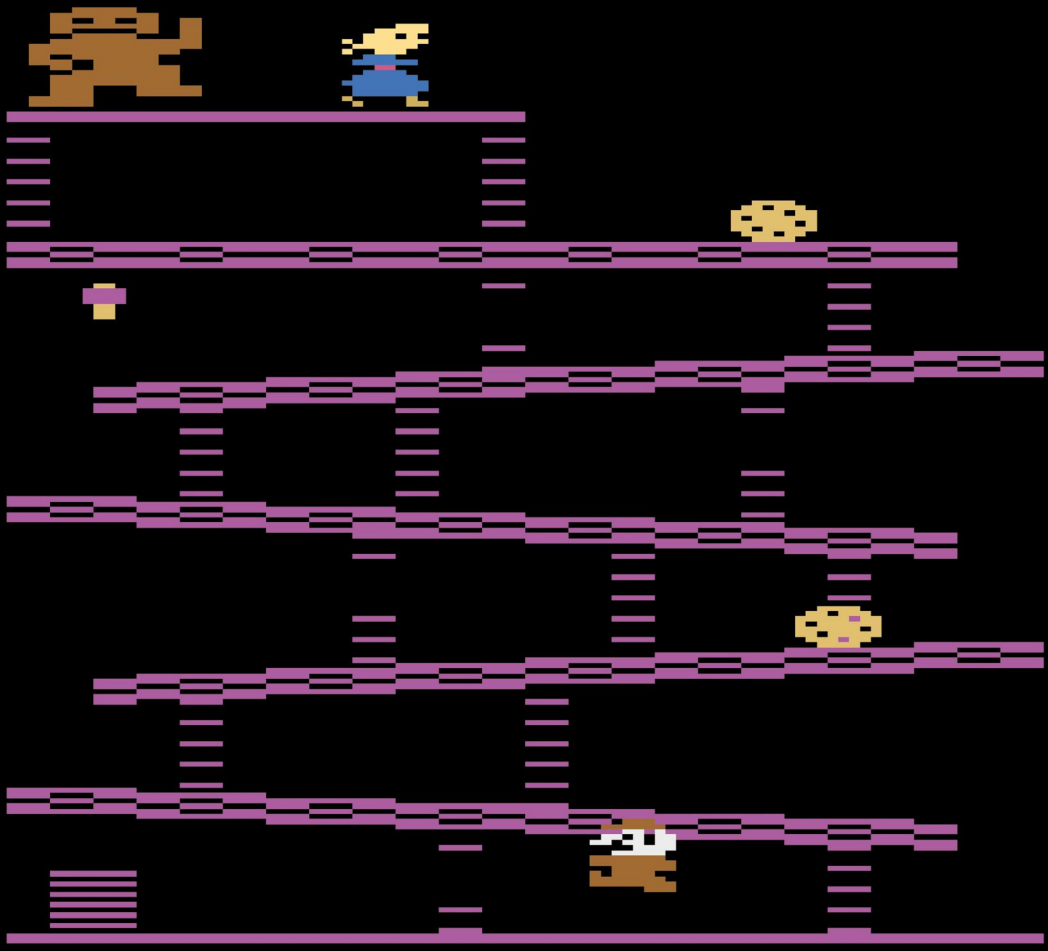
But Atari had the edge and it had the name. And, while it wasn't the first console, it did create many firsts. When you're in early, you can do the first real baseball game. You can do the first basketball game. You can do the first adventure game. You can do the first of everything. Even then, it's not like things like adventure games didn't exist prior to that, but this was the first time that it was a mass-market thing that people could buy.

And then there was the talent behind all of these amazing games. Everybody wants to do the best job they can – that goes without saying – and I hate to say it, but my own experience as a cynical old geezer is that the vast majority of humanity, they get by on a day-to-day basis, and they provide a lot of useful services – but, in reality, there's a very, very tiny segment of people who push mankind forwards. We were fortunate back in those days to be associated with people who are of that ilk. I'm still in awe of some of their abilities to this day; I'm a smart guy, and I do a good job - and I don't mean to minimise my own contribution - but, by the same token, there was a whole level of people above me that were brilliant. Maybe they didn't have my gift of the gab, but they were a smart crew – a great group of people to work with and to be associated with.

"I think the public was prepared, in a sense, for when the VCS came out, and it was reasonably priced for the time. Atari did a very good job with marketing in those days; they of course piggy-backed off the success of the coin-op division, which was only producing gold-standard games at that point."



Shootin' Gallery / *2600 / 1983*



Platform
2600

Released
1982

Genre
Arcade

Developer
Imaginative Systems Software

Publisher
Coleco

Originally by
Nintendo

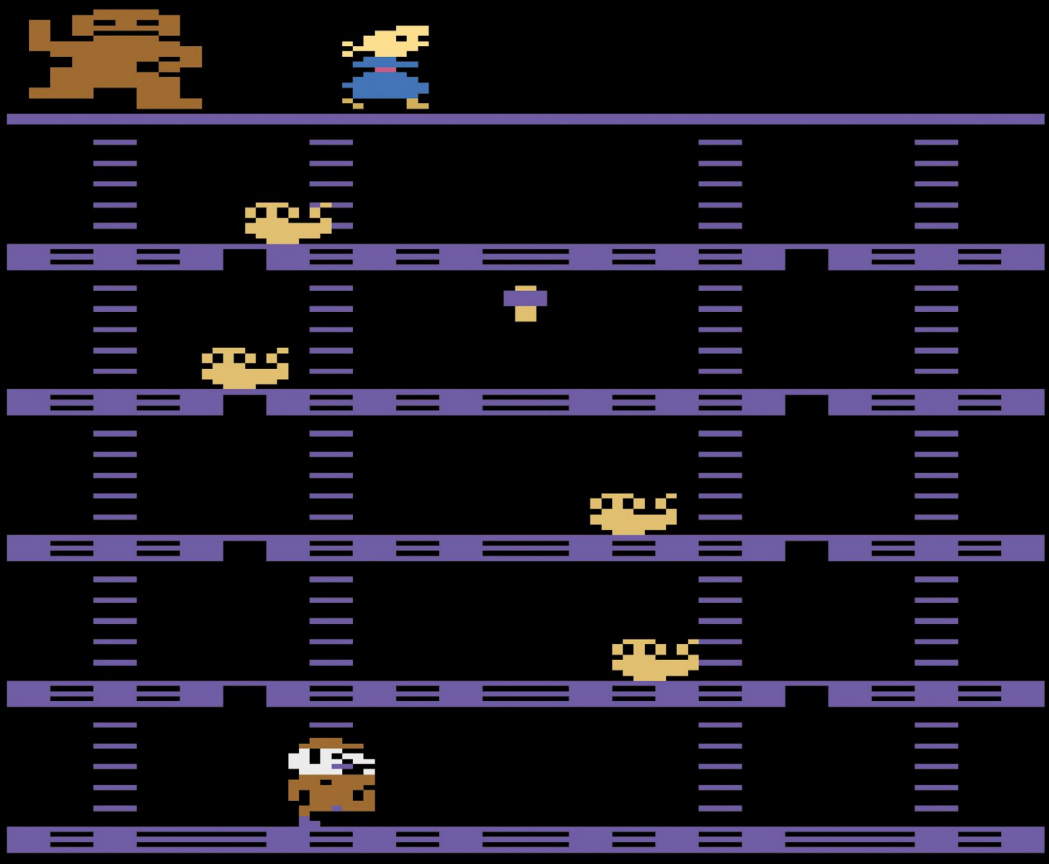
Donkey Kong

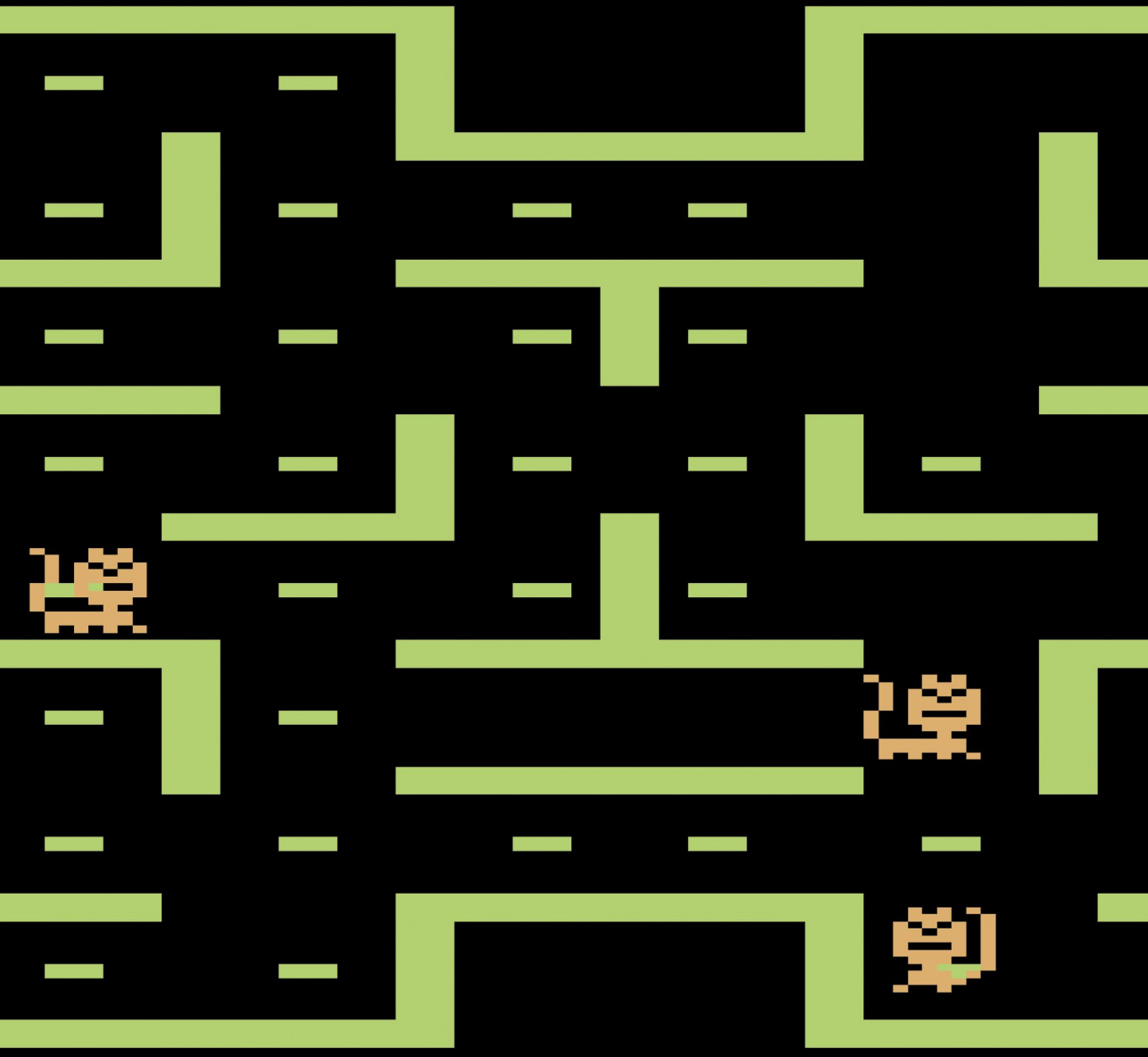
"By 1982, I'd left my job to start my own software company. Consequently, as one of the few Atari 2600 programmers 'for hire', I was offered the opportunity to program the Atari 2600 version of *Donkey Kong*.

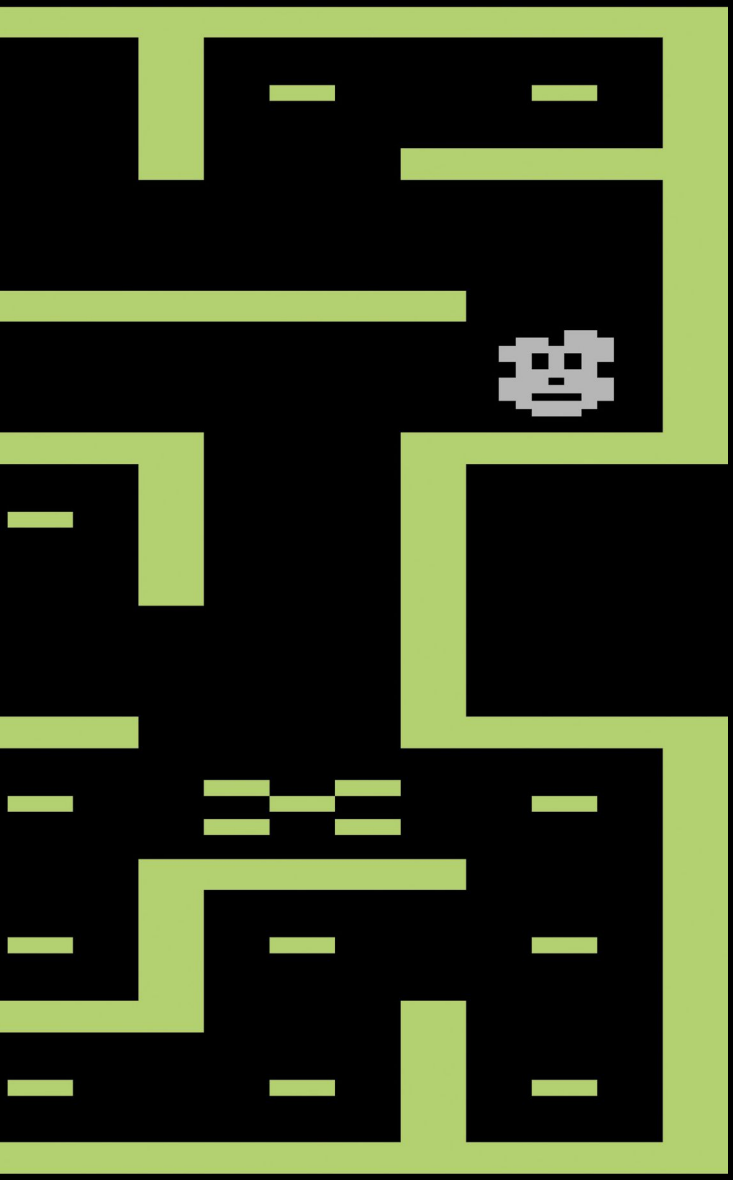
"From the get-go, my biggest problem was that *Donkey Kong* had four unique styles of gameplay, represented in four distinct screen designs – the ramps, conveyor belts, elevators and rivets. Given the technical constraints, I knew from the beginning that there was no way that I'd be able to fit four distinct screen designs and associated gameplay in a 4K cartridge. The vast majority of the game-playing audience equated *Donkey Kong* with the famous first-level ramps, so my number-one priority was to create a ramps screen which represented as closely as possible, the arcade game experience.

"Getting the opportunity to port *Donkey Kong* to the Atari 2600 was a mixed blessing. In reality, no matter how good a job I did on the port, it would never stand up to a direct comparison with the original game. Would what I'd be able to deliver satisfy the Atari audience? In the end, I delivered what I thought was a very respectable port of the game. I delivered on schedule, in 4K of memory, and it was a huge commercial success, selling in excess of four million units. I was even able to shoehorn in a second screen of gameplay (the rivets). I have to say, with all humility, that I was proud of the job I did, given the limitations I was given."

Garry Kitchen, programmer







Mouse Trap

"*Mouse Trap* is a port of an arcade game from 1981, which would have been relatively unremarkable if not for the rare honour of being selected for a tribute track on the hit Buckner & Garcia record, *Pac-Man Fever*. The album featured songs about mega-popular games like *Donkey Kong*, *Defender*, *Centipede*... and also *Mouse Trap*. Also remarkable (a term I'm using loosely here) is that the arcade game featured a big green button with a cartoon dog printed on it. A pretty simple riff on *Pac-Man*, the 'dog button' (just the button on an Atari joystick), along with bones you collect, is used to turn the tables on the cats patrolling the maze; it transforms you from a mouse into a dog. The maze also has a series of gates, similar to *Lady Bug*, which you can use to corral the cats. It's not a terrible port on the Atari, with many of the features intact and its already simplistic graphical style preserved. But you'll have to decorate your own dog button and provide your own soundtrack: Ma-ma-ma-Mouse Trap, Mouse Trap/Cheese was the bait!"

Samuel Claiborn, games journalist

Platform
2600

Released
1982

Genre
Arcade

Developer
James Wickstead Design Associates

Publisher
Coleco

Originally by
Exidy

An interview with Howard Scott Warshaw

One of the most fascinating individuals to ever work within the walls of Atari, Howard Scott Warshaw is famous for three seminal Atari 2600 titles: Yars' Revenge, Raiders of the Lost Ark *and* E.T. the Extra-Terrestrial. *All three sold over a million copies according to Warshaw, but* E.T. *– a title created in just five weeks when the standard was six months – would become infamous as the game that sank Atari and sowed the seeds of the 1983 video game crash. Since departing the games industry, Warshaw has written books and created documentaries, and now runs his own psychotherapy practice in Los Altos, California. He is currently writing a book about his career in the games industry.*

What are your lasting memories of the Atari 2600?
My lasting memories are really fond because the 2600 forced you to really explore the intricacies of bad programming practices. To make things work well in the 2600, you were supposed to do things with your code that I was trained in graduate school to never ever do – but they were the most fun things to do with your code. I was happy to throw out my education, in a sense, in favour of being productive. Sometimes, people teach you how to do something, and you have to throw those lessons out in order to really be proactive. The 2600 really gave me the opportunity to do that, so it was delightful in that regard. I really enjoyed that.

You were doing things that there was no rule book for. Was that an exciting thing to do?
Developing for the 2600 really was a very interesting exercise, because the goal wasn't just to do something; the goal was to do something new, something fresh. You had to think in different ways, you had to innovate, you had to be an innovator. In the world of computers, there are nerds and there are artists – you had to be a 'ner-tist'. You had to be a hybrid of an artist and real techy, and, to me, that was exciting because I really felt I was both; I've always had strong leanings in both directions. I didn't necessarily have talent in both directions, but I had leanings. The 2600 really forced you to exploit both aspects and both sides, and people who leaned too heavily to one or the other I don't think were as capable on the system. If you're trying to create something new, you really had to strike that balance. If you were doing a coin-up conversion – if you were doing a pre-existing design and implementing it – then someone who is very nerd-heavy would be a very good selection for that.

To really innovate, to create a new game, to do something profound on the system – profound in terms of a contribution to gaming – that was special. There are people who did amazing translations of existing games, and that's a talent too; I don't want to undersell that. To me, what was really exciting about working at Atari was that we were pioneering a new medium, so to make a contribution, that was really the thing. The way I saw my job working at Atari wasn't just to produce games; it was to make a contribution to video gaming, to this new dawning era of a new medium – because it really was one of the first new media that had come along in quite a while. I was very aware of that, and it was very meaningful to me to be a pioneer in a new field, and I wanted to make a contribution. That was my calling, that was the thing that spoke to me and said, if I'm doing something that's really fresh and new, then I felt good about it.

> *"The way I saw my job working at Atari wasn't just to produce games; it was to make a contribution to video gaming."*

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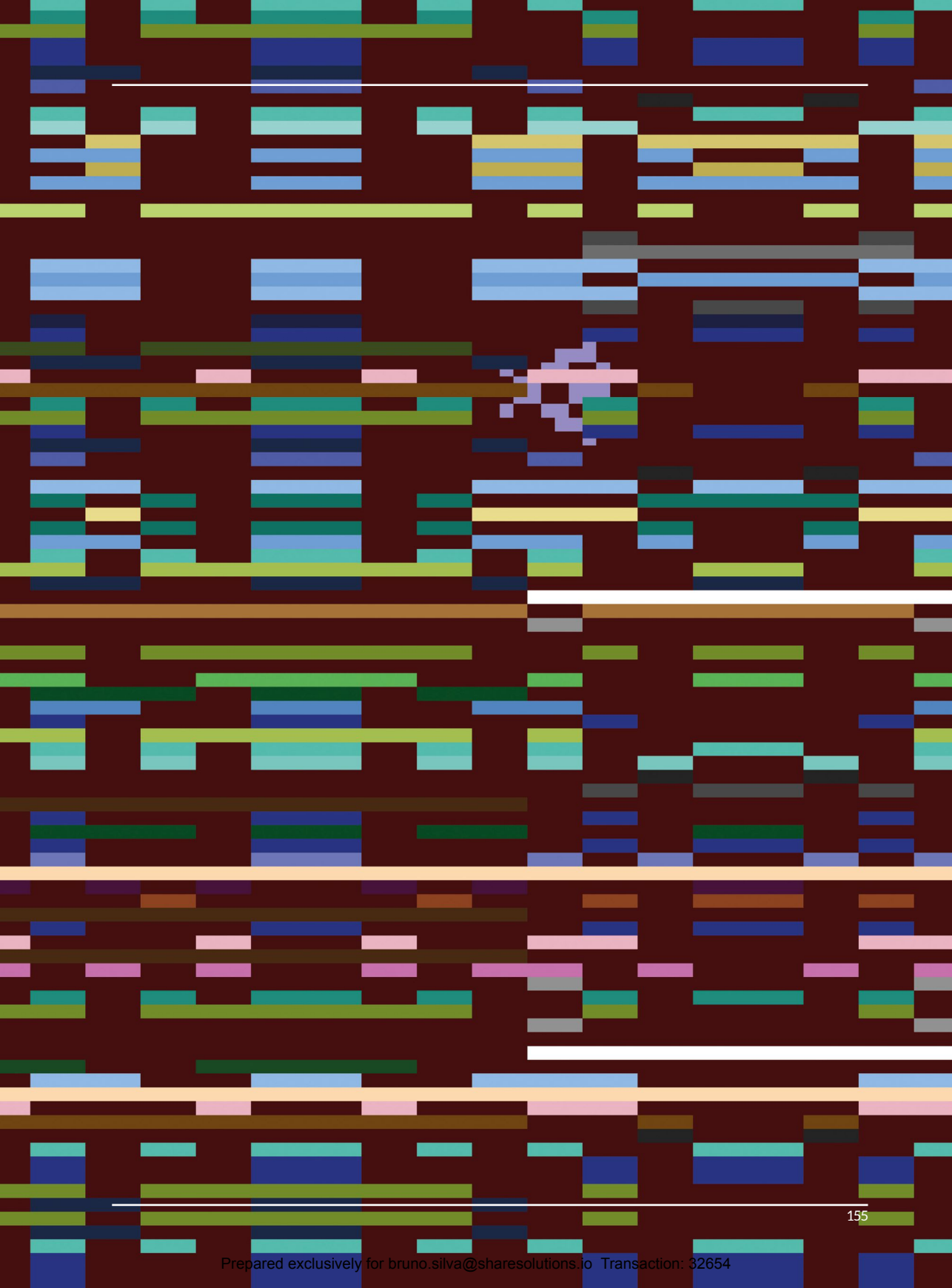

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You'd also be responsible for everything on that game. The idea of having separate people doing different bits of the game was unheard of. You'd do everything: the graphics, the programming…
Making a game on the 2600, when you compare it with modern game development, the difference that's so stark is that you were the only one. It was your project – one person, one game. At some point, we would get a bit of graphics help or maybe some audio help, but the vast majority of the game was exclusively yours. Like *Yars' Revenge*: I did everything in that. I think I had an artist change the font for me, so I had a cooler-looking font, but that was it. In all my games, I did the whole thing and it was just really exciting.

That's an incredible level of ownership to have, isn't it? A modern game designer doesn't have that ownership because they're having to delegate it to so many different people.
It's hard to get that level of ownership in games these days. You can be a part of a game. It's the difference between a work of authorship and a collaborative effort. It can still be meaningful to be part of a collaborative effort, but a work of authorship is something that's all yours, which means the success is all yours and the failure is all yours, depending on how it goes. Not everyone can deal with that level of responsibility, but for me, it was almost a must. I found that later, as I started working on collaborative projects, it was not nearly as gratifying as it was to work on a focused game that was all my own. On bigger projects, I always say it's the difference between a motorboat and an oil tanker. Oil tankers can deliver a tremendous amount of important stuff, but the one thing they can't do is make a sharp turn. I like sharp turns! I prefer slalom to downhill.

Atari wasn't crediting the people that created these games. How did you feel at that time?
The conflicts between engineering and marketing, engineering and management, I think were the real cultural issues within Atari. The idea of authorship was a sore point, and that led to the genesis of Easter eggs; the reason there are Easter eggs in games was to defend authorship, that was the whole idea. Another first for *Yars' Revenge* was that it was the first game by Atari that credited the programmer. That had never happened before at Atari, but I got that to happen on *Yars' Revenge*.

Did you have to pull any strings to get that done? Did you insist on that?
No, I didn't actually. I did it by creating the first backstory. I wrote this whole backstory, and then they decided to do a separate comic book, and it was in the comic book where they listed credits for the game. Then I saw a prototype of it, and I saw that I was credited for the game and someone else was credited with the story. I said to them, *"Hey, how come I don't have credit for the story? I wrote the story too,"* and they said, *"You can have one credit in this product - would you rather it be for the game or for the story?"* so I said, *"That's fair, I'll take the game."* But it did go out with the name of the programmer in the product, and, from then on, they started putting the names of the programmers on the product. I broke that glass ceiling at Atari.

Yars' Revenge *really was a game of firsts then?*
There are many firsts in *Yars' Revenge*, and a lot of them went on to become industry standards. I was always very proud of that; that even as a newbie, I was able to come in and not so much see how to do what they do, but to see what hadn't been done and do that. I think that was the big thing about *Yars' Revenge* for me. It's one thing to see how people do something and then be able to join; that's okay, that doesn't seem like a difficult process usually. To be able to see what's not happening and do that – that's meaningful. That's my goal, that's what I shoot for in a lot of things, and I felt, with *Yars' Revenge,* I was really able to tie into that well.

Is the name 'Yars' really a reference to the then Atari president, Ray Kassar?
That is absolutely true, and it was all part of my plan to market my ideas to marketing.

E.T. the Extra-Terrestrial *is perhaps the title you're most strongly connected with – a game that has a special place in the history of the industry. What are your thoughts on being linked to such an infamous game, and what was it like to work on?*
The greatest lesson that I learned with *E.T.* was how important design is to overall project duration and requirement because, ordinarily, when you do a game, the goal is to do a good game. The threshold is the quality of the game, and the time is the variable that fluctuates. In normal game development, the independent variable is the game quality, and the dependent variable is the time. Normally, you start development by saying we're going to take as much time as we need to make a game of an adequate quality level. With *E.T.*, I had to totally invert that thinking because the dependant variable – time –

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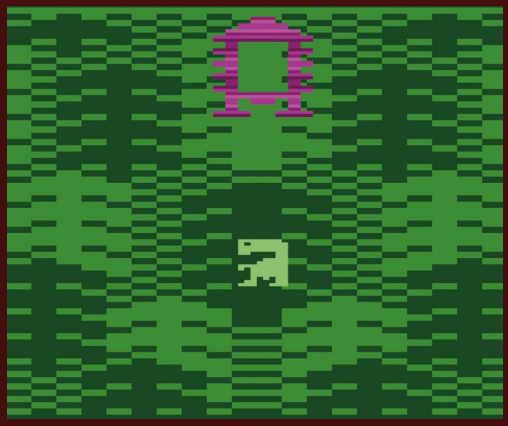
I didn't have. Back then, time is typically going to be six to eight months. With *E.T.*, I only had five weeks, so the independent variable became the duration, and the dependent variable, the one that fluctuated, would be game quality. Instead of trying to make a good game and seeing how long it takes, with *E.T.*, it was to do a game in five weeks and see how good a game you can make. I liked the idea of the challenge, but the way I met the challenge was by really understanding what my priorities were. My design priority was to find game components and pieces that I could credibly complete in the time frame, and see how good a game I can make out of that. It's just a different way to approach a game. I've always been very proud of the fact that I was able to meet that challenge.

Do you think it's fair to say that* E.T. *has become bigger than a game; it's a piece of pop culture now?
Yes, it's bigger than just a game. A lot of people are focused on it. It's interesting that my most noted game is notorious; ignominy is really the hallmark of it, but it's interesting that the game I spent the least time on gets the most attention. That's an interesting inversion, but it goes to show you that what goes into making a game is not as important as what happens to the game, or what the game experience is.

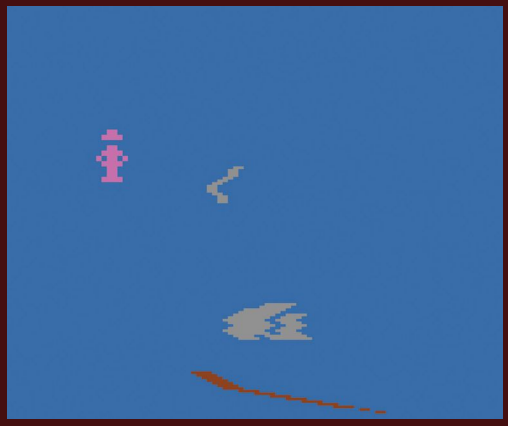
> *"It's interesting that the game I spent the least time on gets the most attention."*

> *"There were games that existed before the 2600, but the 2600 was the first system that really put games out in the world and was widely distributed. It was the first time that had happened, and so that was really the cornerstone of home gaming."*

Why do you think the Atari 2600 is so fondly remembered by people today?
I would say the answer is because it's the first. You never forget your first time, right? There are a lot of people who were born after the 2600 was totally gone, who experienced modern gaming, but there's still an awareness. When I was doing these games, there was no history of video games, there was just video games. Now there's a history, and, whenever there's a history, people look for origins. There were games that existed before the 2600, but the 2600 was the first system that really put games out in the world and was widely distributed. It was the first time that had happened, and so that was really the cornerstone of home gaming. Arcade gaming kept turning over and turning over and turning over. It predated the 2600, and the products were much better and much more elaborate than the 2600, but the 2600 was a mainstay in homes for many years. It was really the mark of home gaming and home computing, to tell you the truth. I think the 2600 did more to put computers in homes than any of the PCs or anything like that.



E.T. the Extra-Terrestrial / *2600 / 1982*



Raiders of the Lost Ark / *2600 / 1982*

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Raiders of the Lost Ark

"*Raiders of the Lost Ark* is really interesting because I switched from action to adventure, and I prefer action games. There's a huge difference between making an action game and an adventure game. When you're making an action game, in my opinion, you should have no advantage over any other player. The maker of the game should be able to have exactly the same play experience that any player does in an action game. In an adventure game, the maker of the game can never have the experience of the player, so it's much harder to gauge when making an adventure game because you know the secrets you're putting in. How can you understand how tough it is or how well-tuned it is, in terms of discovery, other than watching people play it and getting a sense of it?

I like to know what I'm doing. I like to have a sense that I'm aware of the process of what the play experience is, and it's frustrating to me to do an adventure game where the maker can never get that experience. If I'm creating a secret, I can't go back and know what it's like to not know the secret. Once you lose your intellectual virginity, you can never go back. Sometimes, it'd be nice to think of unlearning something or being able to get back to it. It's a hard thing as a designer to understand where you're at in the process, and I think that was something I learned with *Raiders* that was particularly poignant."

Howard Scott Warshaw, designer and programmer

Platform
2600

Released
1982

Genre
Adventure

Developer and Publisher
Atari

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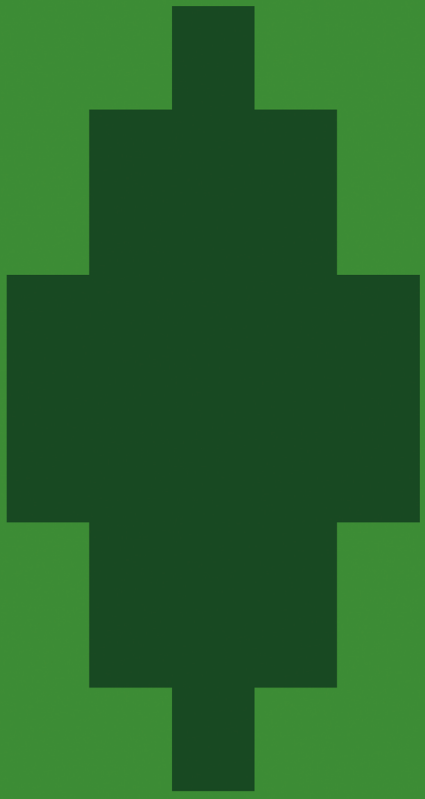

E.T. the Extra-Terrestrial

"*E.T.*'s biggest problem has always been about expectations: programmed in a whirlwind, pre-holiday rush of five weeks, based on one of the most popular films of all time, and following the very successful Atari 2600 *Raiders of the Lost Ark* adaptation. It's actually a challenging and innovative adventure game – and deserves a better reputation. Had programmer Howard Scott Warshaw been able to release the game with another name, it would probably be considered one of the strongest adventure games for the 2600, among the likes of *Pitfall!*, *Adventure* and *Raiders of the Lost Ark*.

"Even when compared with other licensed film adaptations for the 2600, *E.T.* stands above most, both in concept and fidelity to the film's basic ethos. Sure, there are some quirks and issues with collision detection when levitating in and out of the pits, but there are far buggier games for the console. A little practice and reading the manual is all that's needed. Atari fans of the era might have preferred an arcade-style game rather than a puzzle-platformer, but Warshaw again delivered something unique and unconventional. It should be remembered more fondly, and it certainly doesn't deserve the title of 'worst game ever'."

Tim Lapetino, guest reviewer

"You could say it's not the greatest game, for sure – a lot of people say it's the worst game, and a lot of people say it's not even close to the worst game. I prefer it when people call it the worst game, because I did *Yars' Revenge* also, which is frequently cited as one of the best games. As long as *E.T.* is the worst game, then I have the greatest range of any game designer! So that's something I'm proud of.

"*E.T.* completed the range of my work, because now I have one game, *Yars' Revenge*, in the New York Museum of Modern Art, and I have another game, *E.T.*, that is the subflooring of the New Mexico desert! I've always preferred breadth to depth; I love the idea of having range, and so I feel like, as a game designer, *E.T.* proved to me that I could make anything as a game; I could cover the full gamut of game potential."

Howard Scott Warshaw, designer and programmer

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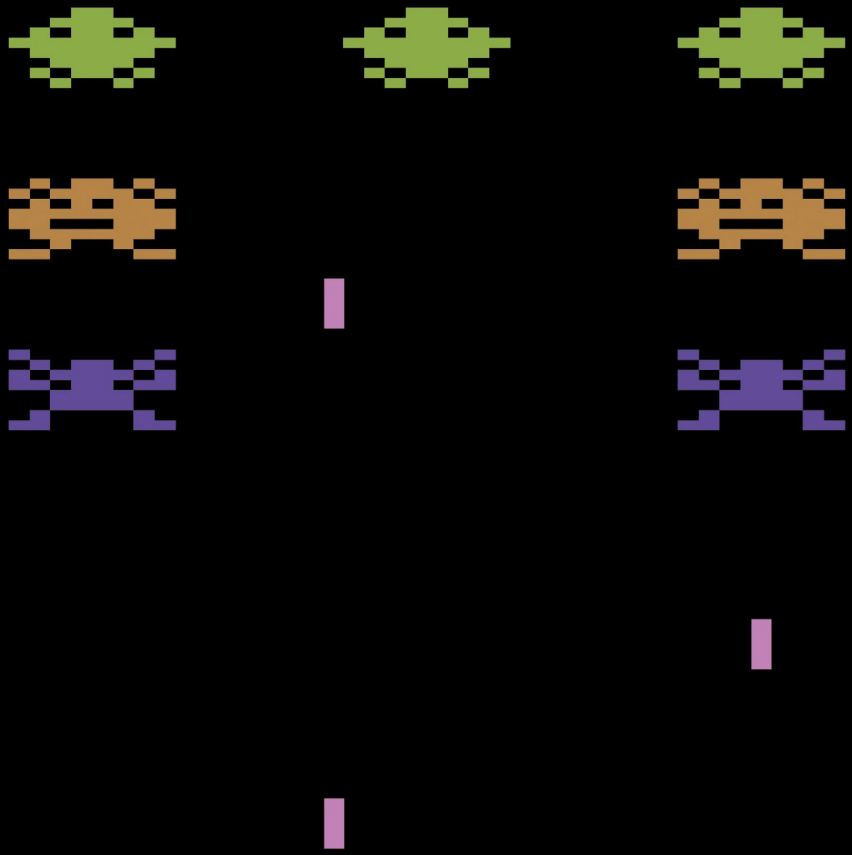


Platform
2600

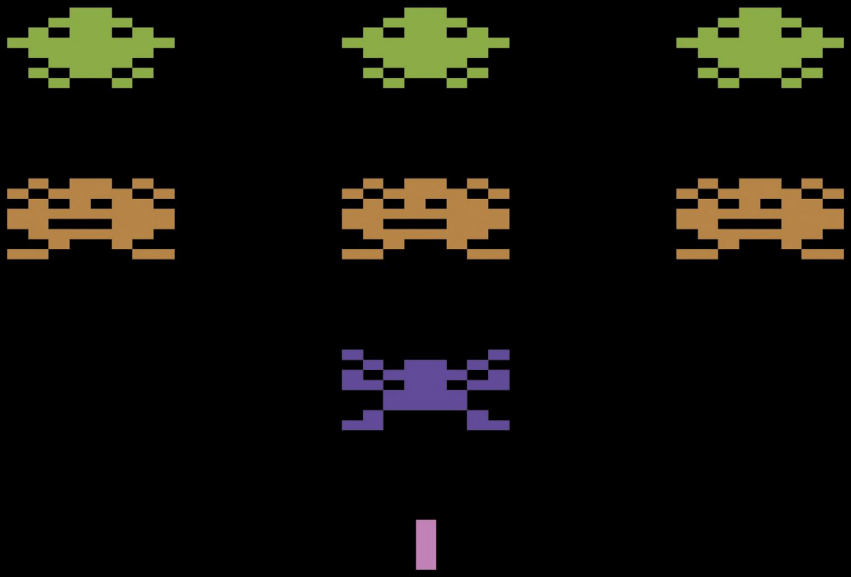
Released
1982

Genre
Shoot 'em up

Developer
Roklan

Publisher
CBS

Originally by
Bally Midway

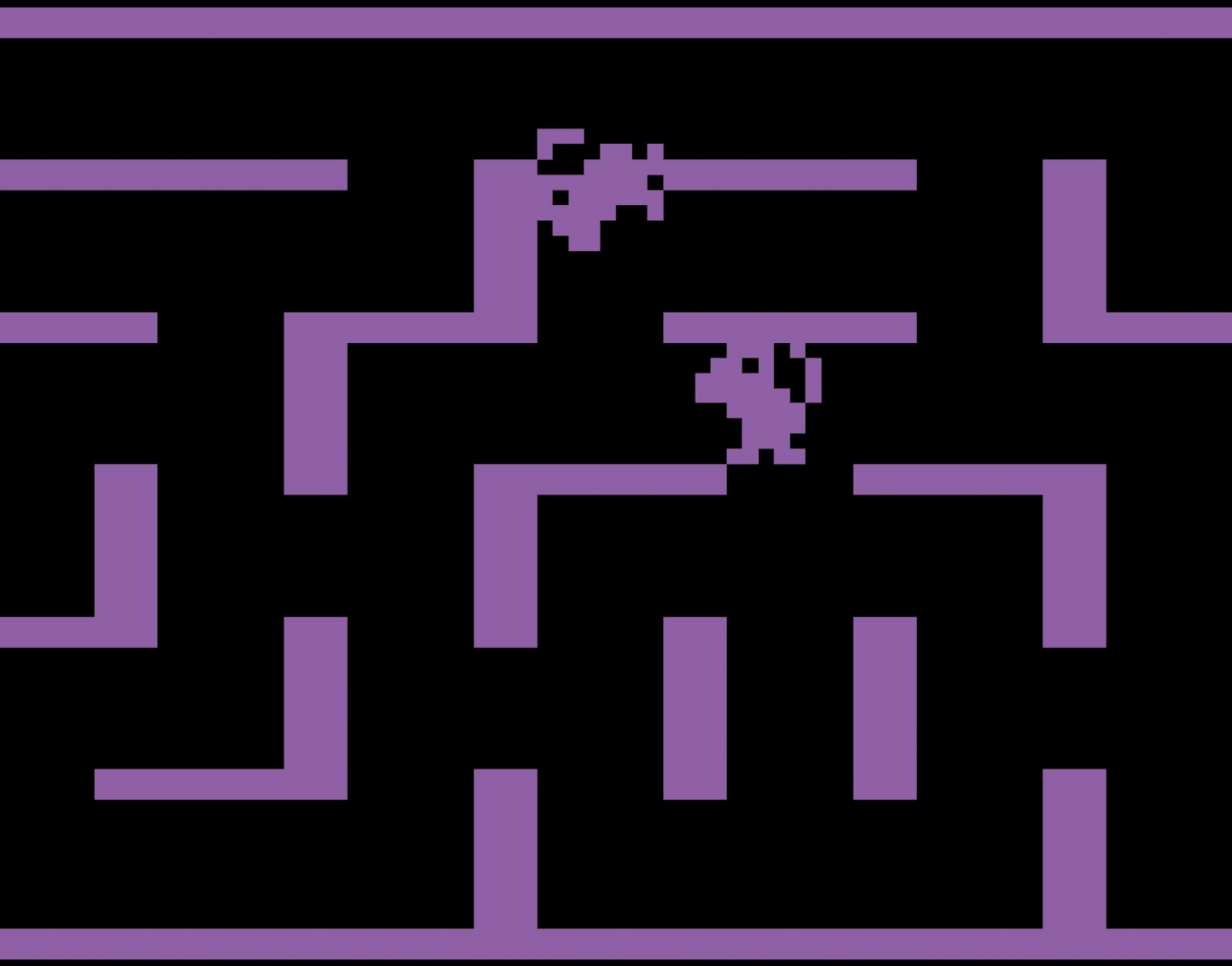


GORF

While *GORF* was nothing more than just another space shooter when it first arrived in arcades, it was one that combined all the best elements of its rivals, meaning it quickly gained a huge amount of popularity. It had a level like *Space Invaders*, another like *Galaxian* (which is, sadly, missing in this port), one like *Tempest*, and a *Phoenix*-like boss stage. It was pretty shameless in its plagiarism, but it was also very intentional too.

Aside from the missing level, this 2600 port stays pretty faithful. You go from a series of rather frantic space shooting levels to the final mothership stage, which is far more tactical as you try to land that magic shot in the ship's warp engine.

Then you have to do the whole thing all over again, only on a harder difficulty. High-score freaks will absolutely love this game, and we'd wager that many of the copies on eBay will have random groups of numbers scrawled across the manuals. Yes, there are a lot of great space shooters on the 2600, with all the aforementioned games that *GORF* copies as well as many more, but CBS's title just hits all the sweet spots to make it an essential own.



Platform
2600

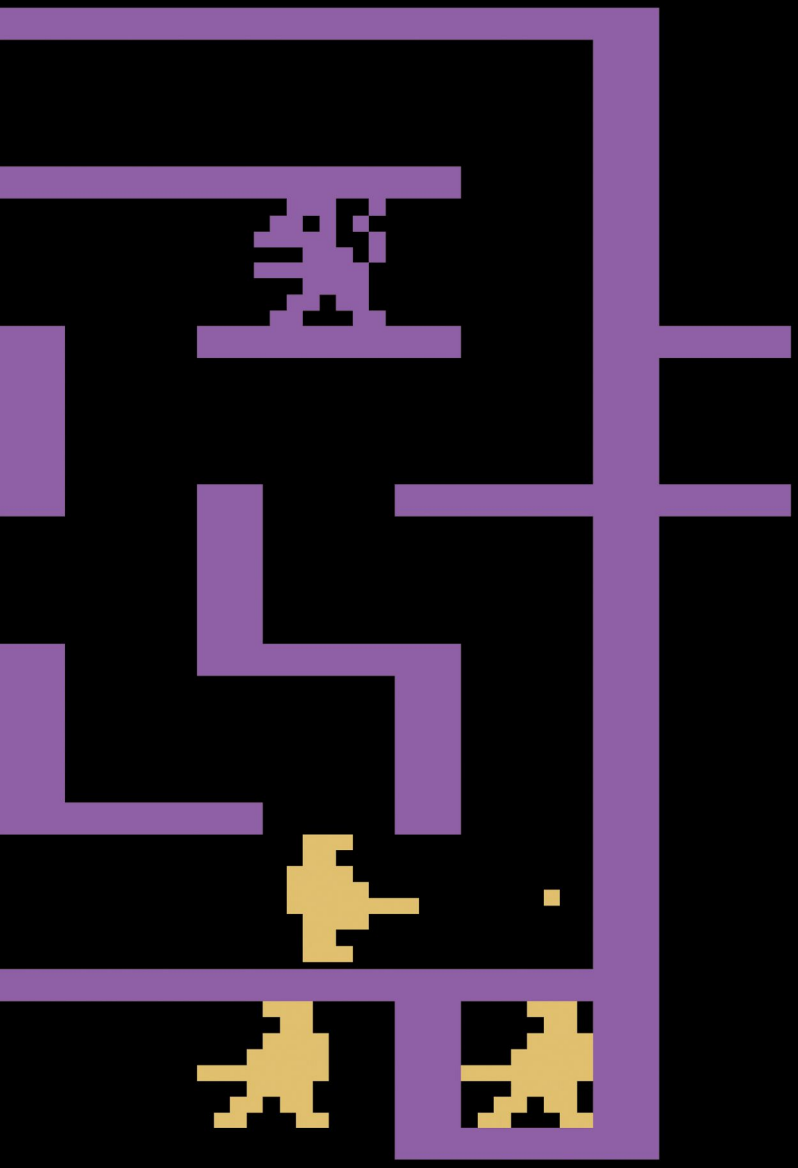
Released
1982

Genre
Action

Developer
Roklan

Publisher
CBS

Originally by
Bally Midway



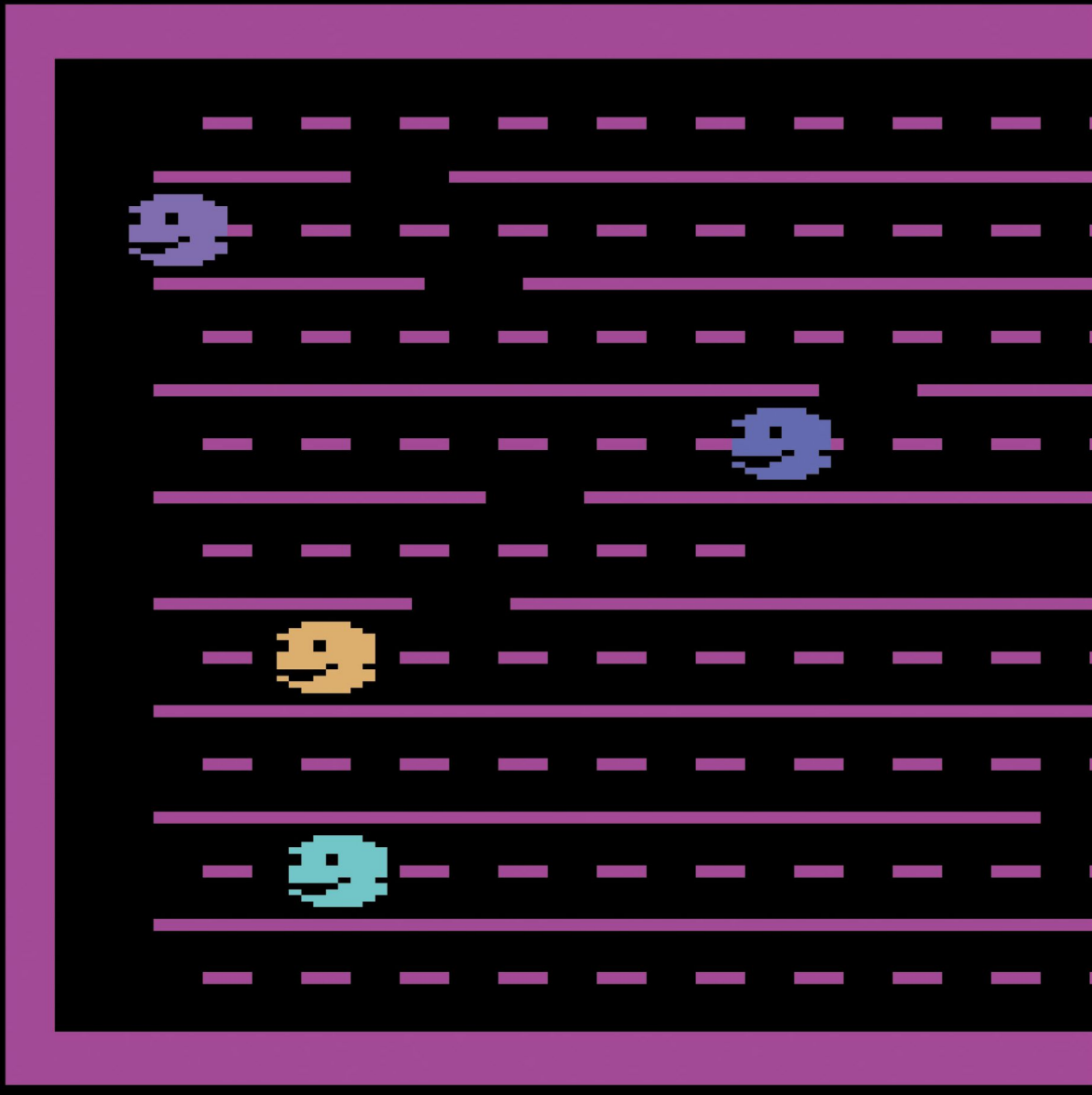
Wizard of Wor

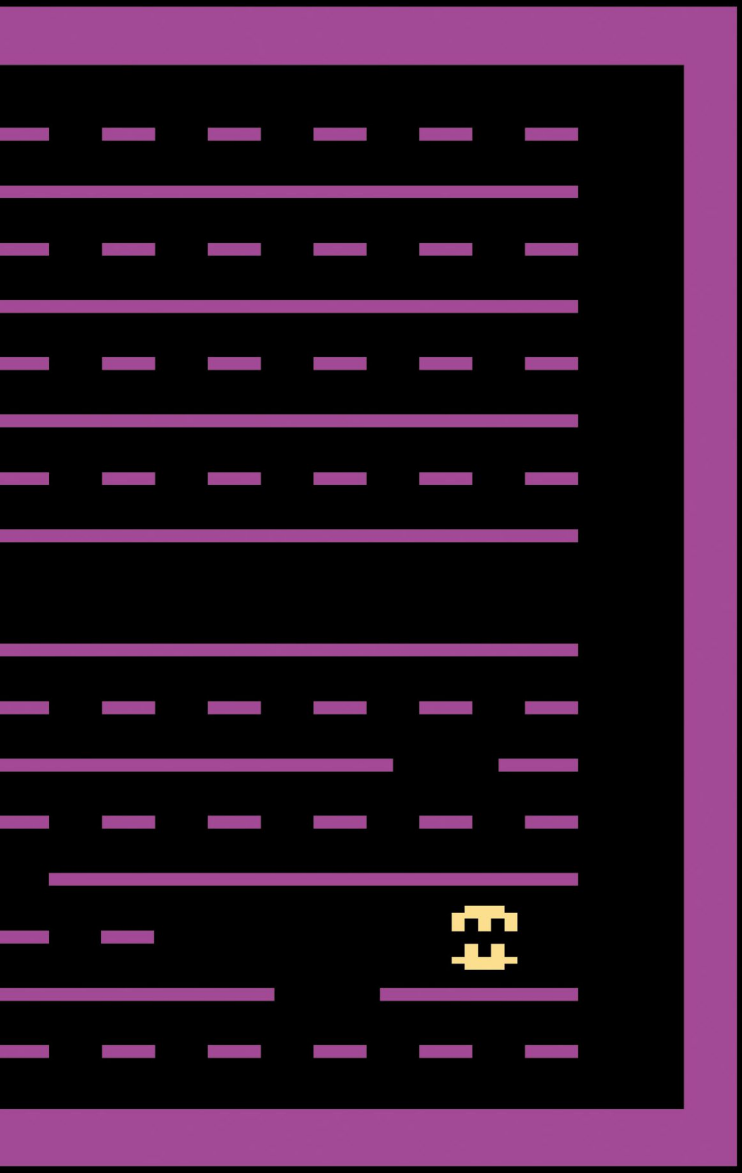
"Like its arcade parent, *Wizard of Wor* on the Atari 2600 comes across a lot like *Pac-Man*, albeit with the maze scrubbed of dots, and the yellow dot-gobbler gaining limbs, a torso, and a huge gun. You set about hunting down roaming monsters, unsportingly shooting them from behind before they get a chance to tear your face off.

"That might sound hyperbolic – and, sure, an Atari 2600 game is never going to have the kind of visual horror found in the likes of an Alien flick. But there's, nonetheless, palpable tension as you stomp about dark corridors, alone or alongside a friend, with monsters often periodically disappearing entirely, thereby forcing you to rely solely on radar.

"Note that vanishing monsters is an authentic feature from the arcade original, and not down to the Atari 2600's legendary flicker. That said, when several monsters are on screen, the flicker works surprisingly well anyway – it's like a spooky failing lighting system in corridors you should know better than to enter, even when heavily armed. As your foes reduce in number, they appear more solid. The result is a rare Atari 2600 title you wish had an option to keep the flicker turned on permanently."

Craig Grannell, games journalist





Jawbreaker

Although *Jawbreaker* is quite obviously nothing more than another *Pac-Man* clone, it's one with a fascinating story behind it. The original version of *Jawbreaker* appeared on the Atari 8-bit and Apple II computers, and was an almost direct copy of *Pac-Man*. Unsurprisingly, this lead to the threat of a lawsuit from Atari and the subsequent withdrawal of the game. On-Line Systems (later known as Sierra On-Line) decided to create a redesigned version of the game – the one featured here – which was then released on the original computer systems under the title of *Jawbreaker II*.

Rather than a maze, the play area is made up of nine rows separated by moving walls. These walls have a gap in the middle that you can use to pass between rows. Like *Pac-Man*, the idea is to eat all the dots to move to the next level and, also like the game it's inspired by, there are enemies trying to stop you. In *Jawbreaker*, there are five different coloured faces that chase you around, and these can also move between rows. Periodically, a power pill appears in the middle of the screen, enabling you to turn the tables for a short time and devour your enemies. It might be far from original, but *Jawbreaker* sure is a lot of fun.

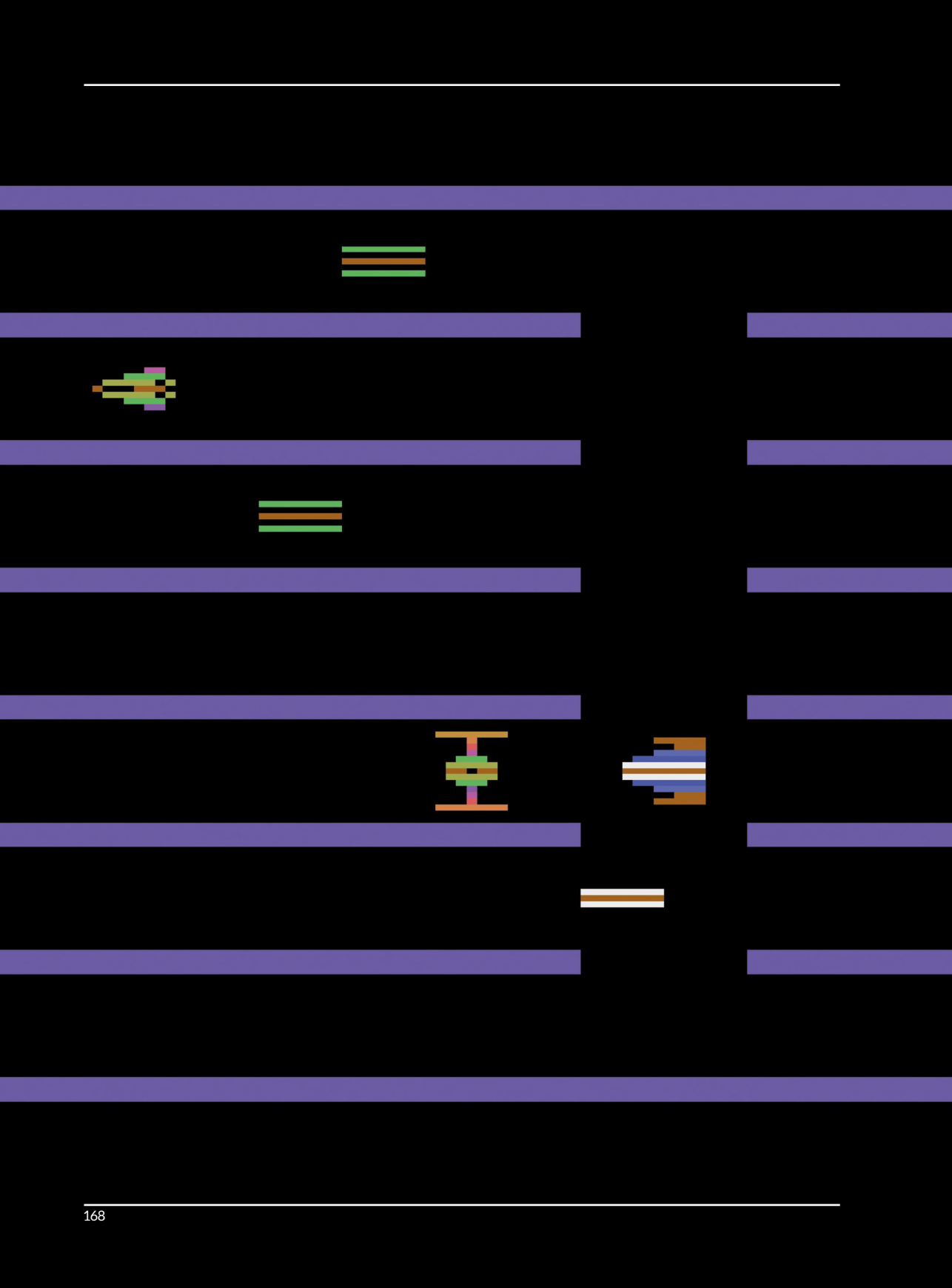
Platform
2600

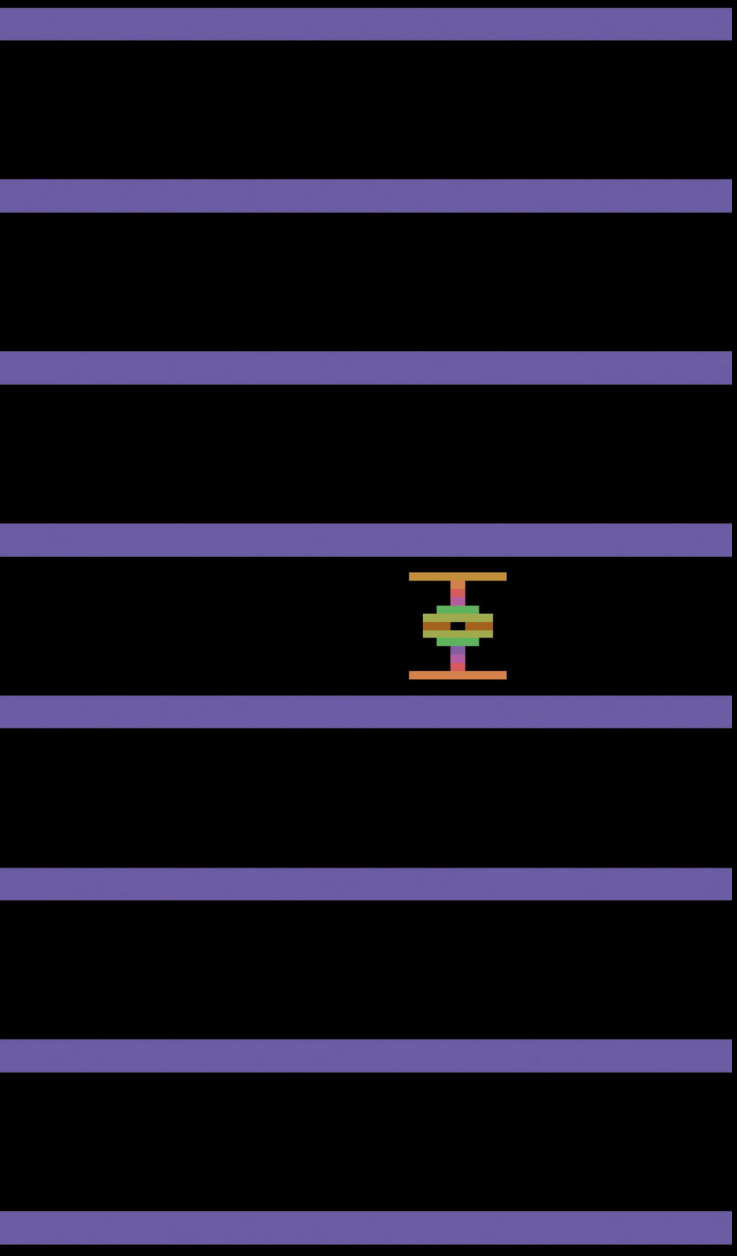
Released
1982

Genre
Arcade

Developer
Sierra On-Line

Publisher
Tigervision





Turmoil

The story goes that Sirius Software programmer, Mark Turmell – who would later go on to create both *NBA Jam* and *Smash T.V.* – was in the arcades playing *Tempest*, and trying to figure out a way to recreate it on the humble 2600. The result of that brainstorming session was *Turmoil*, which you may think looks nothing like *Tempest*, but bear with us, as we'll endeavour to explain. In *Tempest* you have enemies coming up a series of channels, and you also have foes that attack from all sides and angles – *Turmoil* has both of these. *Tempest*, has bonuses that can be obtained and enemies that behave in totally different ways – again *Turmoil* also has these. The big difference is that *Turmoil* is viewed side-on in 2D, with the channels either side of a central passageway, rather than forming the sides of a 3D tunnel. You can freely move up and down this passageway and also venture into the channels, which are obviously more restricted.

The enemies fly along the channels at great speeds, and, once you shoot enough of them, you move on to the next level. With its intense, fast-paced action, there's absolutely no doubting that *Turmoil* is one of the most underrated and underappreciated shooters on the system.

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer
Sirius Software

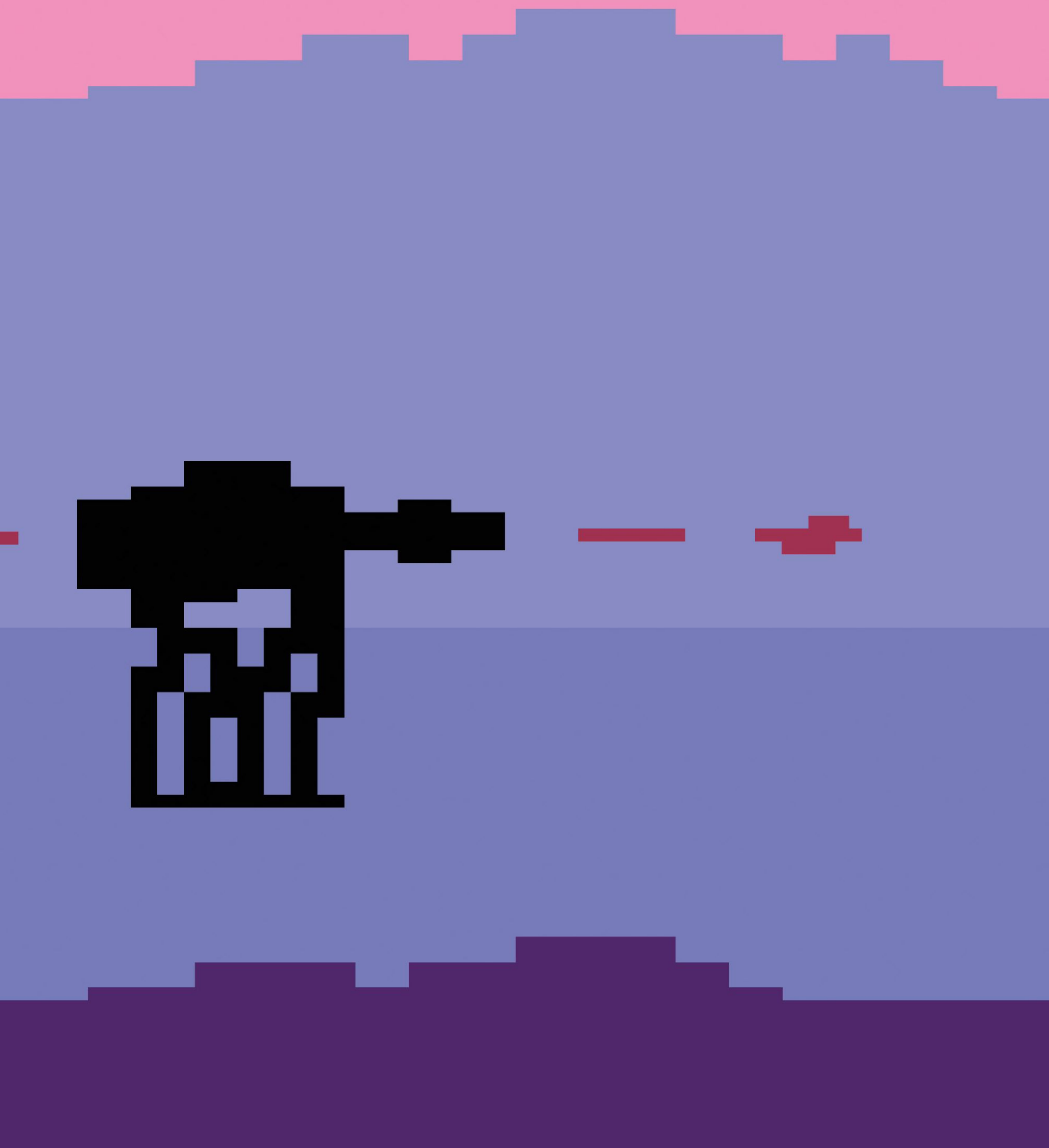
Publisher
20th Century Fox

"Back in the 1980s, the designer was king at Activision. We were free to design what we wanted, with marketing's blessing and support."

Dan Kitchen, game designer and programmer

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

XG-1 light gun / *1987*



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Star Wars: The Empire Strikes Back

"Writing *The Empire Strikes Back* – for me, the first job post-college, first computer game, first assembly language program, and an opaque graphics system we had to reverse-engineer – was like being shot out of a cannon. Sam Kjellman created a great design framework, and, beyond coding all night and day, I focused on some of the intangibles, like the fluid camera motion, which I'm most proud of. Jim McGinnis provided some good ideas, like the foreground/background parallax scrolling, and helped with the Force music. But basically, it was five months of pedal-to-the-metal cram-game-coding!

"I would print out a complete copy of the code each morning, and a second copy to take home each night. A single printout of a modern game, by contrast, would probably require chopping down the Amazon rainforest. Programming the Atari was a master class in hyper-optimisation, counting processor cycles, rearranging code to allow registers to be written at the right microsecond, and a satchel of crazy tricks.

"The game was coming along well, I thought, but the folks in the marketing department weren't happy. Then, one day I decided to take the time to put some sound effects into what had been so far a silent game. The next day, *'The game is fantastic! What the heck did you do to it?'"*

Rex Bradford, programmer

Platform
2600

Released
1982

Genre
Scrolling shooter

Developer and Publisher
Parker Brothers

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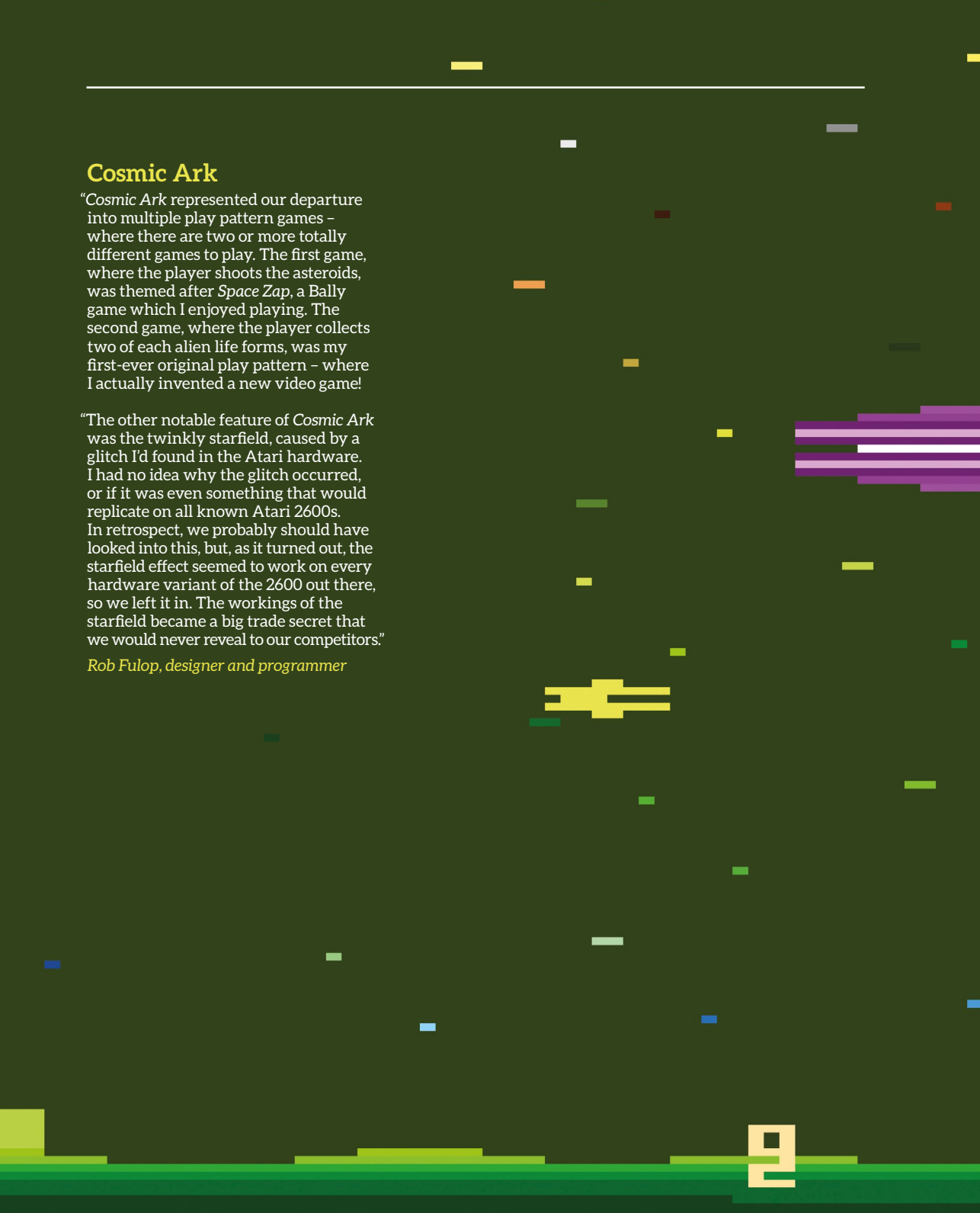
Cosmic Ark

"*Cosmic Ark* represented our departure into multiple play pattern games – where there are two or more totally different games to play. The first game, where the player shoots the asteroids, was themed after *Space Zap*, a Bally game which I enjoyed playing. The second game, where the player collects two of each alien life forms, was my first-ever original play pattern – where I actually invented a new video game!

"The other notable feature of *Cosmic Ark* was the twinkly starfield, caused by a glitch I'd found in the Atari hardware. I had no idea why the glitch occurred, or if it was even something that would replicate on all known Atari 2600s. In retrospect, we probably should have looked into this, but, as it turned out, the starfield effect seemed to work on every hardware variant of the 2600 out there, so we left it in. The workings of the starfield became a big trade secret that we would never reveal to our competitors."

Rob Fulop, designer and programmer



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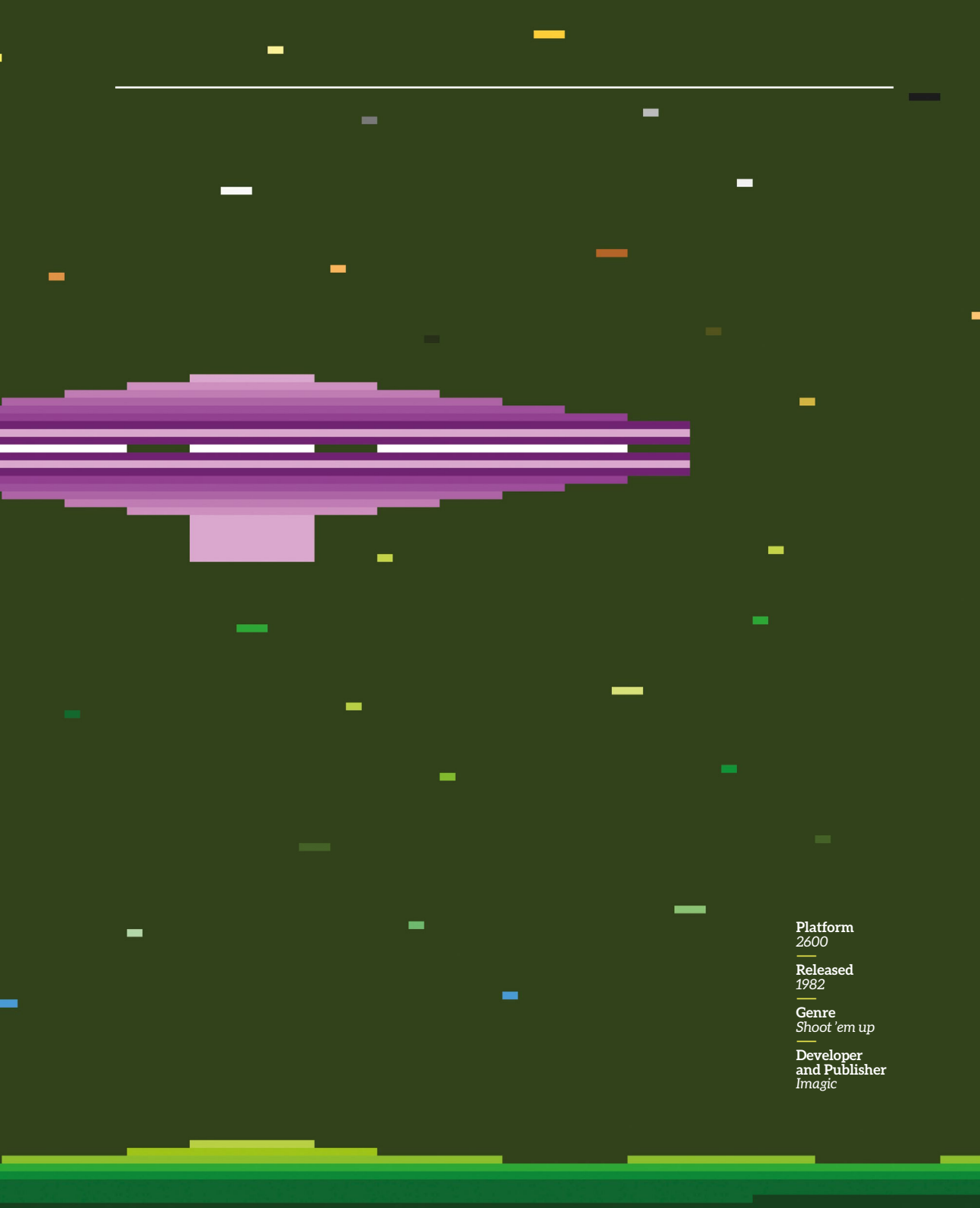

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Imagic

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1982

Genre
Adventure

Developer and Publisher
Imagic

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Riddle of the Sphinx

"This was my second 2600 effort for Imagic. Our first round of releases were fairly well received, especially Rob Fulop's *Demon Attack*, so I felt that I could do a 'niche' game and please myself rather than the market. I'd grown up near the Rosicrucian centre in San Jose, so I chose an Egyptian theme. We later awarded the grand prize for the *Riddle of the Sphinx* contest at the Rosicrucian Museum there. I also liked the idea of downshifting to a sling. My sons were young then, so I was surrounded by new, Egyptian-style Lego creations every day. They eventually reproduced most of the final graphics in that medium.

"Technically, these were my best kernels yet. At the same time, Carol Shaw used similar kernels (that use scrolling player resets) for the bestselling *River Raid*. So, while *Riddle of the Sphinx* was not a real financial or sales success, last year, I met a woman who played and loved 'this obscure 2600 game about Egypt', and it turns out she was describing *Riddle of the Sphinx*!"

Bob Smith, designer and programmer

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IMAGIC

When you're onto a good thing, it's inevitable that others will attempt to follow your lead. When David Crane, Alan Miller, Bob Whitehead and Larry Kaplan broke away from Atari to form Activision in 1979 – thereby creating the concept of third-party developers overnight – it triggered something of a gold rush, as other companies sprang up in the hope of reaping the rewards of making games for the Atari VCS, or 2600 as it would later be known.

Perhaps the most notable developer to work on the VCS outside of Activision was Imagic. The company was established in 1981 by ex-Atari staffers Bill Grubb, Bob Smith, Mark Bradley, Rob Fulop and Dennis Koble. They were joined by Jim Goldberger, Dave Durran and Brian Dougherty from Mattel, makers of the Intellivision console, plus Pat Ransil from Intel and Gary Kato from Versatec, the Xerox-owned printer company. Imagic quickly established itself as one of the most prolific game makers of the early '80s.

"*Imagic was the second third-party startup, after Activision*," explains Imagic co-founder Fulop, who produced some of the studio's most critically and commercially successful titles. "*I got the idea – let's get together with people from Atari and Mattel and we'll make games for the two consoles of the time, which were the Atari VCS and the Mattel Intellivision. We got venture capital from Kleiner Perkins; I think it was $1.3 million. It wasn't really a lot but, at the time, we just kind of did it.*"

Just as the founders of Activision had decided to go it alone due to Atari's practice of refusing to credit the creators of its software, Fulop and his team experienced similar feelings of resentment. "*I'd started at Atari out of college*," he says. "*I'd done Space Invaders for the Atari 800, then I did* Missile Command *for the Atari VCS, which did very well. I basically received nothing as a bonus for doing* Missile Command, *and that was why I left the company. I don't know if Atari was arrogant or we were within our rights to be considered artists, but it was a question of authorship. It was obvious that these were authored works, and any authored work deserves a name on it. You create something, you put your name on it. That's just how it works.*"

Just as Activision had taken a huge risk – and one that would come with the threat of legal action from Atari – Imagic's young team was throwing caution to the wind, even if Activision had shown the way. "*I was 23, 24*," shrugs Fulop. "*Security didn't mean a lot at the time. What I got most concerned about was that I was an author and wasn't being allowed to put my name on the work, and that, I thought, was stupid. The opportunity for Imagic to me was really just to put my name on my work. That, to me, was worth leaving Atari for. I had no idea what the business infrastructure was at the time.*"

Right out of the gate, Imagic strove to impress. Fulop's debut – and perhaps the company's most famous title – was 1982's *Demon Attack*. It was this take on Centuri's 1980 shooter, *Phoenix*, that caught Atari's attention. Atari had licensed *Phoenix* for release on the 2600 in 1982 and took legal action over the close resemblance between the two games; the case was ultimately settled out of court. Questions of inspiration aside, *Demon Attack* looked quite unlike anything that had been witnessed on Atari's console up to this point.

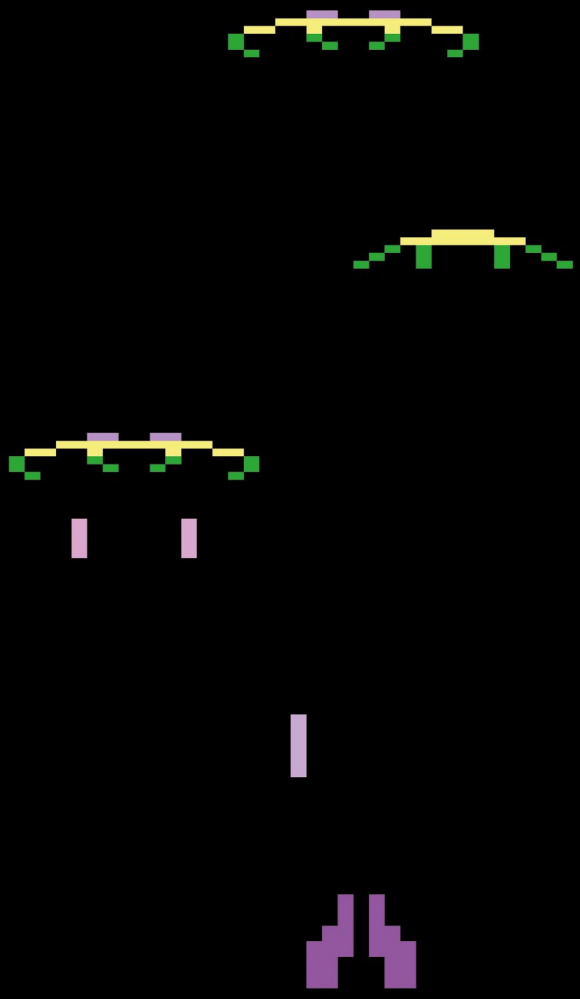
> *"Perhaps the most notable developer to work on the VCS outside of Activision was Imagic."*

> *“We were the first company, I think, that had figured out how to have the artists participate in the production of the game.”*

“We were the first company, I think, that had figured out how to have the artists participate in the production of the game,” says Fulop. *“We created software tools for that – very simple tools, but, at the time, no one else was doing that. We let the artists create the graphics on the screen using a pixel editor, and those pixels would go right into our game. That was our big secret. We had some experienced people that worked on the Atari VCS for several years. We knew what the VCS could be made to do. Our games looked special because we learned how to use the colours in a way that people hadn’t done before. Things popped off the screen; they just looked better at the time.”*

In an era when most games were developed by a single person who wouldn’t even get a credit in the game’s instruction manual, Imagic’s approach shook things up. *“We were treated more like authors,”* says Fulop. *“We were given a nicer environment to work in. We were given complete freedom. These games were individually authored, and there wasn’t a lot of management – at least, not until the very end of the product.”*

While most developers are used to having their bosses make creative decisions, back then, Imagic’s take on the deal was uniquely charming. *“What I would do is let management and marketing pick the colours!”* laughs Fulop. *“That was like a big deal to them. I let them come into the lab, and they were all excited. They’d come in and take it very seriously; we’d sit down and they’d help balance the colours – that would really give them a sense of ownership. I remember Bill Grubb was very excited. He liked to tell people, ‘I’d love to do this, but I’ve got to go and pick the colours today. I’ve got help with the colours.’ I would develop the games in black and white until that point. ‘Now I add some colour. Now it’s nearly done.’ It helped a lot. That was a big deal.”*



Cosmic Ark / *2600 / 1982*

Dragonfire / *2600 / 1982*

Imagic's offices were set up in a way that helped its staff spot potential hits and kill weak ideas. *"There was a lot of playtesting,"* says Fulop. *"You'd know if your game was any good by how many people played it at lunchtime. We were very insistent on having a public lab, so you would do your work without a cubicle, without an office; everybody could see the game being developed. I still believe in that very much. A game has to have a lot of chance for feedback, otherwise, all the work is being done in an office, and you don't see it until the end. But, this way, people would look at it, see it, play it. If it sucked, you'd know right away, because nobody would want to play it. If you're in the game business and no one wants to play with your game, then it's a loser. You could track the sales of a game back then using this system. How many people play it at lunchtime as it's being developed? We didn't kill a lot, but the ones that were killed were killed purely based on internal peer feedback. It was very informal, but it was very powerful. We formalised that in a way; you were always going to be sitting in a public bench. You had no privacy. Sure, you could go to your office during the day, but, when you actually worked on the game itself, you were out there on the bench with everyone else."*

Just as David Crane and his companions leveraged his intimate knowledge of the VCS hardware at Activision to produce titles which even put Atari's in-house efforts in the shade, Imagic also took advantage of the fact that several of its developers were already well versed in getting the most out of the console. *"I think the problem today with the game business is that, if a platform is only going to live for five or so years, that only gives developers one or two product cycles on the platform before they have to go and learn a new platform, because games take so much longer to make these days,"* comments Fulop. *"With the Atari VCS, we got to use it for five to seven years, but development time was much, much shorter. So you can see, the art was getting better and better as each game out."* One of those tricks was making the visuals really pop, something that *Demon Attack* showcased to superb effect. *"We had learned a couple of tricks along the way, for how to make images stand out clearly on the screen using the luminosity on the edges,"* Fulop continues. *"Basically, it was primitive anti-aliasing; rendering of the graphics so it looks like they're not as jagged. We learned primitive methods and used colours in a way so that the things really jumped off the screen. If you look at* Demon Attack, *the characters look sharper than in other VCS games from that period. It's just a cheap trick; after a while, everyone got onto it."*

> *"One of those tricks was making the visuals really pop, something that* Demon Attack *showcased to superb effect."*

Demon Attack – with its instantly compelling gameplay, amazing graphics and eye-catching packaging – ensured that Imagic entered the market with a bang. *"People loved it,"* recounts Fulop. *"It won all of these awards and became this big selling product – it was a major seller in the industry. We got on the map for making splashy graphics and cool, hip, edgy games. We got it at the right time, and we had an instant reaction to our first product."*

Moonsweeper / *2600 / 1983*

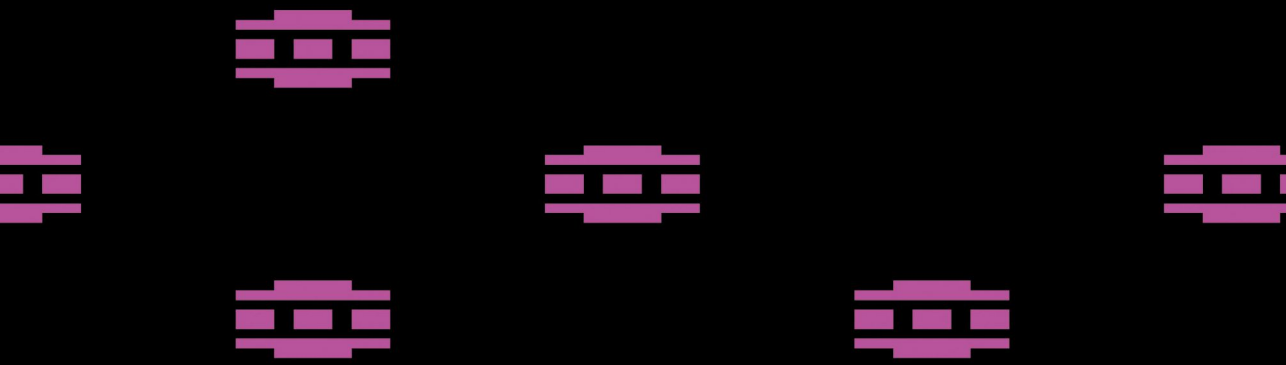
Subterranea / *2600 / 1983*

The company's next game, *Cosmic Ark*, wasn't as strong a follow-up, as Fulop readily admits. *"It was the first original game I'd ever done,"* he explains. *"My work was mostly copying arcade games – it's very hard to develop an original game on the Atari VCS. I think that was a fool's errand. Games like* Pitfall! *are true works of genius. You don't have a lot of chance to screw around and try stuff; this really is trial and error. With* Cosmic Ark*, it was cool for me to do, but it wasn't as instantly popular."*

Imagic's arrival on the Atari VCS scene was revitalising, with the company joining Activision at the vanguard of console development. However, it wasn't to last. A glut of poor-quality software – both from Atari itself and third parties – would eventually trigger the video game crash of 1983. But Imagic began to feel the effects of this at a much earlier stage. *"Imagic made a lot of* Cosmic Ark *cartridges because you had to guess how many you were going to sell,"* Fulop explains. *"They guessed wrong and overestimated. That was a year before the crash, so, by the time it happened, we had excess inventory. Our money was in our inventory."*

The downturn in the console sector hit the company hard. Just prior to the crash, Imagic was about to go public. *"We actually had a public offering, and our stock was poised to go public at the end of December,"* Fulop recalls. *"I actually went to New York with the president of Imagic and we were on the floor of the stock exchange, and I think my personal stock was going to be worth $8 million, or some crazy number. Then it happened. It was the end of '83, and Atari had a bad quarter. They pre-announced their results, which companies don't usually do – the only reason they announced their results early was to damage the market price stock. We had a bad quarter for the first time, and that caused some issues. The video game thing may not be going as well as we thought, so we delayed the public offering until the spring – we were all ready to get rich and cash in, and then we had to pull it back. We never recovered from that."* The crash would eventually pull Imagic – and many other developers – under, but Fulop feels that the delay in going public was what really ripped the heart out of the company. *"After that, the spirit died, because you have a young company, ready to go public, where all of your executives are running around, thinking about the big house they're going to buy. The next thing you know, there's no public market and now everyone's disappointed. It's like a soccer team losing their star player, right before a big game. It kills your team spirit. That was the psychological end of the company; it carried on for another year, and I think I left nine months later. There was no more Atari; there was no game industry for a while. We didn't know what to do. Until Nintendo came along, there was a pretty big, dense space for about three years."*

> *"Imagic's arrival on the Atari VCS scene was revitalising, with the company joining Activision at the vanguard of console development."*



Megamania: A Space Nightmare

"We used to go to Chuck E. Cheese Pizza Parlor & Arcade a few times a week for 'inspiration'. One of my favourite games was *Astro Blaster*. *Megamania* was almost a direct copy of the game – although, due to relentless tuning, many people to this day consider *Megamania* one of the best arcade action games ever made.

"The biggest story surrounding this game was the name – *Megamania: A Space Nightmare*. During the time of release, the market was flooded with 'space' games – so Tom Lopez (Activision's first producer) thought we were in need of a differentiating factor. After discussions with the ad agency, he came back to us with the name '*Gadzooks*'. We said no to that particular name – but we realised he was onto something with this approach. Soon after that, the name *Megamania* was born. Instead of battling enemy spaceships, players played the role of a starship captain battling food and household items during a nightmare caused by eating a large unhealthy meal. After all, 8-bit spaceships looked just as much like hamburgers and steam irons!

"Interesting fact: San Francisco-based rock group The Tubes performed a *Megamania* theme song in the 1982 television commercial advertising the Atari 2600 version of the game."

Steve Cartwright, designer and programmer

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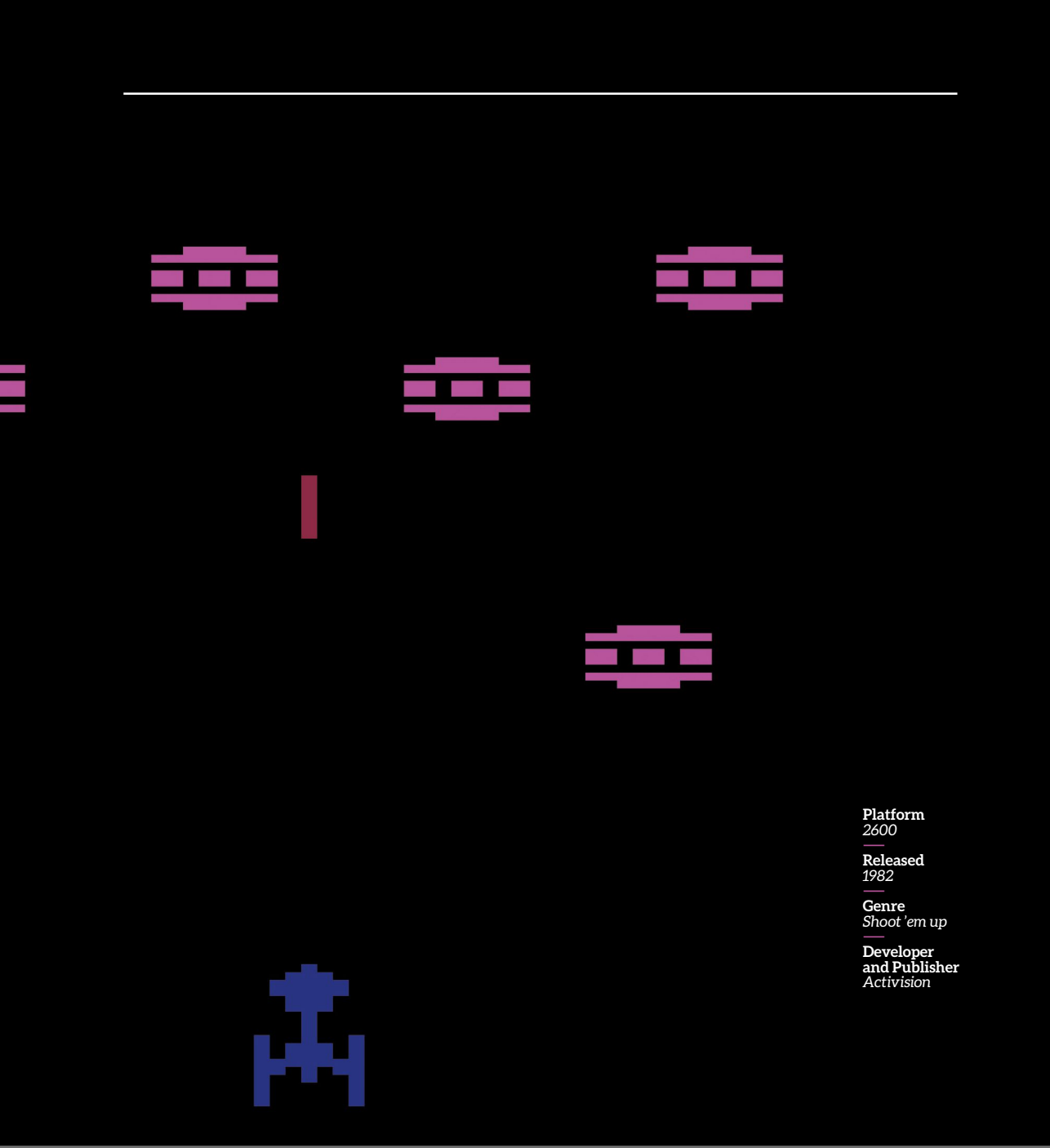

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer and Publisher
Activision

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Platform
2600

Released
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Genre
Action

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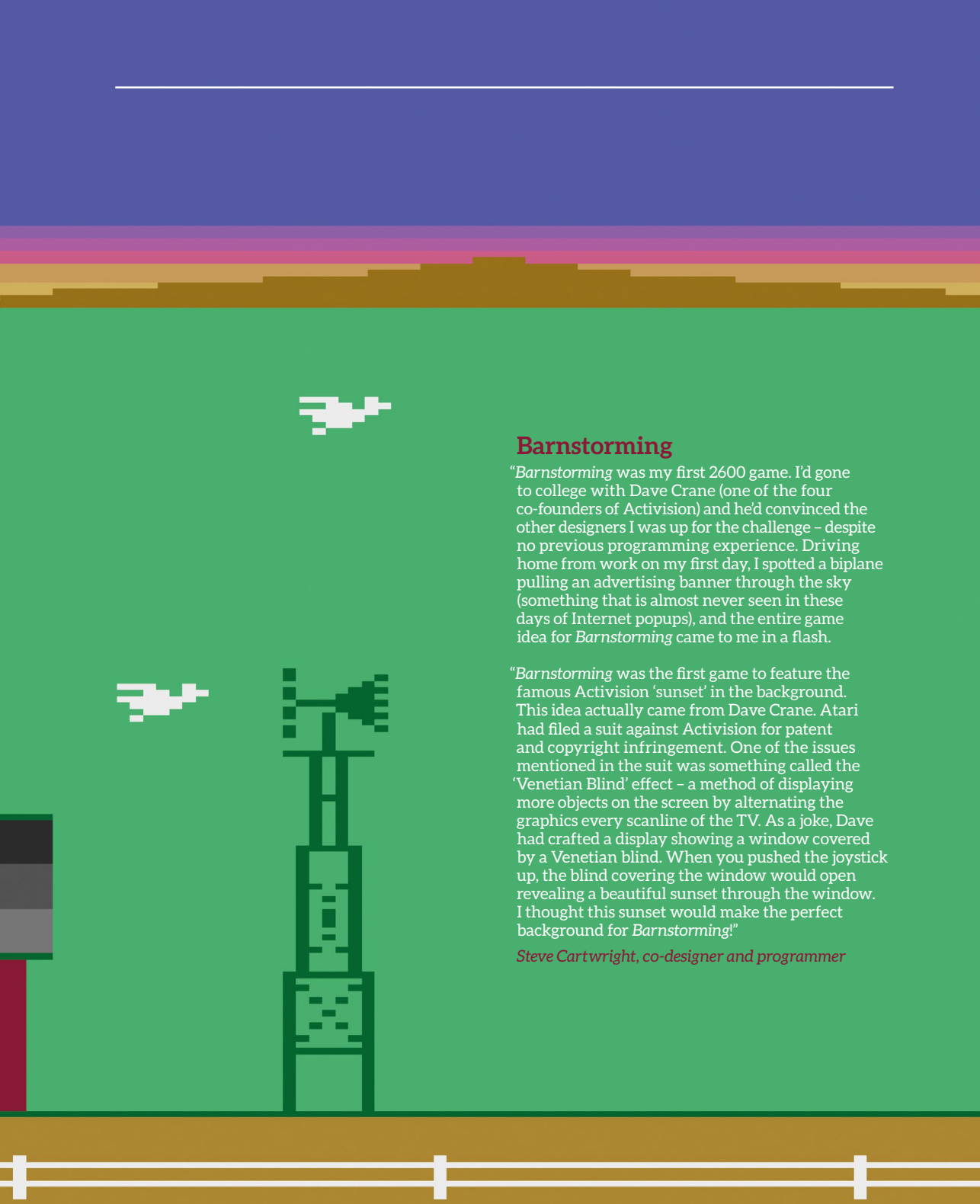

Barnstorming

"*Barnstorming* was my first 2600 game. I'd gone to college with Dave Crane (one of the four co-founders of Activision) and he'd convinced the other designers I was up for the challenge – despite no previous programming experience. Driving home from work on my first day, I spotted a biplane pulling an advertising banner through the sky (something that is almost never seen in these days of Internet popups), and the entire game idea for *Barnstorming* came to me in a flash.

"*Barnstorming* was the first game to feature the famous Activision 'sunset' in the background. This idea actually came from Dave Crane. Atari had filed a suit against Activision for patent and copyright infringement. One of the issues mentioned in the suit was something called the 'Venetian Blind' effect – a method of displaying more objects on the screen by alternating the graphics every scanline of the TV. As a joke, Dave had crafted a display showing a window covered by a Venetian blind. When you pushed the joystick up, the blind covering the window would open revealing a beautiful sunset through the window. I thought this sunset would make the perfect background for *Barnstorming*!"

Steve Cartwright, co-designer and programmer

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Commando Raid

"This one bears more than a passing resemblance to *Sabotage*, released a year earlier on the Apple II, although there are key changes from Mark Allen's pioneering title. The gameplay still involves your lone gun turret, blasting paratroopers who are clearly very keen on a spot of gun emplacement destruction, but the Atari 2600's hardware makes for a markedly different experience.

"Whereas, on the Apple II, you unleash a constant stream of bullet death, *Commando Raid* on the Atari lets you spew out a measly single projectile at a time. Meanwhile, your enemies attack in fast-forward, with choppers blazing across the sky, scores of paratroopers descending towards nearby buildings, and jets occasionally lobbing a massive bomb in your general direction.

"If your aim isn't true, the paratroopers gradually destroy buildings, dig a tunnel beneath them, and eventually obliterate your weapon. At that point, there's nothing you can do to stop them – after all, your gun can't shoot into the ground. Still, even when defeated, you can take solace when playing the Atari 2600 version rather than the Apple II title that inspired it, as the dull, jet-black night scene has been replaced by a vivid, eye-popping sunset."

Craig Grannell, games journalist

Platform
2600

Released
1982

Genre
Shoot 'em up

Developer
James Wickstead Design Associates

Publisher
U.S. Games

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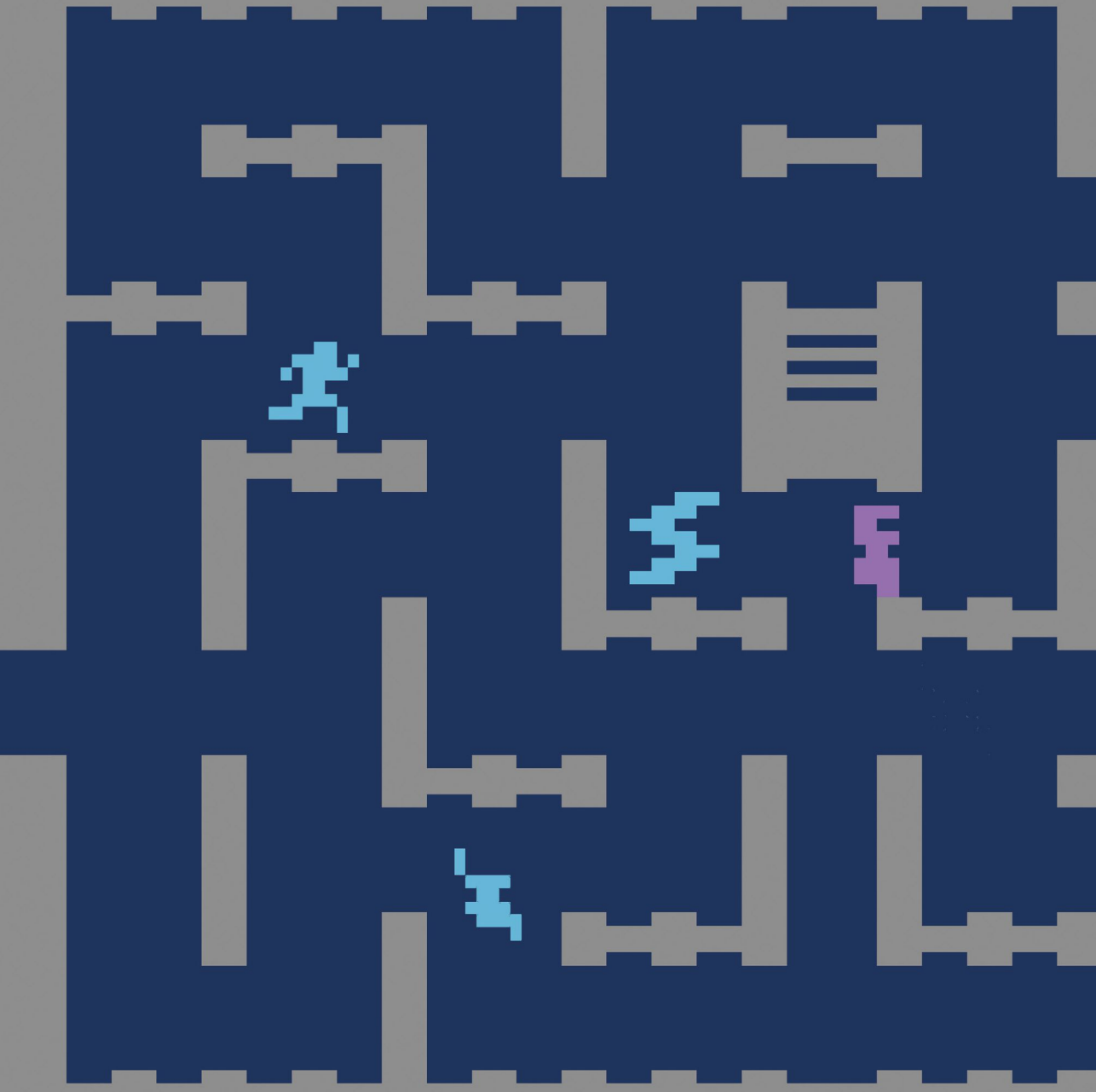

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Dark Cavern

As mentioned previously, Mattel liked to rename all their big Intellivision hits when they released them on the Atari 2600. However, this is the only title to be released under both names, with the NTSC version being renamed *Dark Cavern*, and the PAL alternative appearing under the original *Night Stalker* moniker. Perhaps even more interestingly, there are some minor graphical differences between the two versions, too.

In the game itself, you're running around a maze, trying to take out the nightmarish monsters. But, before you can do that, you must grab the gun, replenish the bullets, and try not to get killed while doing so. Some of the enemies are more intelligent than others, and some of them actually fight back, too. The maze itself is very *Pac-Man*-like with tight corridors, a central area and escape tunnels on each side. The graphics here are rather on the ugly side, which may put a lot of people off, but don't let that sway you, because the gameplay in *Dark Cavern* is what makes it compelling. It pips both *Berzerk* and *Wizard of Wor* to claim the title of the 2600's best maze shooter.

Platform
2600

Released
1982

Genre
Arcade

Developer
Mattel

Publisher
M Network

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Atari 2600 paddle controller */ 1977*

Prepared exclusively for

> **"The machine was versatile, and you could do a lot with the software. It let you be very creative."**
>
> *Carol Shaw, game designer and programmer*

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Sky Jinks

"As is usually the case with Activision's 2600 games, *Sky Jinks* reaches new heights when it comes to visuals. Using something as simple as a drop shadow, which changes based on altitude, the plane in this game just jumps off the screen, really conveying the feeling of banking at high speeds over trees and around wandering hot air balloons.

"But that's not the best part about *Sky Jinks*. What really sells the aeronautic slalom experience is the slight inertia on your plane. At high speeds, as in real life, a racing plane can't turn on a dime. As you throttle up in an attempt to better your best time, your controls become slightly less responsive, requiring daring pilots to anticipate their turns and swing to the left and right just a touch earlier than feels natural.

"It's difficult to master at first, and it's not uncommon to be grounded by multiple brushes with the trees scattered throughout each course. But, when you nail your first perfect bank, there's nothing like it. When your wing just barely clips that pylon and you fly out from behind it at full throttle, bearing down on your next target, you feel like Tom Cruise in *Top Gun*. Just without the cooked goose."

Greg Sewart, games journalist

Platform
2600

Released
1982

Genre
Action

Developer and Publisher
Activision

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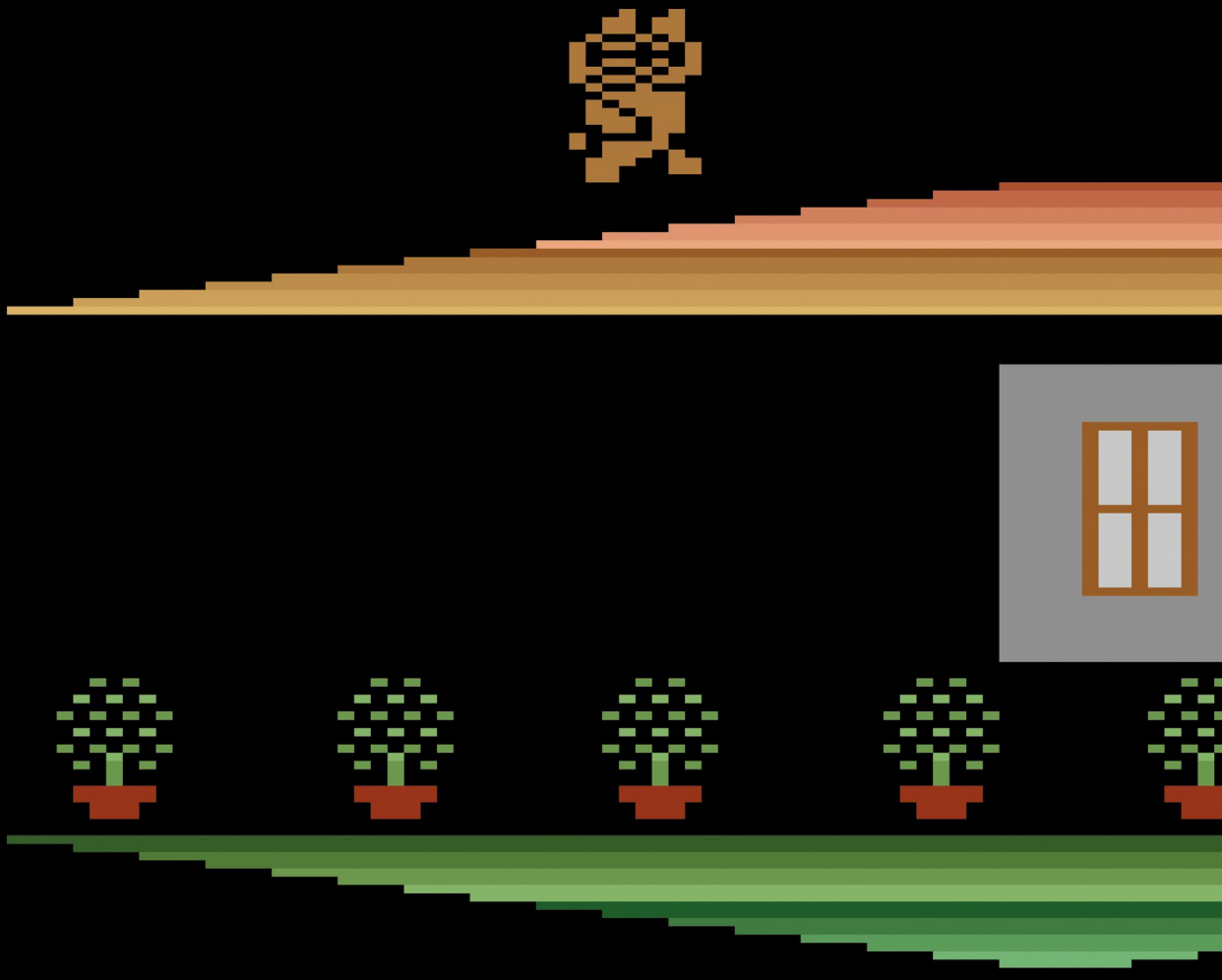
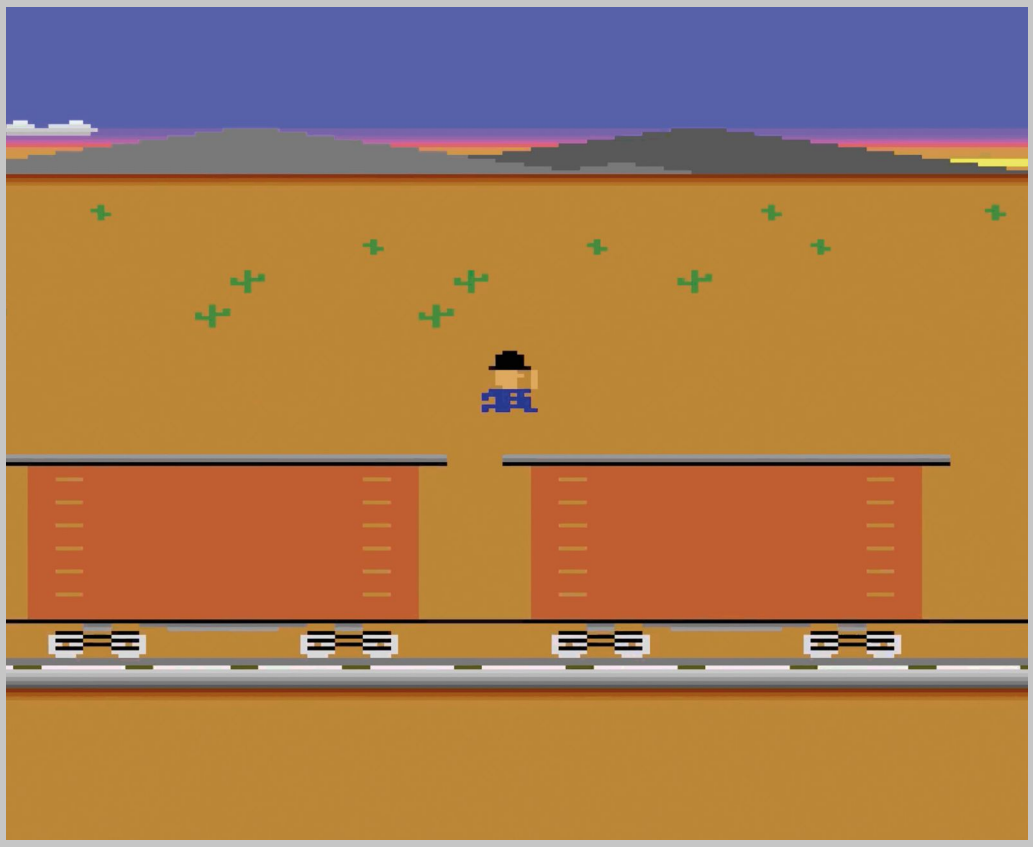
What could have been

For every game that makes it onto a finished cartridge, there are countless others that are left on the cutting room floor: unfinished projects, alternative versions and technical demos that set the world of gaming fandom alight when they appear online. Here are some of the most noteworthy 2600 and 7800 examples.



PROTOTYPES

Garfield / *2600*



Platform *2600* / **Genre** *Action* / **Developer** *Activision*

Keystone Kannonball

The original *Keystone Kapers* was among the most popular, not to mention, original, games released by Activision for the Atari 2600, and is still a firm favourite among owners to this day. So it came as quite a surprise when programmer Dan Kitchen revealed in 2018 that he had not only worked on a sequel to the game, but had also found his own prototype! Also known under the title *Keystone Kannonball* during development, it reunited both of the original characters in Officer Kelly and Harry Hooligan, with the latter now progressing to robbing trains instead of department stores. The game used an advanced new kernel developed specifically to show the moving train, and would have been extremely advanced for the time.

Sadly, the 2600 market started to fade while the game was being developed, thanks to the North American video game crash, and Dan was moved on to developing home computer games before leaving Activision completely to start his own company. All is not lost, though, as shortly after a video of the prototype was shown, it was announced by Dan that he would be finishing the game and releasing it on a cartridge for everyone to enjoy as originally intended!

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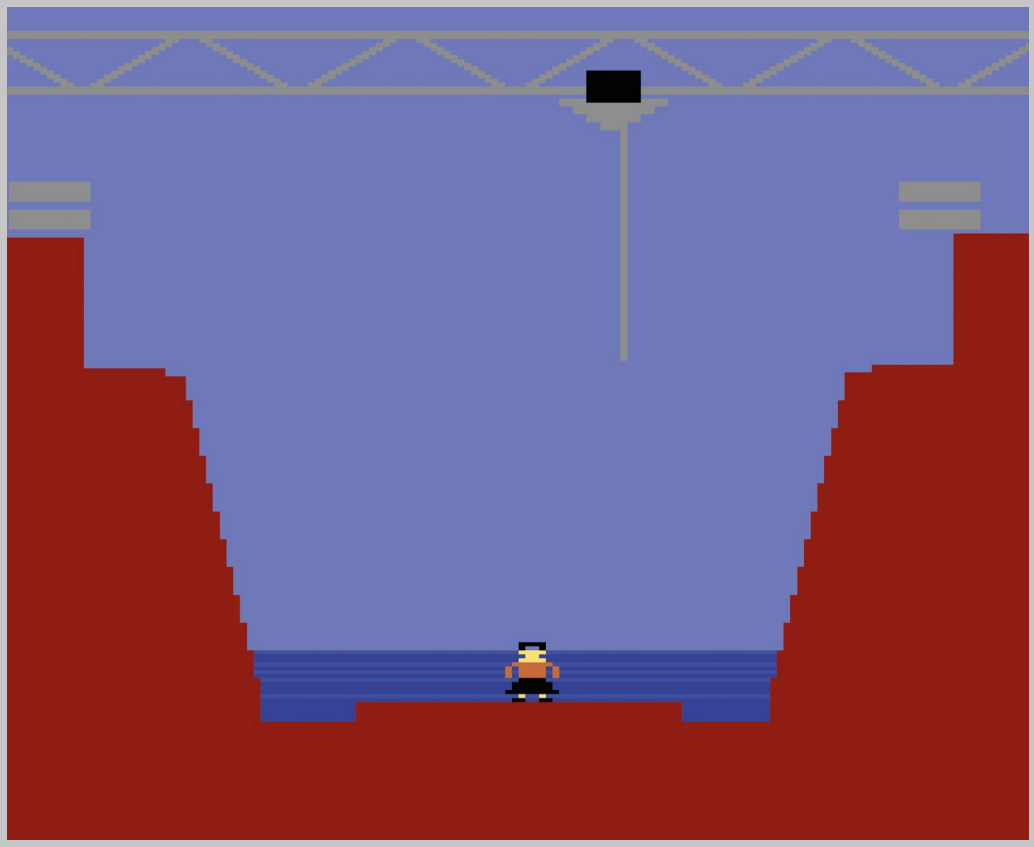

Platform *2600* / **Genre** *Action* / **Developer** *Axlon*

Save Mary

Developed by Atari co-founder Nolan Bushnell's company Axlon, and programmed by Tod Frye, the man responsible for *Pac-Man* on the 2600, *Save Mary* was one of the last games commissioned for the then-13-year-old VCS by Atari Corp. This prototype also appears to be 100% finished, making it even more surprising that Atari didn't release it, especially as several other games for the system were published after 1990, albeit in Europe only. It's also a highly impressive title, making it even more of a shame it never saw the light of day back then, and can perhaps be described as a new take on the popular puzzle game *Tetris*.

In the game, you meet Mary, a young girl who has got herself trapped in a flooded canyon, and it's your job to try and rescue her. Using a massive crane, you must drop odd-shaped blocks of concrete into the canyon so Mary can climb her way to safety. The main two things that stand in your way are a manic Mary, who runs around constantly and can be squashed by your blocks, and an ever-rising water level that will drown Mary if it gets too high.

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Platform *2600* / **Genre** *Arcade* / **Developer** *Activision*

Kabobber

"Like too many Atari 2600 games, *Kabobber* started with the question: 'How can I exploit this random hardware feature?' In my case, it was the Atari's ability to replicate its sprites, coupled with clever programming to change the image of each replica as it was being drawn. The result: a 3 x 3 grid of Kabobbers, each independently animated. They glance over at each other, look up and down at the other rows of Kabobbers, open their mouths and squawk, and generally act super endearing.

"Oh, a game you ask? Well, it's a 'hop or be hopped' world after all, so the player pluckily hops his gang of Kabobbers along, jumping on other Kabobbers and Buvskies, while avoiding being hopped on by Cholos and The Boot. Each critter was named after a different nickname of my dog, Jake, of course (except The Boot).

"As you can tell, the game was fairly bonkers, which is not that unusual for Atari games, but, in this case, maybe unusually so. Activision offered me the chance to double the game's memory from 4K to 8K bytes in the hope I might turn it into the next big hit. By this time, I felt like I'd done all I could with *Kabobber*, and I took a pass. In return, they took a pass on publishing."

Rex Bradford, designer and programmer

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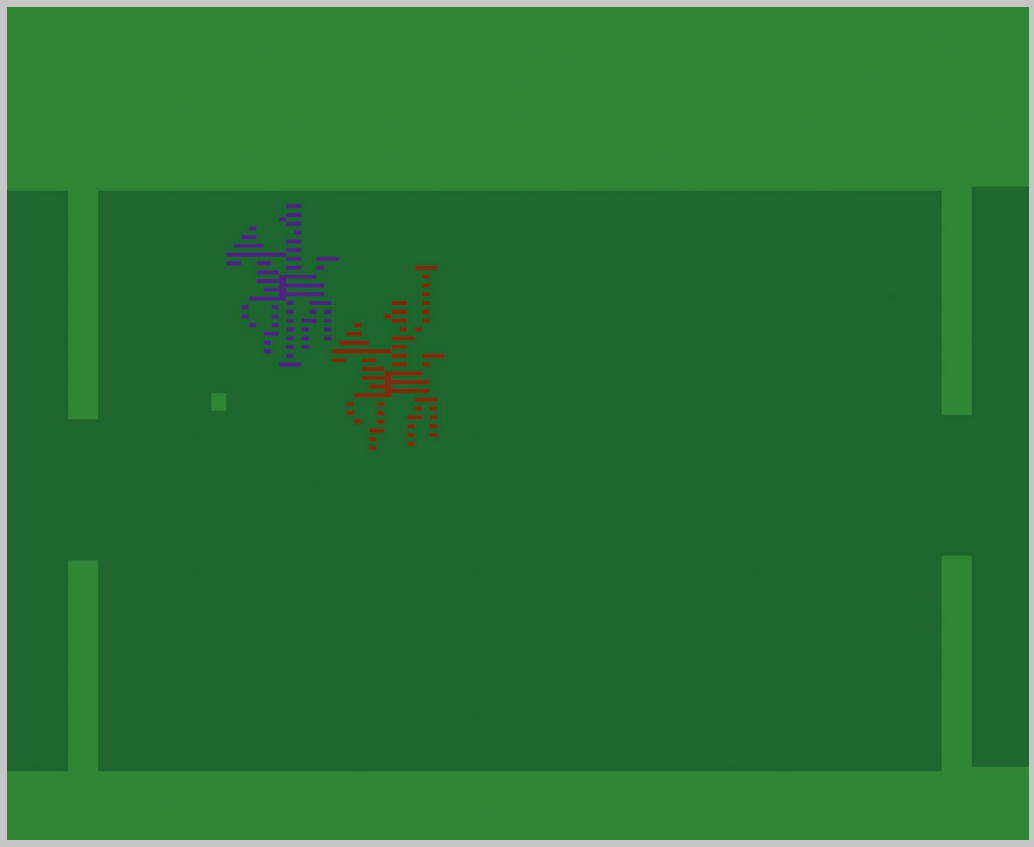

Platform *2600* / **Genre** *Sports* / **Developer** *Atari*

Polo

"*Polo* was actually the first game I did at Atari, assigned to me because someone wanted to do a cross-promotional tie-in. It all came about because Atari was bought by Warner Communications, and Warner's cosmetics division owned Ralph Lauren, which was coming out with Polo cologne. The idea was to have the game playing in all the TV sets at Bloomingdales in New York when the new cologne was released.

"I never did find out if they did anything in the department store, but the game itself was finished – it was a kind of *Pong* with horses – and I kept one of the few ROMs. A number of years later, Atari gave permission to include the game on the *Stella Gets a New Brain* CD-ROM, and so the binary got out on to the Internet because of that.

"But my original ROM is accessible to the public, too. I donated it in 2017 to the Strong National Museum of Play in Rochester, New York, for use in an exhibit that's part of the Women in Games initiative. They have a bunch of my other stuff as well, such as printed source code, sketches and design documents, and even a *River Raid* T-shirt!"

Carol Shaw, designer and programmer

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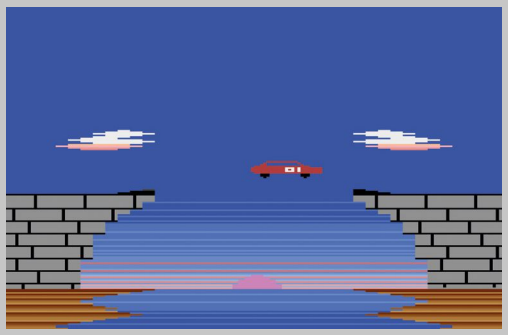
Dukes of Hazzard

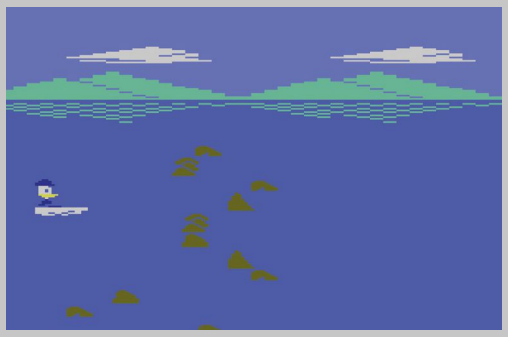


Platform *2600* / **Genre** *Action* / **Developer** *Atari*

Planet of the Apes

Platform *2600* / **Genre** *Action* / **Developer** *20th Century Fox*

Donald Duck's Speedboat

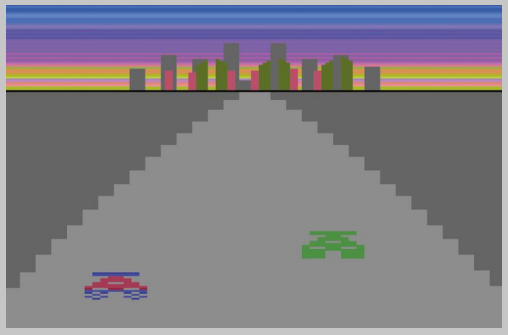


Platform *2600* / **Genre** *Racing* / **Developer** *Atari*

Lord of the Rings

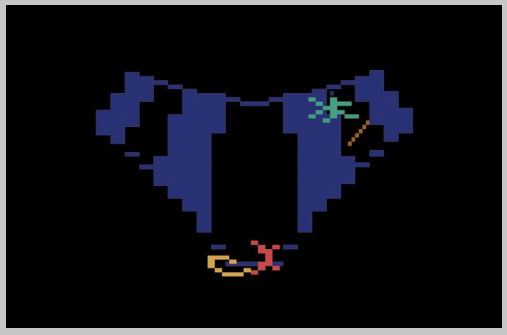
Platform *2600* / **Genre** *Adventure* / **Developer** *Parker Brothers*

Turbo



Platform *2600* / **Genre** *Racing* / **Developer** *Coleco*

Tempest



Platform *2600* / **Genre** *Shoot 'em up* / **Developer** *Atari*

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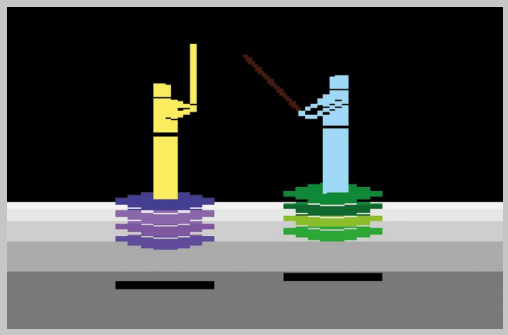
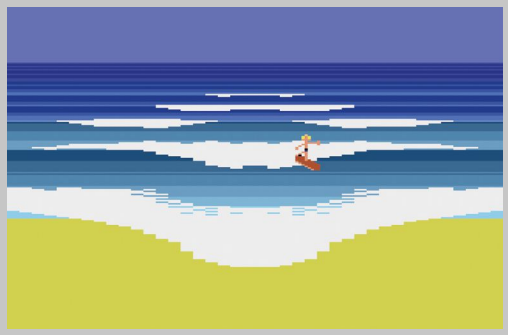
Sword Fight



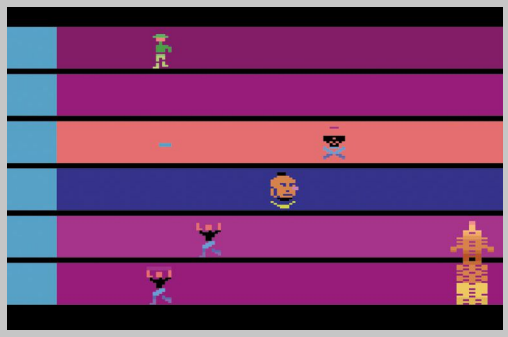
Platform *2600* / **Genre** *Fighting* / **Developer** *Mattel*

Surf's Up



Platform *2600* / **Genre** *Sports* / **Developer** *Amiga*

The A-Team

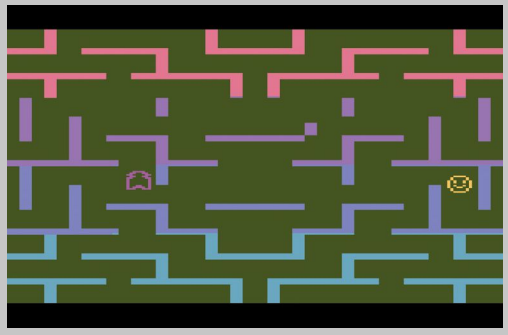


Platform *2600* / **Genre** *Action* / **Developer** *Atari*

Crack'ed

Platform *2600* / **Genre** *Shoot 'em up* / **Developer** *Atari*

Dune



Platform *2600* / **Genre** *Adventure* / **Developer** *Atari*

Pompeii

Platform *2600* / **Genre** *Action* / **Developer** *Apollo*

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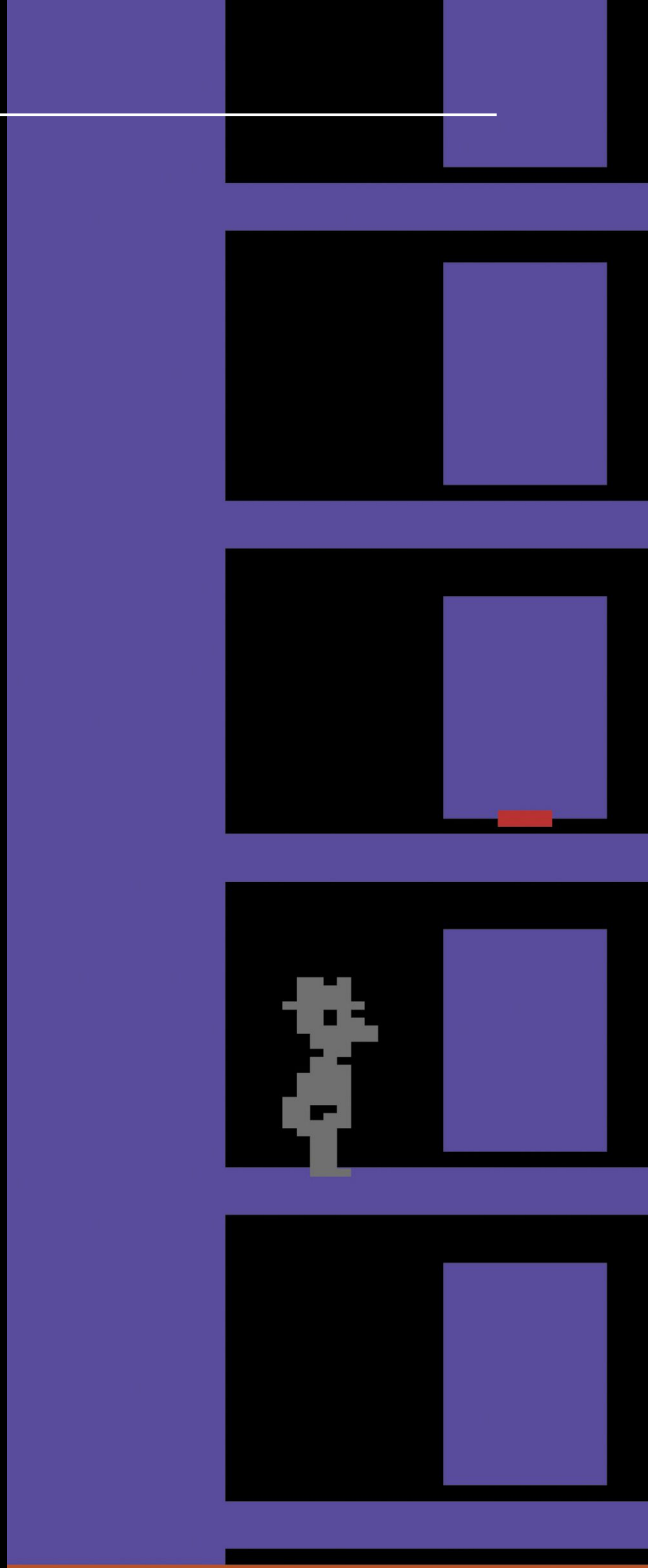
Elevator Action

Elevator Action was, by far, one of the hottest arcade games of 1983, and it wasn't long before Atari snapped up the licence for its own systems. With versions announced for the 2600, 5200 and, later, the 7800 too, it might come as a surprise to learn that not a single one of them made it out the door! In fact, for a long time, many people believed that Atari's ports of the game were cancelled before they even started – that was until a prototype of the Atari 2600 version showed up, thanks to the original programmer, Dan Hitchens.

The game sees you playing the part of a James Bond-esque secret agent, using a series of elevators and staircases to move around the different floors of an apartment block while avoiding enemy spies and collecting secret documents. You're armed with a gun to protect yourself, but be aware that the enemy agents are too! This version of the game is remarkably faithful in most ways, and seems to have all the main gameplay elements included. The problem is that this proto is only around 75% complete and quite buggy, meaning that it's difficult to play properly.

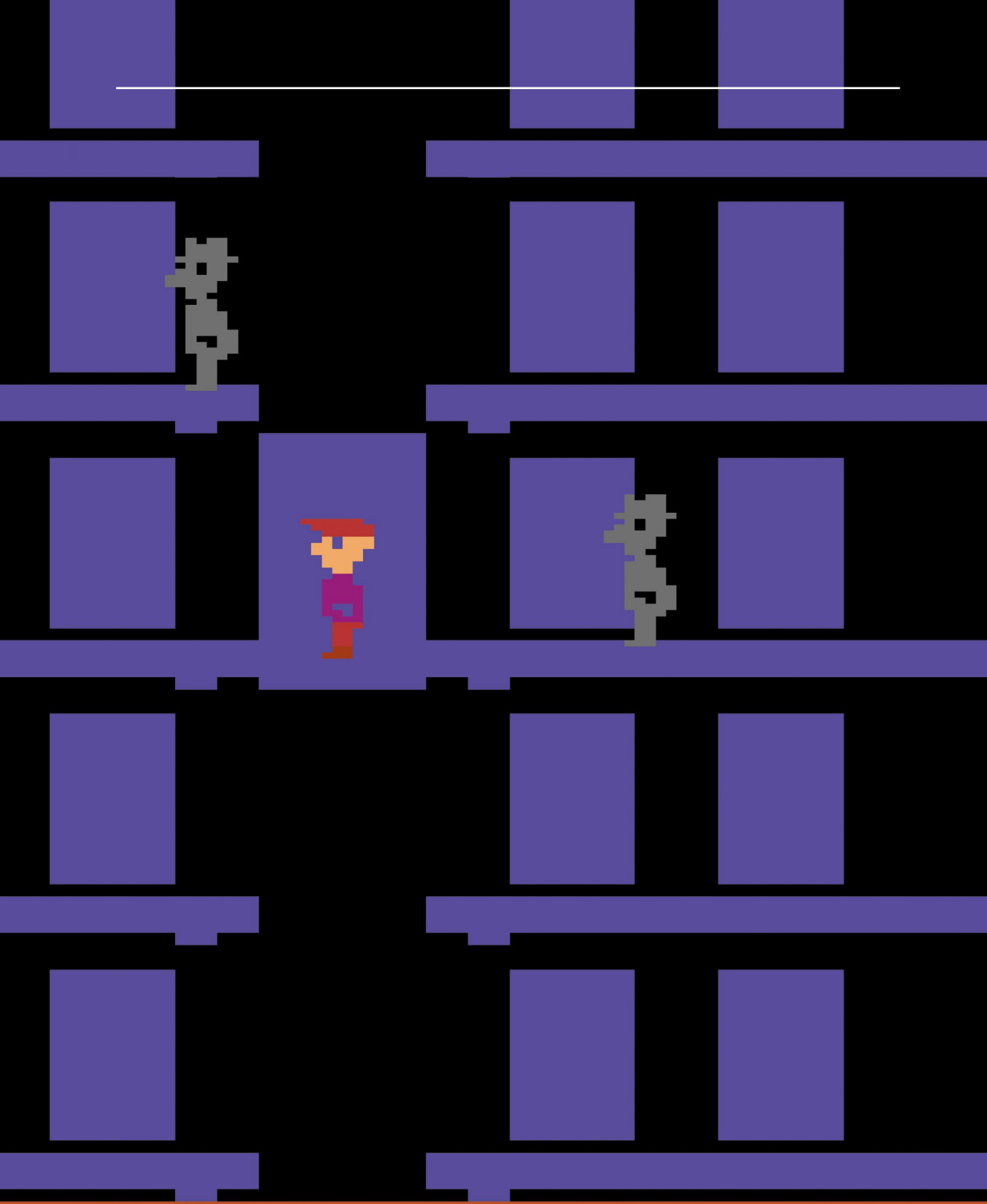


Platform
2600

Genre
Action

Developer
Atari

sharesolutions.io Transaction: 32654



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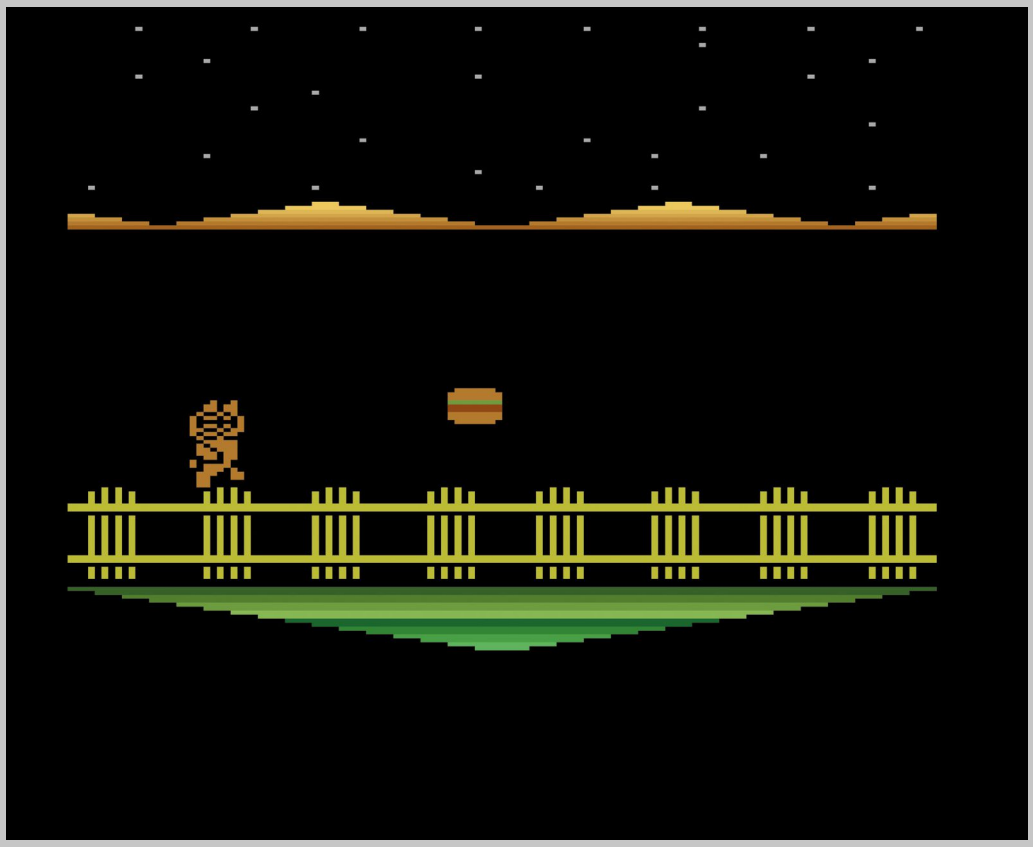

Platform *2600* / **Genre** *Platformer* / **Developer** *Atari*

Garfield

"This was the first video game that Garfield ever appeared in. My concept for the game was, while Jon was out, Garfield had to babysit Nermal. Nermal decides to leave the house, and that's when the adventure begins. Garfield has to keep going towards the right of the screen to catch Nermal, while avoiding bad objects and occasionally eating some food along the way.

"I'll never forget the great meeting I had with Jim Davis. He came down to Atari and met with me in my office. I explained my game design for the *Garfield* game, and he said, *'Can I play your latest game?'* I said sure, and I loaded up *Taz* on my development system. While Jim was playing my *Taz* game, I said, *'I'd like to go over some design ideas I have for the Garfield game.'* Jim replied while playing *Taz*, *'Hmm, I like this game, do whatever you want, I trust you!'* I couldn't believe it! Unfortunately, the game market was starting to crash, and the division of Atari I worked for was sold. I was only halfway finished with the game, and I never got to finish it.

"Many thanks to the amazing artist, Mimi Doggett Romberger, who handcrafted Garfield, Odie and Nermal within an eight-bit width for the sprites! The *Garfield* title screen is truly another impressive feat by Mimi; she only had two colours to work with: orange and black!"

Steve Woita, designer and programmer

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Platform *2600* / **Genre** *Action* / **Developer** *Atari*

Bugs Bunny

Planned as part of a new range of games aimed at a younger audience to go alongside the launch of the Atari 2600 Jr., *Bugs Bunny* was very much a victim of the Tramiel takeover. As Bugs himself was a property of Warner Brothers, any release of the game would have suddenly required a licensing agreement, which no doubt would have been costly for such a well-known I.P. Rather than pay up, Jack Tramiel chose to cancel the game completely.

Bugs Bunny is a fairly simple platform game that is much harder than it looks and features some particularly outstanding graphics and sound. As each level starts, Elmer Fudd sends his hunting dog out to find Bugs, and this results in the canine digging up one of the many carrots on screen, causing a hole to appear. As soon as he sees Bugs, Elmer starts shooting, and the only way you can escape his bullets is to dive into one the aforementioned holes. To make it easier for kids, the difficulty switches can be used to change the size of the holes – the larger they are, the easier they are to leap into.

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Platform *7800* / **Genre** *Beat 'em up* / **Developer** *Imagitec Design*

Pit Fighter

One of Atari Games' most successful coin-ops, *Pit-Fighter* was also highly innovative with its use of scaling, motion capture and digitised graphics, more than two years before *Mortal Kombat* did something similar. The advanced nature of the game meant that the vast majority of the home ports came out pretty badly, so it probably comes as a surprise to learn it was even considered for an 8-bit console like the 7800. Although this prototype is clearly in early stages of development, it actually manages to be quite impressive at the same time.

Developer Imagitec Design didn't even attempt to try and replicate the original visuals, and, instead, went for far more traditional bitmaps instead. The large fighters move around the screen quite nicely, albeit too fast in this proto, and the background retains a sense of familiarity. In many ways, the new visuals are quite reminiscent of another fighter in Technōs' *Double Dragon*. This is more a proof-of-concept than an actual game, with no enemies yet implemented, just palette swaps of the main sprite, and only a few basic moves on offer. The port was killed due to the demise of the 7800 market in 1992, but it's a great shame that it was never allowed to reach completion.

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Platform *7800* / **Genre** *Shoot 'em up* / **Developer** *GCC*

Rescue on Fractalus!

A large portion of the Atari 7800's proposed launch line-up consisted of upgrades of games that had already appeared on its much-maligned predecessor, the 5200. One such game that had wowed audiences on release was Lucasfilm's *Rescue on Fractalus*. Written specifically to take advantage of the advanced graphics capabilities of the Atari 8-bit series (which includes the 5200), the game uses fractal-based graphics to display a series of alien worlds that you must visit. Your primary mission is to fly in, rescue the pilots that have crashed there, and make your escape. But, as you've probably guessed already, these planets have their own rather aggressive inhabitants.

This prototype of the game is less than 50% complete, and, while it is playable to a degree, it's missing many important features, including the ability to read your control panel and actually rescue said pilots. The 7800 conversion of *Rescue on Fractalus* was a victim of Jack Tramiel's famed penny pinching, as it required extra RAM chips to be added to the cartridge due to the advanced nature of the game. Sadly, this was something Jack just wasn't willing to pay for back in 1984, although additional RAM was used in several 'Super Games' later on.

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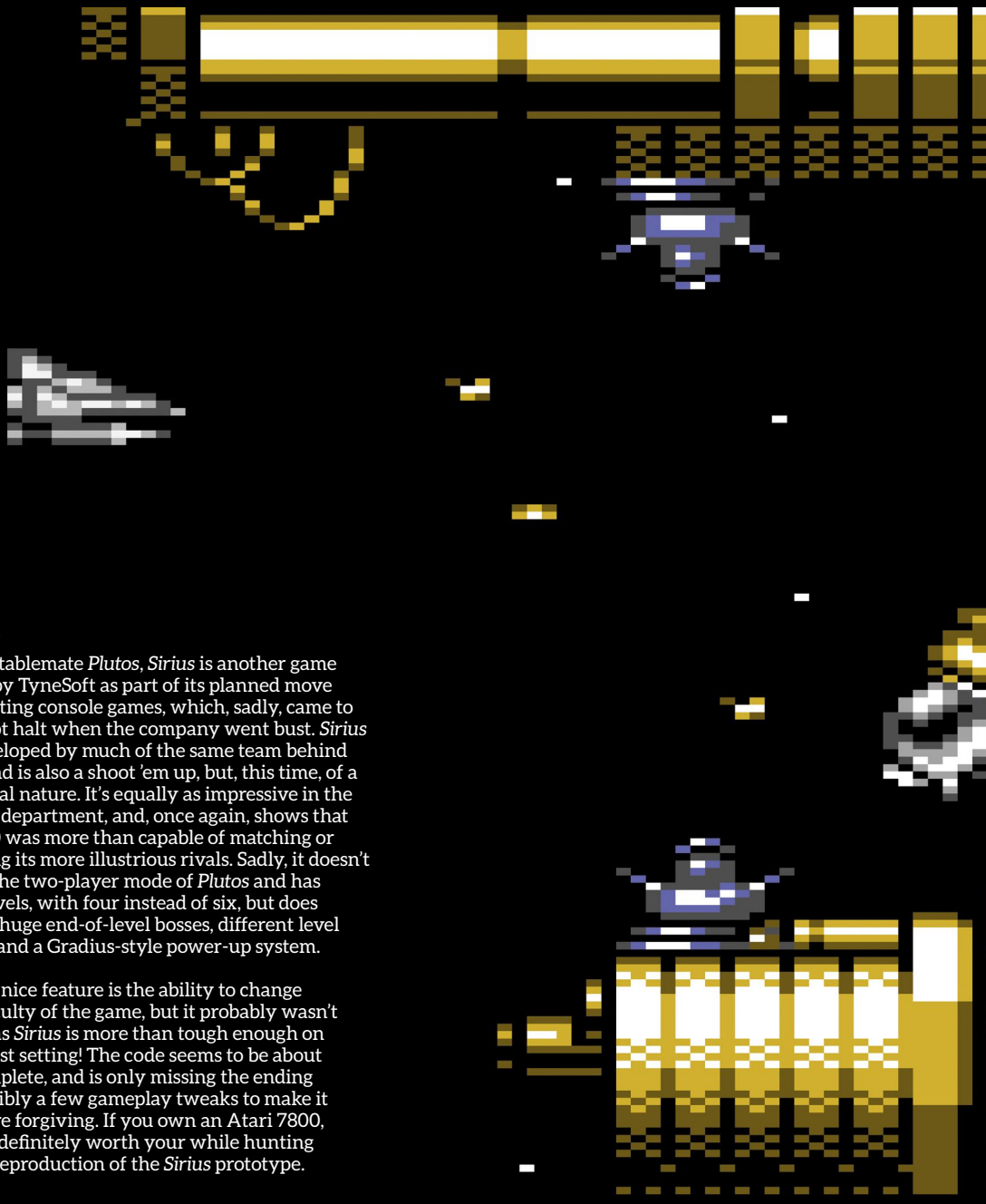
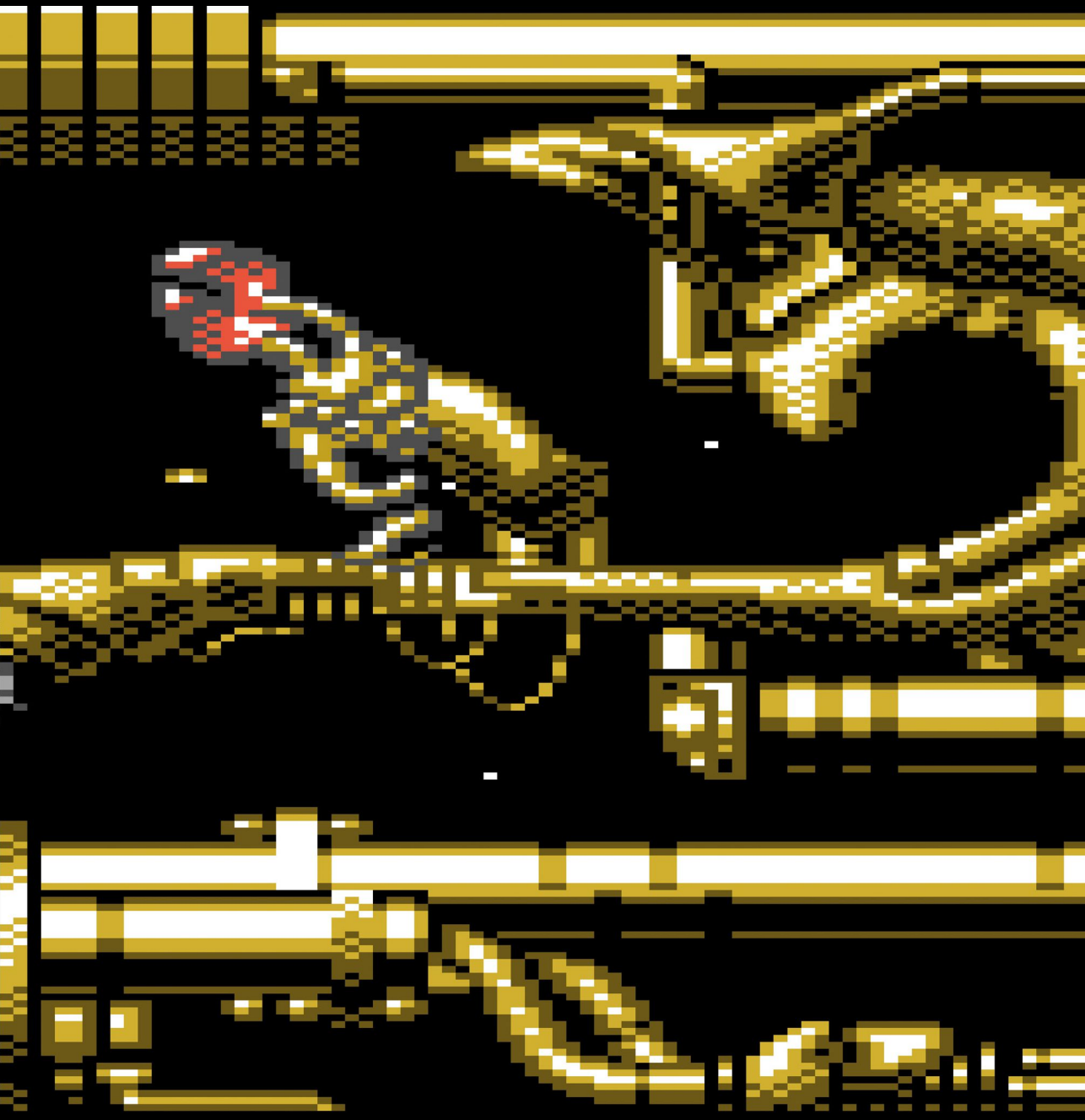


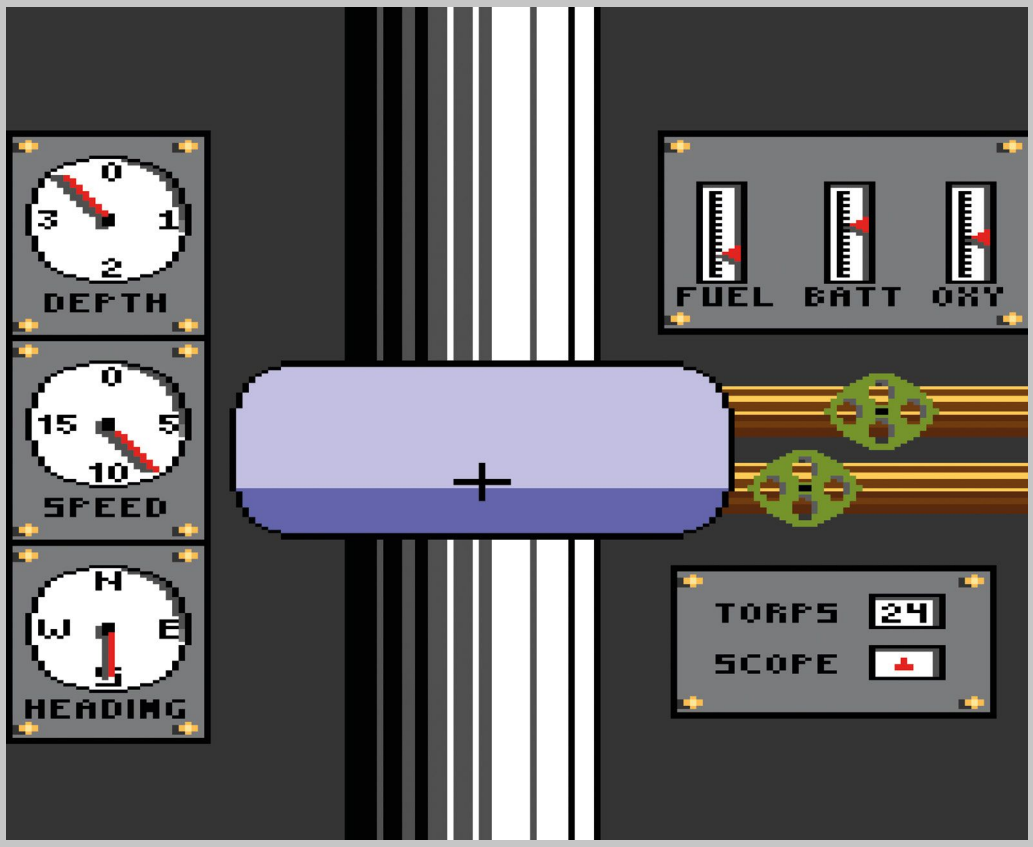
Sirius

Like its stablemate *Plutos*, *Sirius* is another game created by TyneSoft as part of its planned move into creating console games, which, sadly, came to an abrupt halt when the company went bust. *Sirius* was developed by much of the same team behind *Plutos* and is also a shoot 'em up, but, this time, of a horizontal nature. It's equally as impressive in the graphics department, and, once again, shows that the 7800 was more than capable of matching or exceeding its more illustrious rivals. Sadly, it doesn't feature the two-player mode of *Plutos* and has fewer levels, with four instead of six, but does features huge end-of-level bosses, different level themes, and a Gradius-style power-up system.

Another nice feature is the ability to change the difficulty of the game, but it probably wasn't needed as *Sirius* is more than tough enough on the easiest setting! The code seems to be about 90% complete, and is only missing the ending and possibly a few gameplay tweaks to make it a bit more forgiving. If you own an Atari 7800, then it's definitely worth your while hunting down a reproduction of the *Sirius* prototype.



Platform *7800* / **Genre** *Scrolling shooter* / **Developer** *Tynesoft*



Platform *7800* / **Genre** *Simulation* / **Developer** *Ibid, Inc.*

GATO

For those that don't know, *GATO* is a real-time submarine simulator originally published by Spectrum Holobyte in the 1980s for home computers, such as the Apple II, PC, Atari ST and Atari 8-bit family. It simulates combat operations aboard the GATO-class submarine USS Growler in the Pacific Theatre of World War II. The player is tasked with chasing the Japanese naval forces across a 20-sector map, and returning to their base for resupply as necessary. To add an element of surprise, the islands on the map are randomly generated, not based on real-world geography. Combat is conducted using the limited view through the periscope, alongside various gauges and indicators that need to be checked regularly.

You're probably getting a flavour of how advanced this strategic simulation is, which is the likely reason behind this very basic 7800 proto never reaching completion. Despite being announced and advertised by Atari quite regularly, the *GATO* prototype consists of nothing more than a few static screens, and it's unlikely the port ever got any further for the reasons already stated. Although you can buy reproductions of the game on cartridge, this is one case where it's really not worth it.

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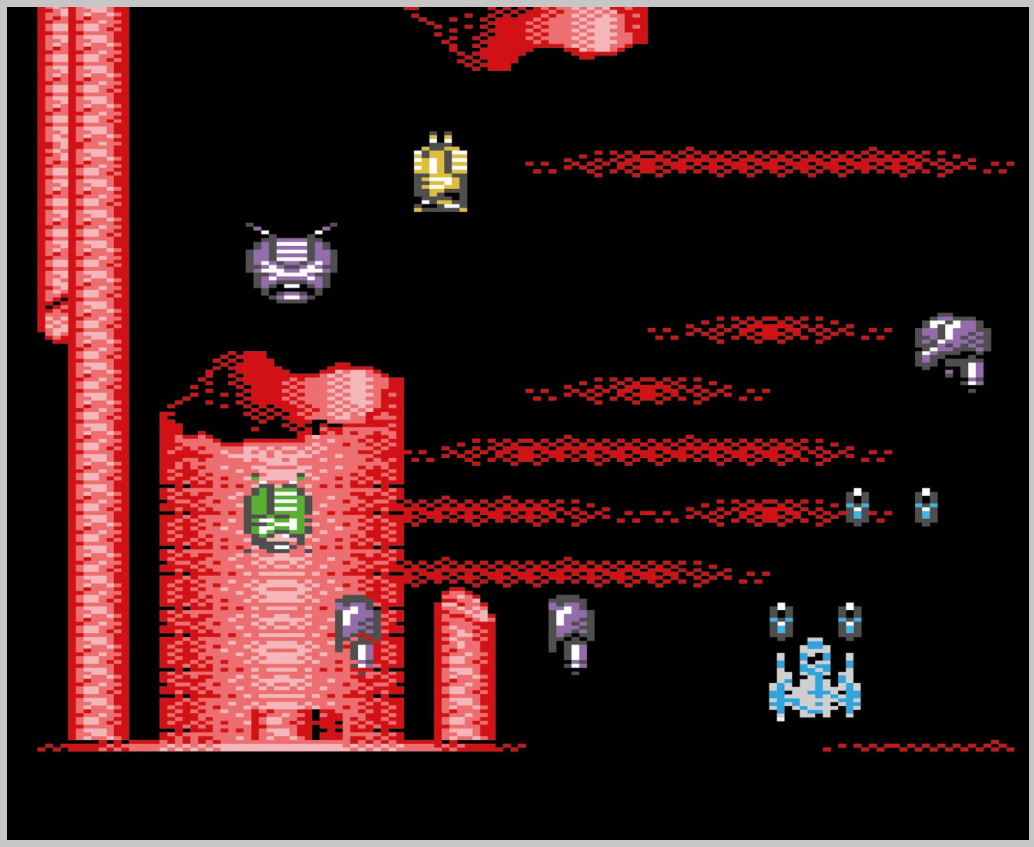


Platform *7800* / **Genre** *Scrolling shooter* / **Developer** *Tynesoft*

Plutos

TyneSoft is perhaps best known for making low-cost games for British home computers – usually ones that weren't very good. *Plutos* and its sister game, *Sirius*, represent the company's attempt to diversify its talents and move into the lucrative, and much more global, console market. The game itself is a vertically scrolling shoot 'em up set over six levels and based on the Atari ST game of the same name. Each level follows one of three unique themes and ends with a huge boss, as any good shooter should. There are three different types of power-ups available, each of which can be upgraded four times. The three different weapons are: dual machine guns, spread gun and energy gun.

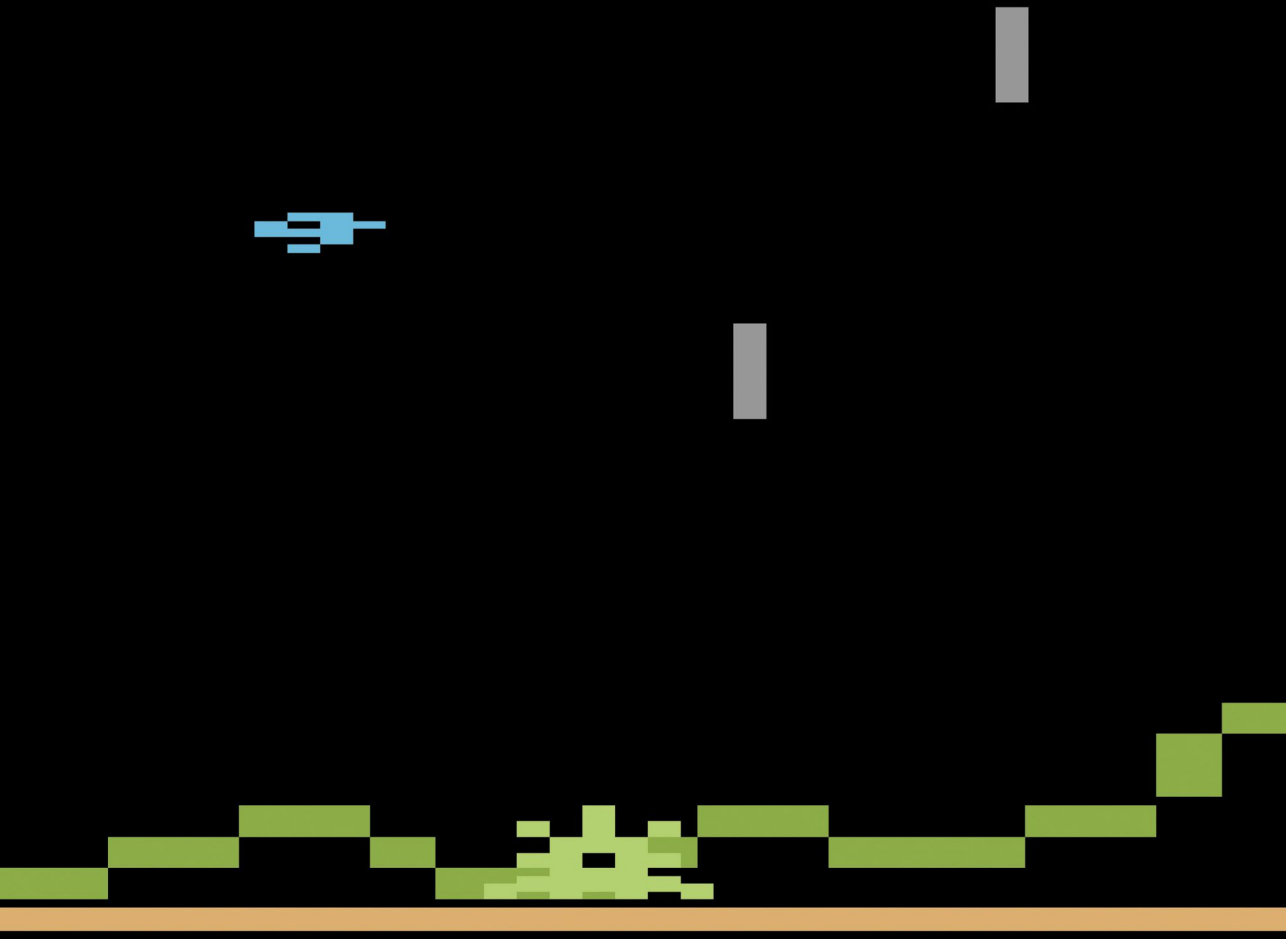
There's also a very useful invincibility pick-up too. Perhaps the most surprising feature of all, though, is the inclusion of a simultaneous two-player mode. Plutos is about 90% complete, only lacking minor things, such as an ending, and is, without doubt, one of the most technically impressive games out there for the 7800. The outstanding graphics rival anything you'll see on the NES or Master System, and all without the annoying sprite flicker often associated with those systems.

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Astroblast

Originally known under the title *Astrosmash* on the rival Intellivision, this remains one of Mattel's most successful games. It was recently put back into the public spotlight when Sheldon from the popular TV series *The Big Bang Theory* was seen sporting an *Astrosmash* T-shirt in several episodes. It's also one of the only games developed by the company to make use of the paddle controllers, which perhaps seems even more unusual when you consider it's a shoot 'em up.

The actual game itself can best be described as a cross between *Asteroids* and *Space Invaders*, with you controlling your ship along a horizontal plane at the bottom of the screen while enemies approach from above. Not just enemies, though, as huge space rocks are also descending to Earth at great speed. These can either be avoided or shot down, but, depending on their size, the latter can prove to be more difficult than it sounds. There are also two ways you can die in the game: either by getting hit by an enemy or when one of the invaders touches down on home soil. There are a lot of great shooters on the 2600, but it's easy to see why *Astroblast* still remains a firm favourite.



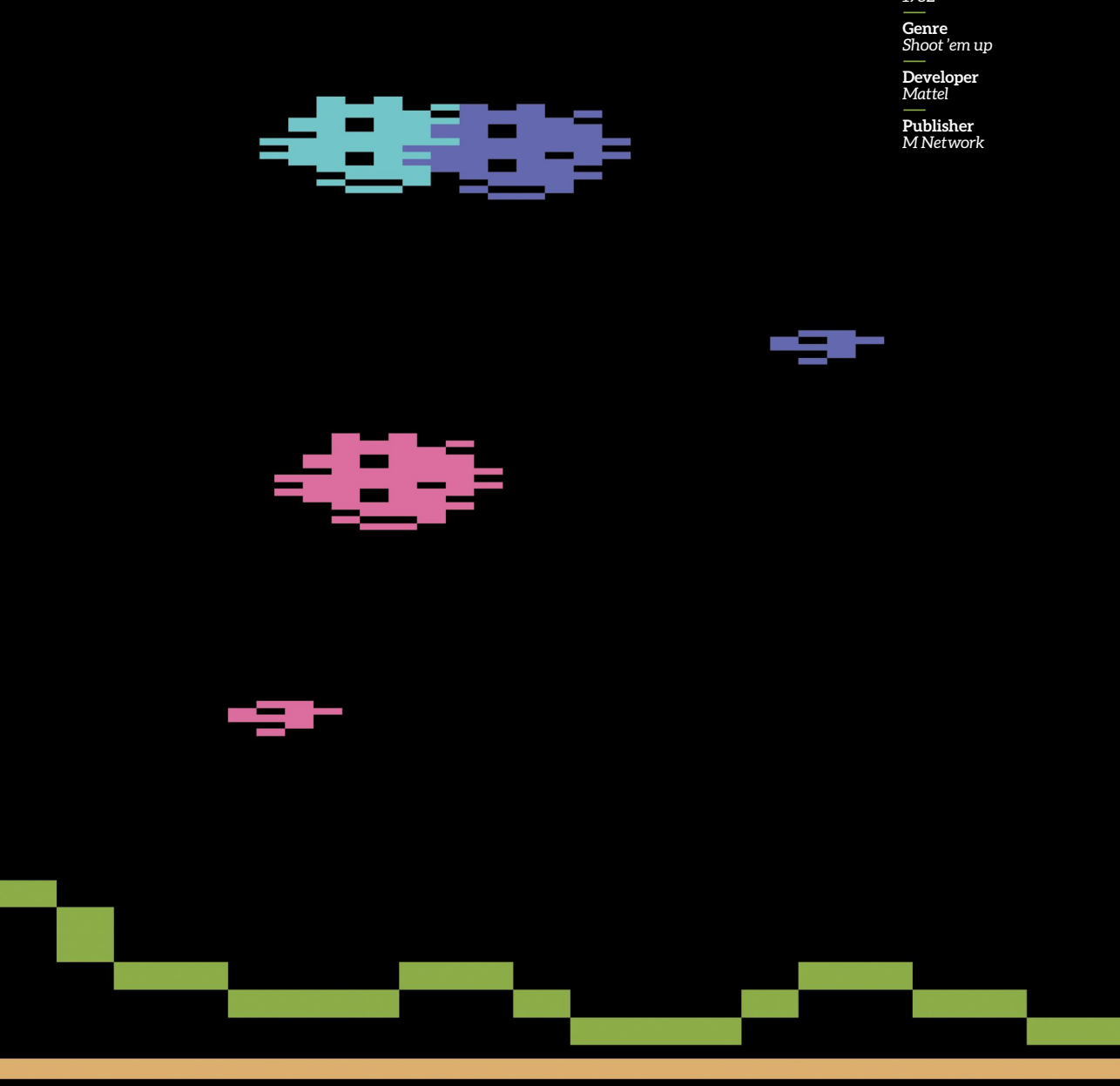
Platform
2600

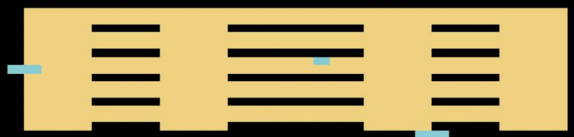
Released
1982

Genre
Shoot 'em up

Developer
Mattel

Publisher
M Network





Journey Escape

Journey Escape is an Atari 2600 game that's notable for several reasons – both good and bad. On the positive side, it was the first time a company had officially licensed the rights to a band and its music – with *Journey Escape* being based on the hit album of the same name. The game even contains a chip music interpretation of Journey's biggest hit, *Don't Stop Believin'*. On the bad side, this was the game that put Data Age out of business. Having spent a fortune on the licence and advertising, it turned out to be a very costly flop, which is sad because it's actually a very impressive title. Aside from the excellent graphics and sound, there's also some solid gameplay in here, too, as you try to guide each member of Journey through the level, avoiding love-crazed groupies, pesky paparazzi and other hazards. Once you locate the Scarab escape vehicle, you can make a quick getaway and move on to the next stage. The screen constantly scrolls, with no let up on the enemy advances, but, from time to time, your manager and the roadies turn up to help you, which does give you some brief respite.

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Data Age

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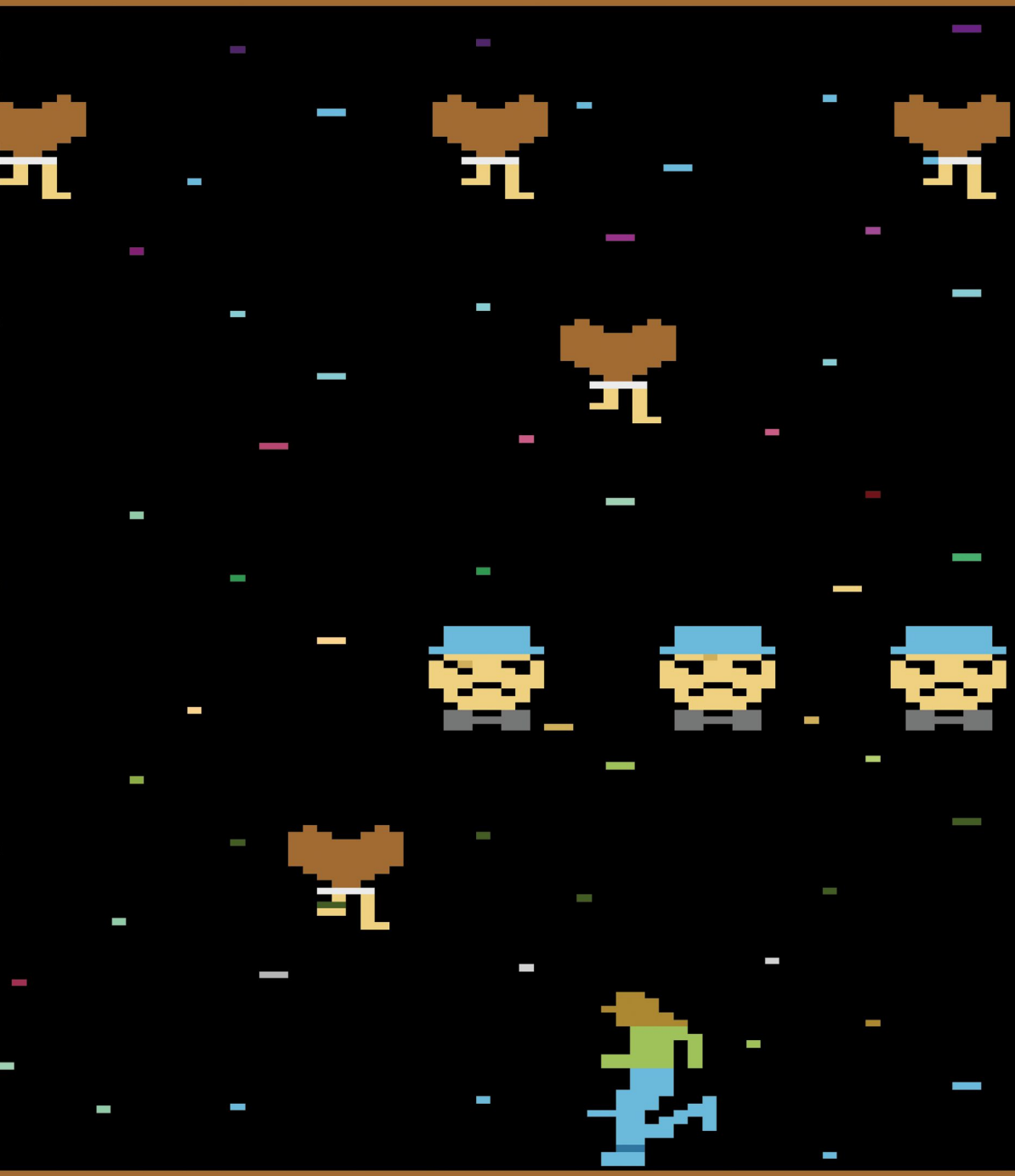

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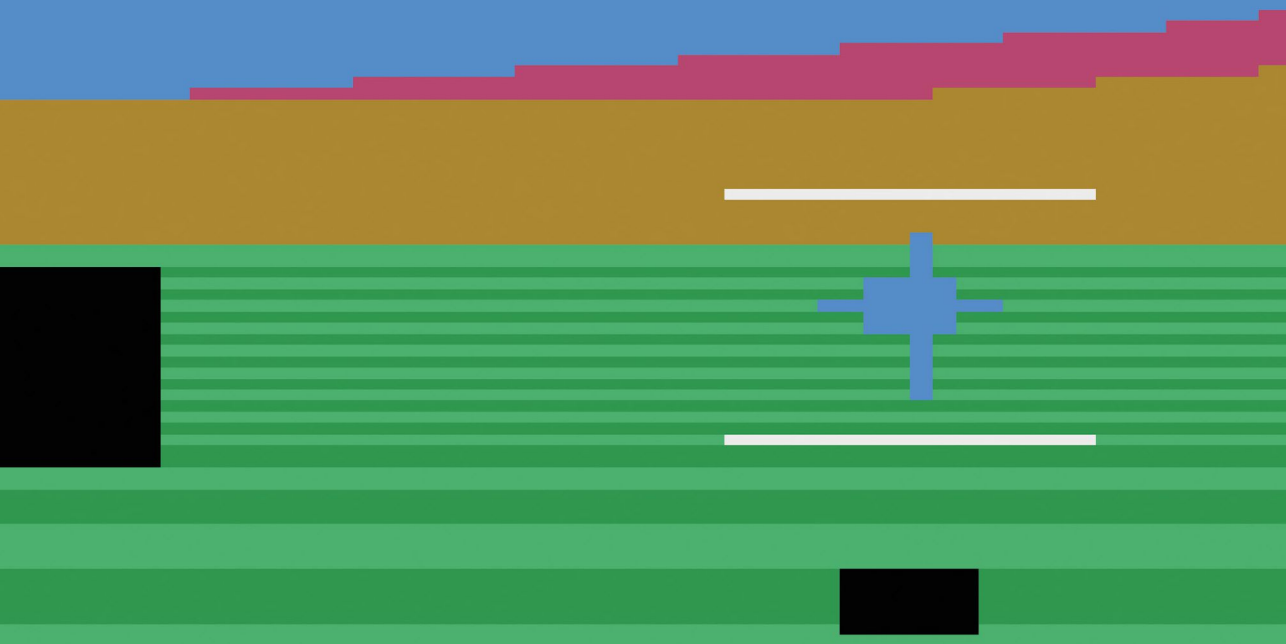
Robot Tank

Like many of Activision's early games, this was an attempt to both emulate and improve upon one of Atari's own releases. This time, the game in question is *Battlezone*, and *Robot Tank* couldn't be much more of a blatant copy. It's arguable which is the better game – everyone seems to have a different opinion – but there's no doubting that Activision's title is certainly more authentic to the arcade original. Unlike the Atari 2600 port of *Battlezone*, it uses a proper first-person viewpoint and also has stages that take place at night, which look far more like the dark, foreboding visuals of the vector-based coin-op than its rival.

Other changes include a proper status panel (where the scanner has been moved to), a crosshair to aid with targeting, and weather conditions that have an affect on gameplay; reports before each level give you advance warning of these. Other unique features are the way your tank retains damage and loses various capabilities, rather than being destroyed with a single hit, and a counter that tells you how many days you've lasted in the battlefield. Alan Miller's masterpiece is yet another must-own Activision cartridge.



Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

—

Released
1983

—

Genre
Shoot 'em up

—

Developer and Publisher
Activision

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Activision

Spider Fighter

"*Spider Fighter* falls into a familiar, overworked category of video games: you control the side-to-side movement of a cannon along the bottom edge of the screen, your objective is to shoot enemies overhead for points before they destroy your cannons, and, every time you annihilate a complete wave of the space attackers, another more deadly wave sets up. If that sounds like *Space Invaders* and other games, it should. But there's a lot more to *Spider Fighter*.

"To begin with, there are four different types of enemies. Mother Nests that move and fire rapidly, Pods and Protectors that drift lazily along, and Attack Spiders that dance around like crazy, spreading hailstorms of laser bombs. The latter will remind you of *Kaboom!*, except here you've got to dodge all the bombs. There are also three pieces of fruit in the upper right corner that belong to you. Ten or 15 seconds into a wave, one of your enemies will grab a fruit and try to exit via the left edge. The game ends either when you run out of cannons, or when all your fruit gets stolen. I found that, by taking up a position about a quarter of the way from the left edge, just before each wave sets up, and letting go a blast aimed at a point I thought the enemy would move to, I could save the fruit. Your cannon shoots trios of bullets automatically if you hold down the fire button."

Phil Wiswell, games journalist

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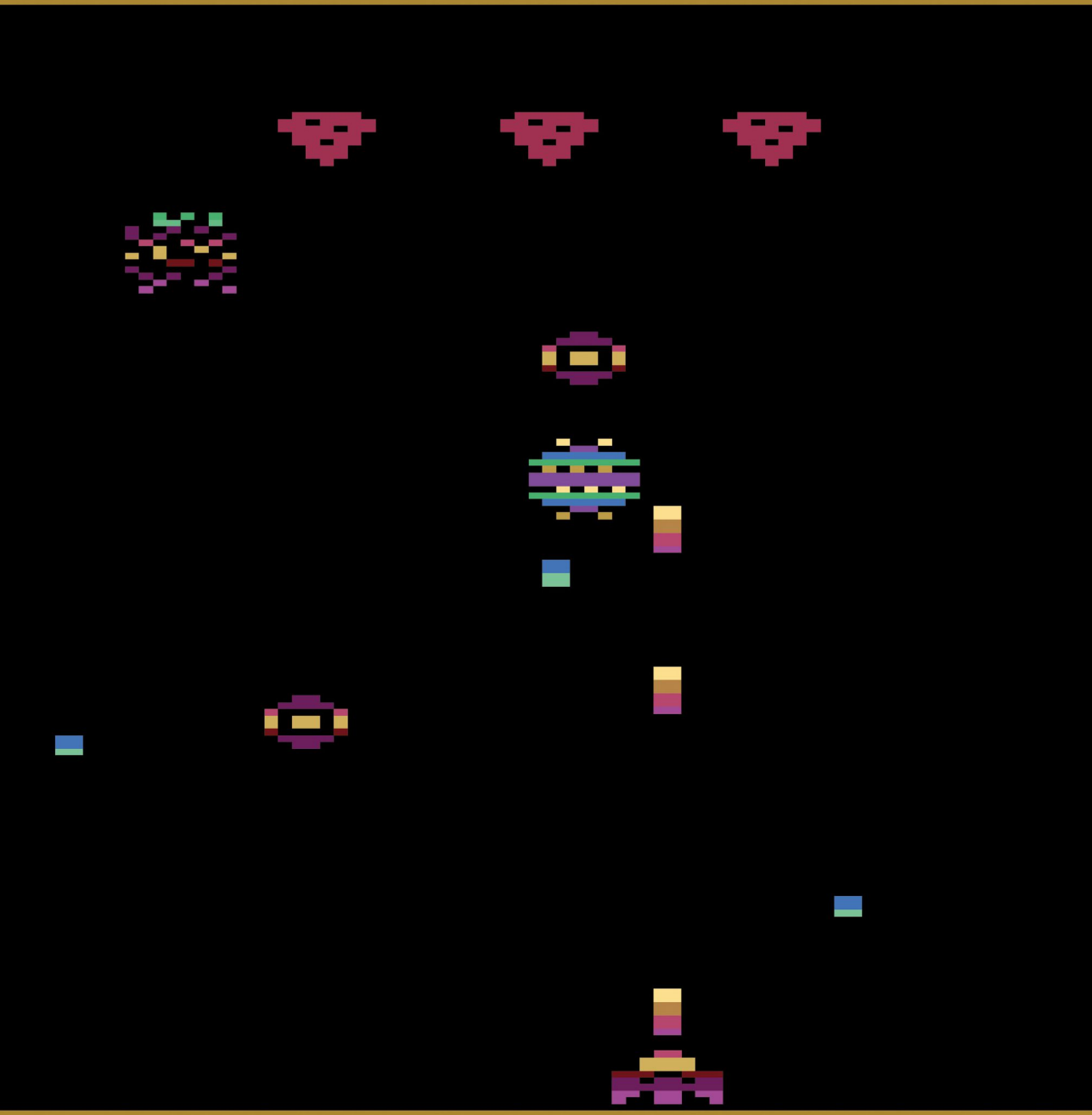

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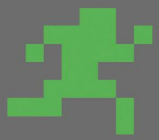
TRON: Deadly Discs

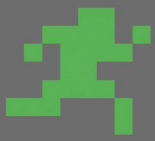
"Widely considered one of the Atari 2600's best movie tie-ins, *TRON: Deadly Discs* translates 1982's iconic gaming film into an endlessly replayable, arcade-style affair. The hardware can't recreate the glowing neon aesthetic of the Disney cult classic, but Mattel still manages to carve out a key part of the film and turn it into something great.

"As TRON himself, you fight for the 'users' within the computer mainframe by flinging your light disc at the enemy attackers that appear. You can toss the disc in any direction, and it'll boomerang right back to you, but it can only erase foes when soaring away from you. Up to three such attackers can be on screen at a time, and, if you clear them all before others appear, you'll boost your score level. TRON can only take a few hits before being de-rezzed, ending the game, so you need to dodge incoming enemy discs.



"Like the best of the Atari-era classics, this is a simple concept done right – and one that could pull you back in time and time again. And die-hard fans had to have the limited-edition TRON joystick, which came in a bundle with *Deadly Discs* and *Adventures of TRON*."

Andrew Hayward, games journalist



Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

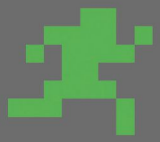
Platform
2600

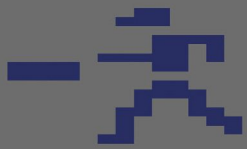
Released
1983

Genre
Action

Developer
Mattel

Publisher
M Network





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Phoenix

"*Phoenix* was the first game I worked on, and among the first games that GCC developed for the 2600. We were still learning many of the tricks required to get a really good game developed for the 2600. I quickly realised that the size of the game would become a real challenge. *Phoenix* has multiple stages – the small birds that fly quickly, the large birds that swoop and can regenerate their wings, and the spaceship that you shoot out, piece by piece. We wanted to include all the modes of the game, but fitting them into the limited space of the cartridge was a huge challenge.

"I became an expert at squeezing the code, or making changes that would let the game execute the same but which made it very hard to make changes later if needed. This had to be done at the end of the development cycle, and I think we cut the size of the code by about a third by the time we were done. And I had to forget all the structured and formal software development practices I had just learned at MIT! From that point on, we were focused on how to hack or develop tricks to get the most out of the limited 2600 hardware."

Michael Feinstein, programmer

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

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Polaris

"If you're not shooting enemies in a tank or plane, then the next best thing would be inside a submarine. *Polaris* allows you to do just that in a surprisingly good home port for the Atari 2600.

"As mentioned, you control a submarine to take out enemies. You fire upwards at planes dropping bombs while avoiding hostile submarines below. Destroy the planes, and they're followed by a looping plane that drops heat-seeking missiles at you. That's followed by a second level where you must navigate through an underwater cavern, avoiding the terrain and mines. These couple of level types repeat while continually upping the difficulty with more enemies and obstacles in your way.

"The sound, although limited, effectively pushes home the fact you're underwater inside a submarine. The lack of music emphasises the consistent beeping that emulates what you'd hear inside a working submarine.

"*Polaris* is a nice shooter, even if limited in comparison to others on the Atari 2600. The two different level types and ramping difficulty will have you chasing high scores for hours on end."

David Giltinan, games journalist

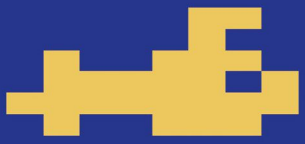
Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Tigervision

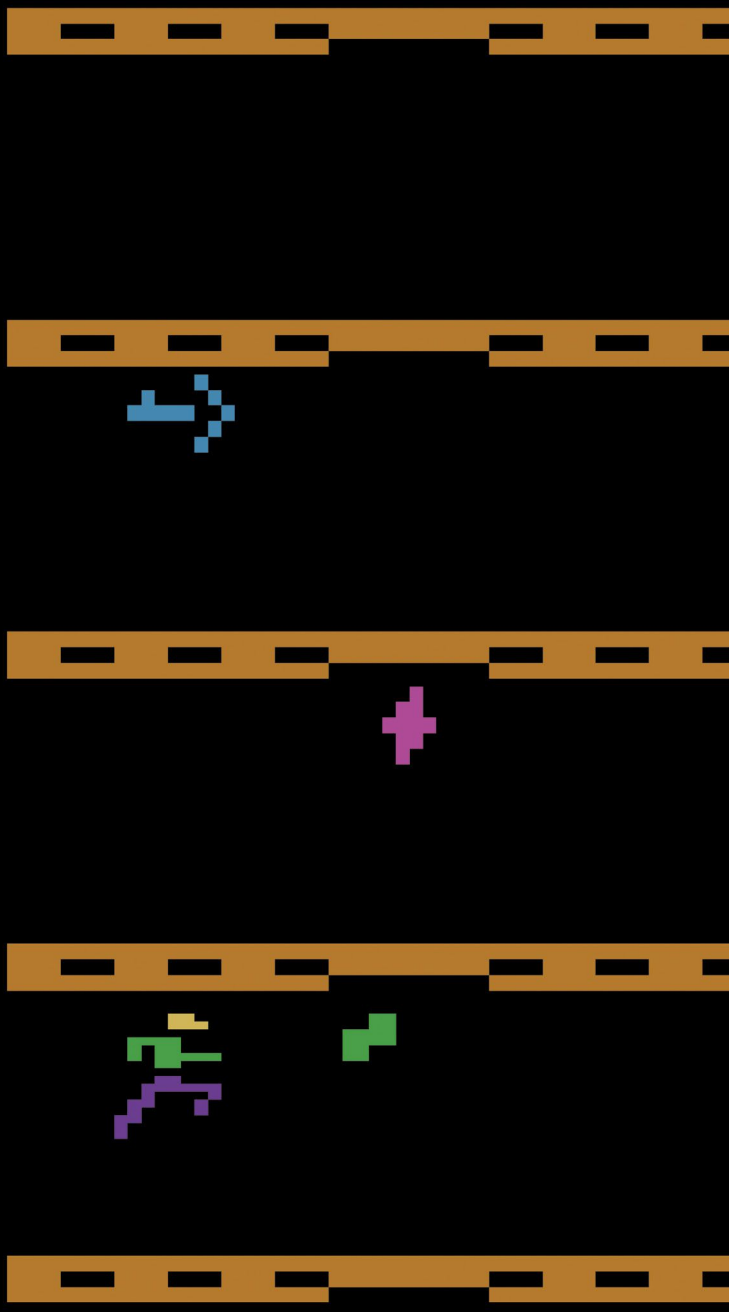
Originally by
Taito



Adventures of TRON

One of two Atari 2600 games based on the cult 1982 Disney movie, *Adventures of TRON* is a completely original effort rather than copying a specific scene like *Deadly Discs*. This one takes the form of a single-screen platformer where you make your way around the arena, collecting the Floating Bits while avoiding the Recognizers, Grid Bugs and Cannon Tanks. The Floating Bits are literally that: pixellated objects that float across the screen above each of the four platforms, and you need to jump to grab them as they go past. The enemies all move around the platforms in formation, following a strict pattern, so, by watching them, you can soon work out the best way to avoid them.

As well as jumping, you can also use the lifts to move between platforms or slide down the pole in the centre. Once you've collected all the bits, you move on to the next level where you do the same thing all over again, only with much more aggressive opposition. If you find this all too easy and want to make it even more challenging, you can flick the difficulty switch to the A position, and away you go!



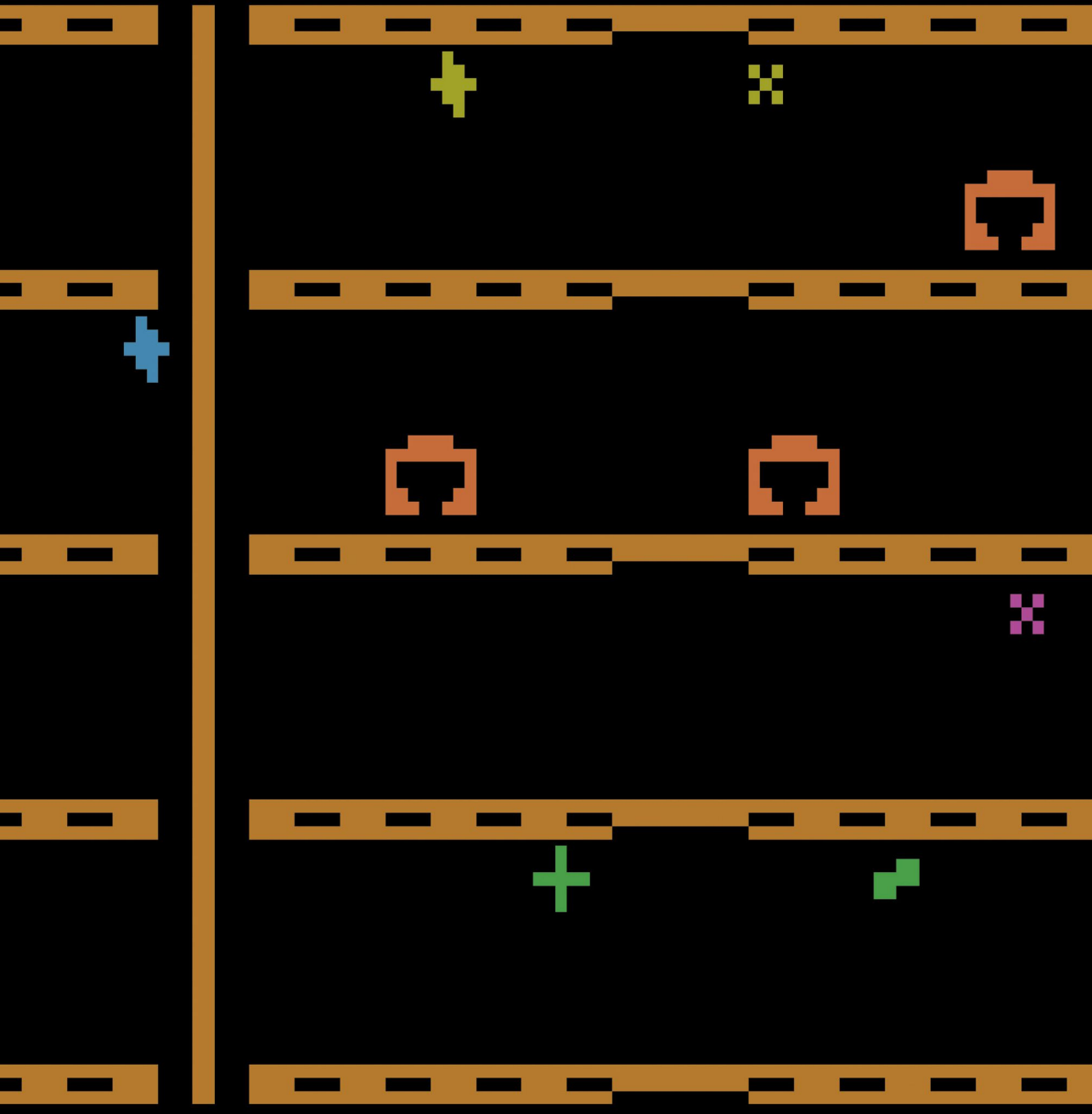
Platform
2600

Released
1983

Genre
Arcade

Developer
Mattel

Publisher
M Network



Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Coleco

Originally by
SEGA

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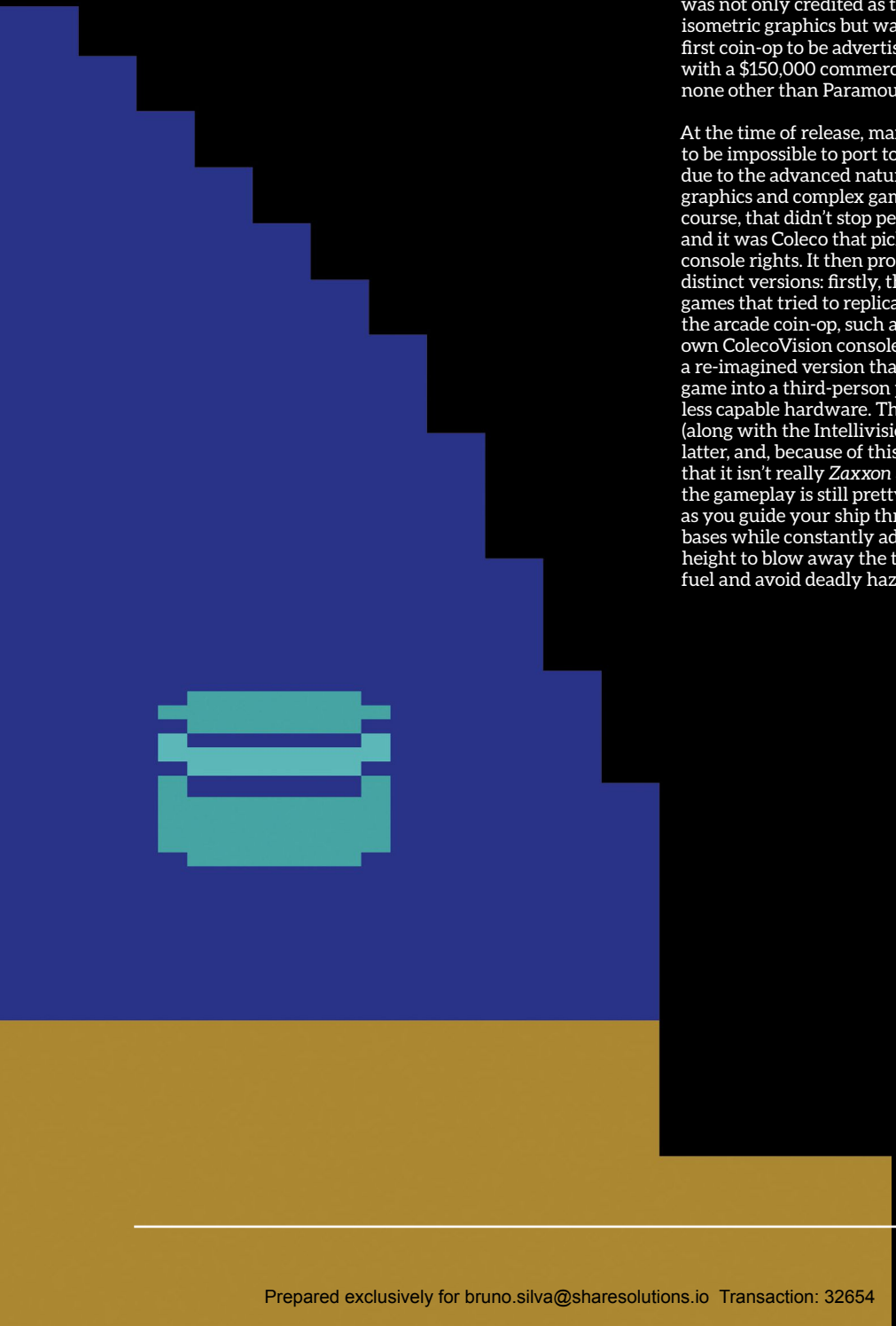
Zaxxon

SEGA's original 1982 *Zaxxon* arcade game was not only credited as the originator of isometric graphics but was also the very first coin-op to be advertised on television, with a $150,000 commercial produced by none other than Paramount Pictures!

At the time of release, many considered it to be impossible to port to a home system due to the advanced nature of the 3D graphics and complex gameplay. But, of course, that didn't stop people having a go, and it was Coleco that picked up the home console rights. It then produced two very distinct versions: firstly, there were those games that tried to replicate the visuals of the arcade coin-op, such as the port for its own ColecoVision console; and secondly, a re-imagined version that moved the game into a third-person perspective for less capable hardware. The 2600 version (along with the Intellivision) is one of the latter, and, because of this, many argue that it isn't really *Zaxxon* at all. That said, the gameplay is still pretty much the same, as you guide your ship through the enemy bases while constantly adjusting your height to blow away the targets, collect fuel and avoid deadly hazards.



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Platform
2600

Released
1983

Genre
Action

Developer and Publisher
20th Century Fox

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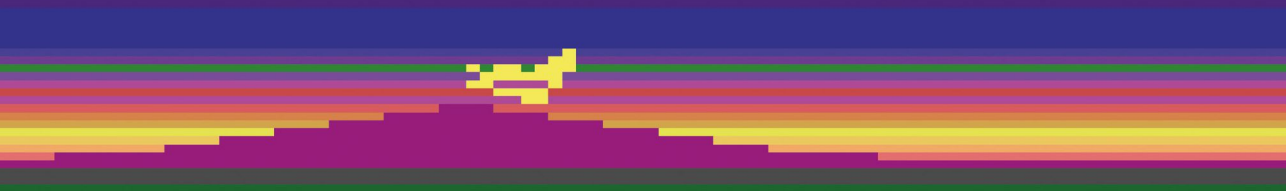

M*A*S*H

*M*A*S*H* doesn't really seem the obvious choice for a video game adaptation, but 20th Century Fox really surprised everyone by turning it into a very fine product. The game is split into two distinct parts that require very different skills to complete. On the first stage, you take control of Hawkeye Pierce as you fly your chopper into the battlefield, rescuing wounded troops. All the while, there are enemy tanks and planes trying to stop you, and you have to be careful not to hit the trees. All the while, you're also competing against a rival helicopter piloted by Frank Burns, who's set you a challenge to see who can rescue the most troops and return them to base camp!

The second screen has you trying to operate on one of the injured soldiers that you just rescued. This plays very much like the classic board game *Operation*, where you try to remove pieces of shrapnel from the wounds without touching the sides. This requires a very steady hand is made even more difficult by its very strict time limit! *M*A*S*H* is easily one of the best movie/TV tie-ins to be released for the vintage VCS.

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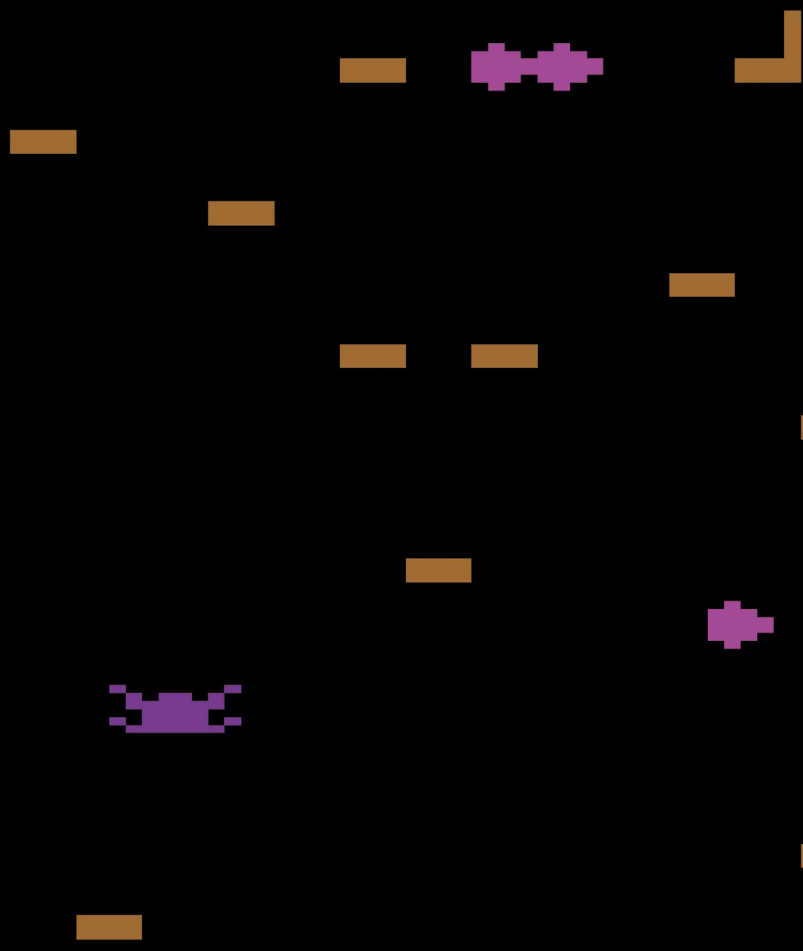
Centipede

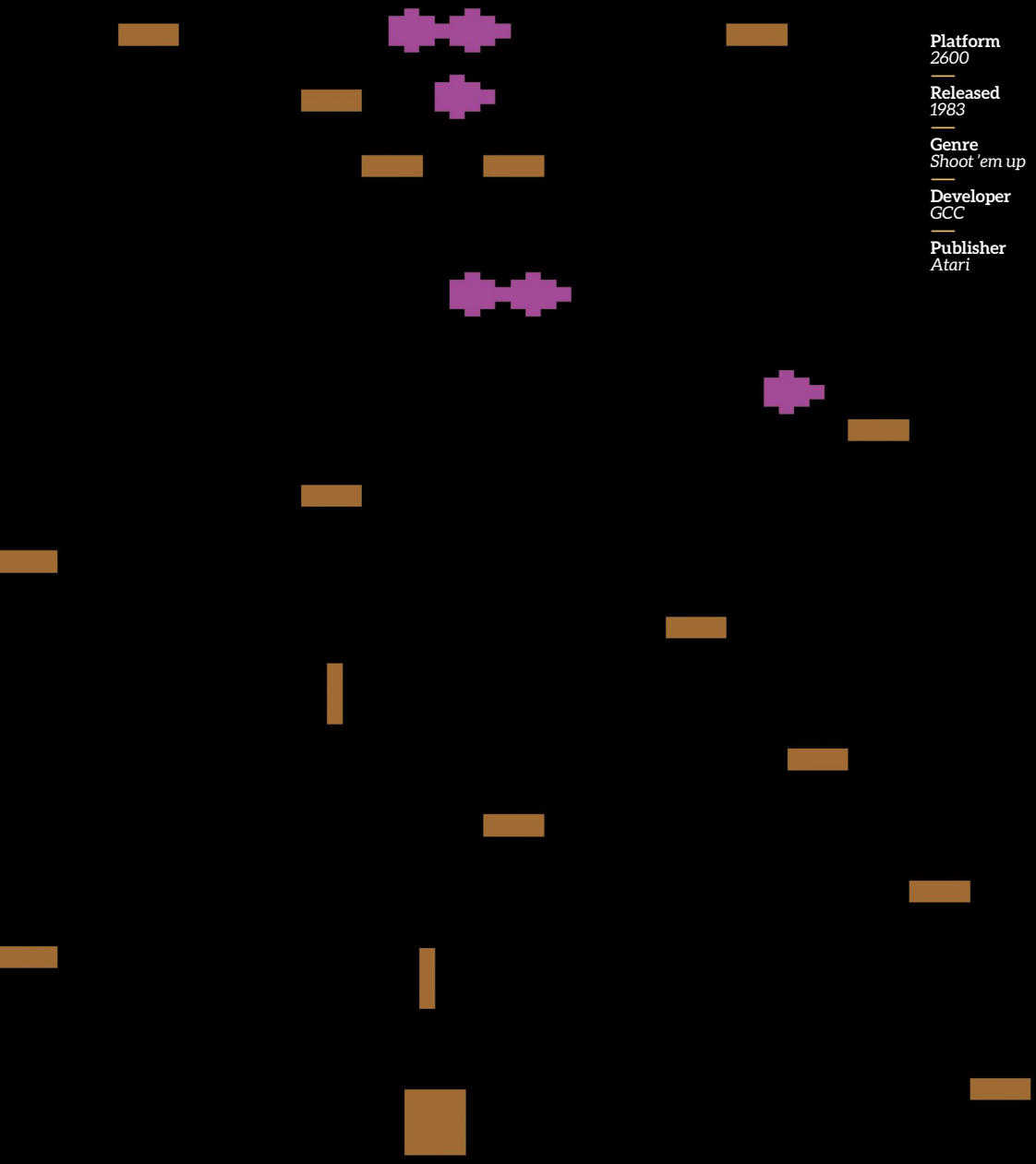
"Like so many other game developers in the early '80s, Atari was interested in appealing to the female gamer contingent attracted back to arcades by *Pac-Man*. But, unlike games like *Frogger* or *Mappy*, which eschewed the kill-or-be-killed aesthetic of a *Space Invaders* or *Defender*, *Centipede* managed to appeal to everyone by masterfully mixing colourful characters and a unique story with all the violence and projectiles you could ever want, plus endless swarms of murderous bugs relentlessly attacking your mushroom forest.

"*Centipede*'s trip to the Atari 2600 required some concessions: the cute, colourful bugs and mushrooms were replaced with giant blocks, and the silky-smooth trackball controller is gone. But, in spite of all that, *Centipede* on the home console is supremely playable. The venerable 2600 joystick performs admirably in this home port, replicating the feel of its arcade origins surprisingly well. And the action is just as fast and furious as ever.

"The Atari 2600 port of *Centipede* is a real testament to the game's design. Even when it's stripped of its shiny visuals and unique controls, the core gameplay loop is so addictive that the home version is still one of the most addictive shooters in history."

Greg Sewart, games journalist





Platform
2600

Released
1983

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer
Mattel

Publisher
M Network

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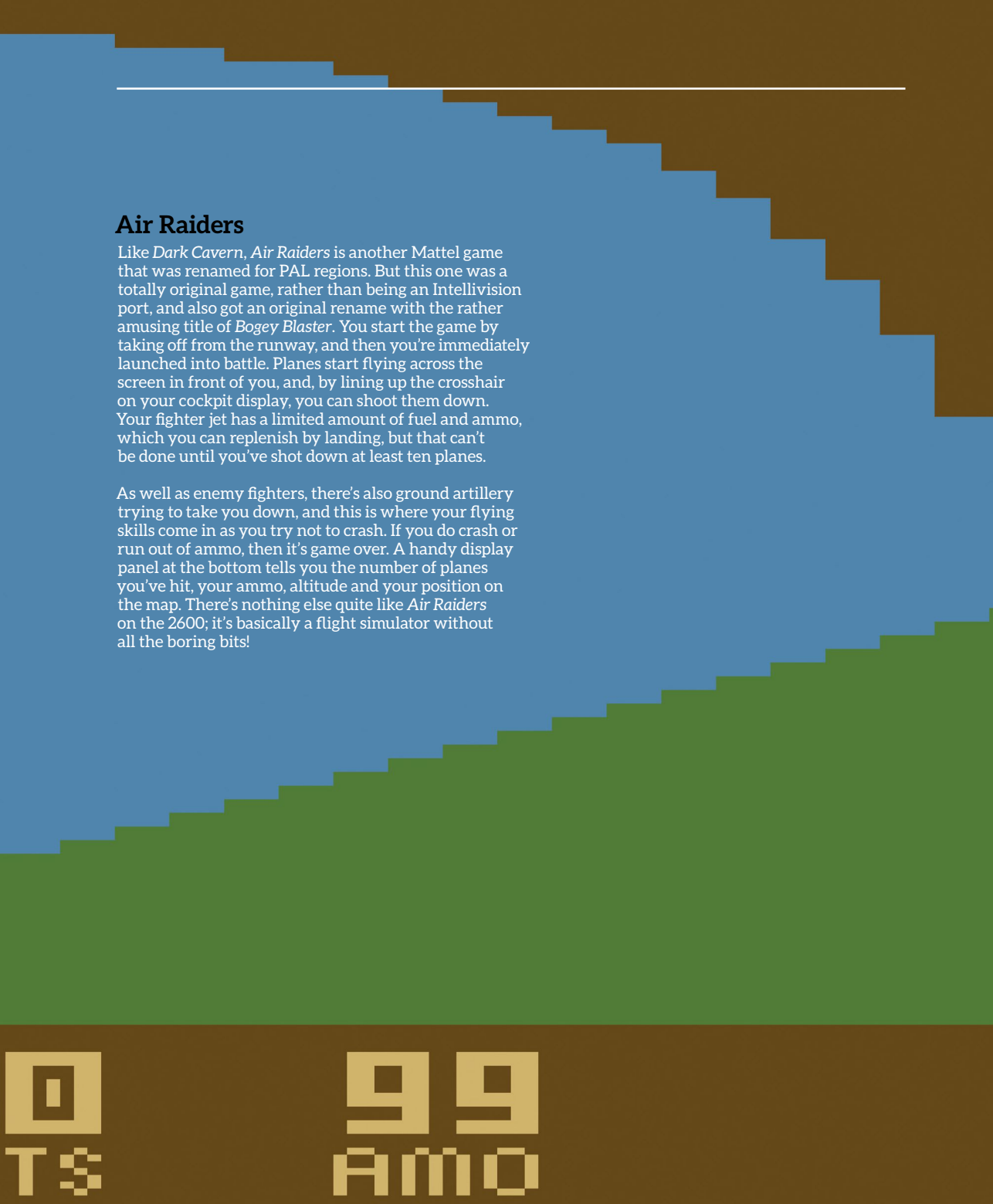
Air Raiders

Like *Dark Cavern*, *Air Raiders* is another Mattel game that was renamed for PAL regions. But this one was a totally original game, rather than being an Intellivision port, and also got an original rename with the rather amusing title of *Bogey Blaster*. You start the game by taking off from the runway, and then you're immediately launched into battle. Planes start flying across the screen in front of you, and, by lining up the crosshair on your cockpit display, you can shoot them down. Your fighter jet has a limited amount of fuel and ammo, which you can replenish by landing, but that can't be done until you've shot down at least ten planes.

As well as enemy fighters, there's also ground artillery trying to take you down, and this is where your flying skills come in as you try not to crash. If you do crash or run out of ammo, then it's game over. A handy display panel at the bottom tells you the number of planes you've hit, your ammo, altitude and your position on the map. There's nothing else quite like *Air Raiders* on the 2600; it's basically a flight simulator without all the boring bits!



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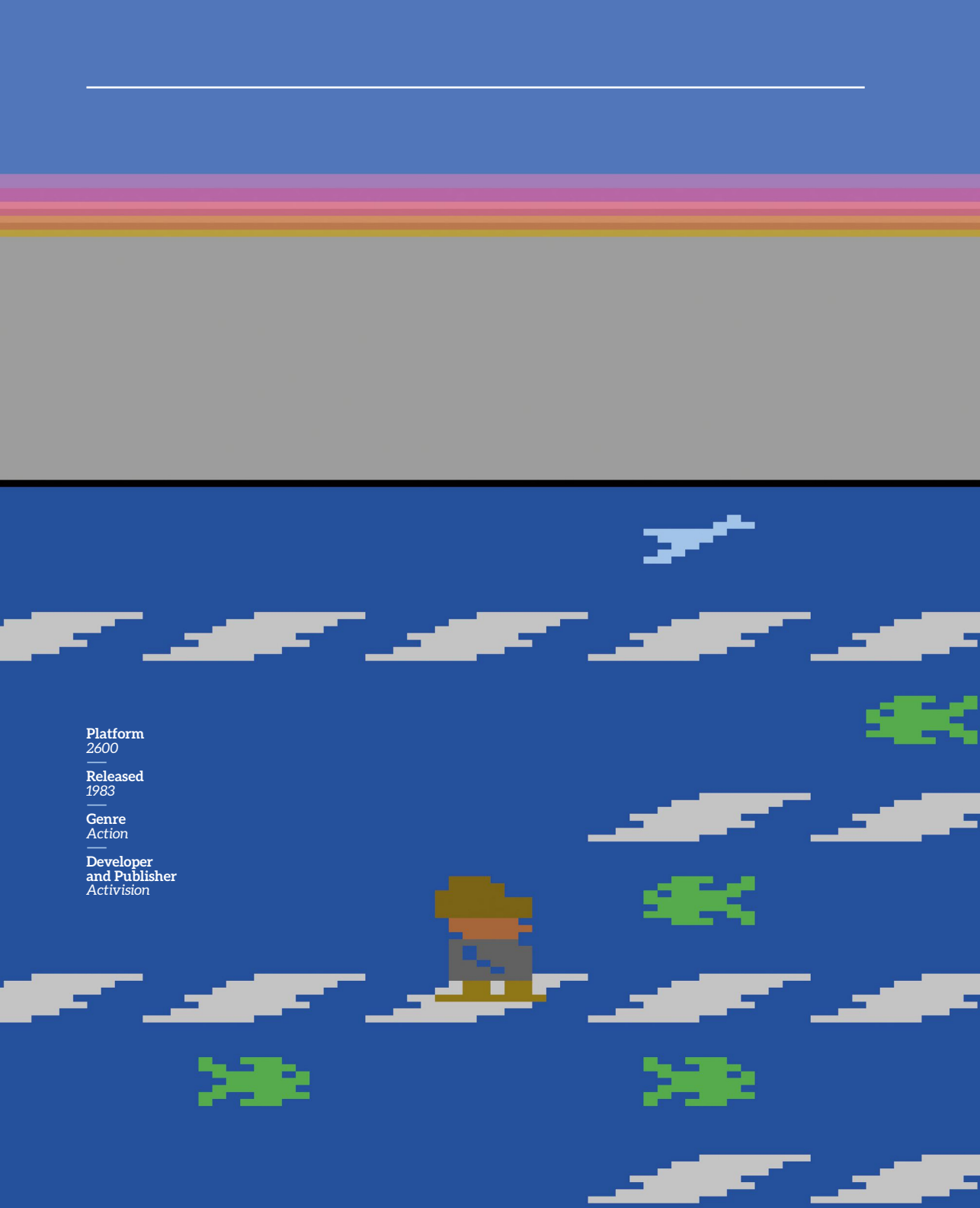

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Activision

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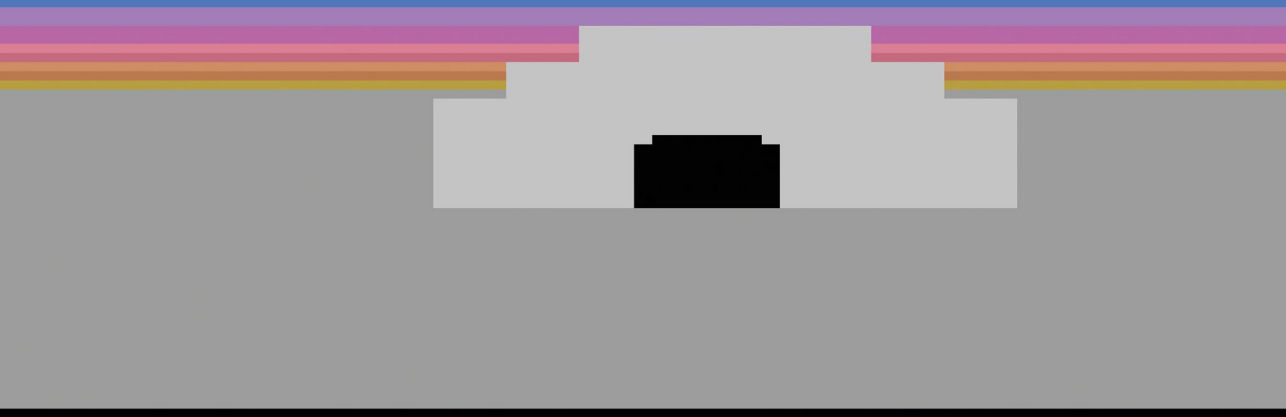

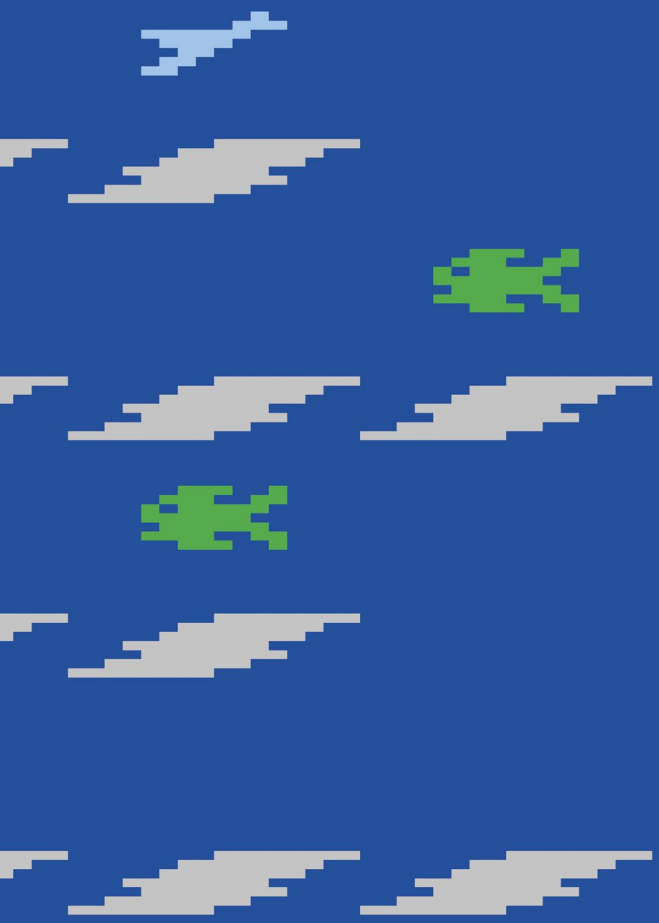

Frostbite

"If *Megamania* is, as many people claim, the best arcade action game ever made, *Frostbite* is a close second. It has sometimes been referred to as a *Q*bert* rip-off because of the changing colours – however, I had actually completed the game before *Q*bert* ever appeared. In fact, *Frostbite* more closely resembles *Frogger*.

"Originally, the game was about a Hawaiian Tiki God jumping on rocks to cross a lava flow. But I could never get the black and orange colours to look right – so I changed the game to an arctic adventurer jumping on ice flows.

"There are two techniques I developed that make *Frostbite* play so well; techniques that have since been copied in numerous games. The first was that the sensitivity of the controls increases as the game becomes faster. This allows the player to ease into the game and avoid the frustration of controls that seem either too sensitive early on – or too unresponsive later in the game. The second is that the game's progression is based on a sawtooth wave. The game would get harder and faster for three levels – then the fourth level would be a bit easier. This gave players the illusion that they were getting better – when, in fact, the game was actually giving them a little rest before the difficulty ramped up again."

Steve Cartwright, designer and programmer

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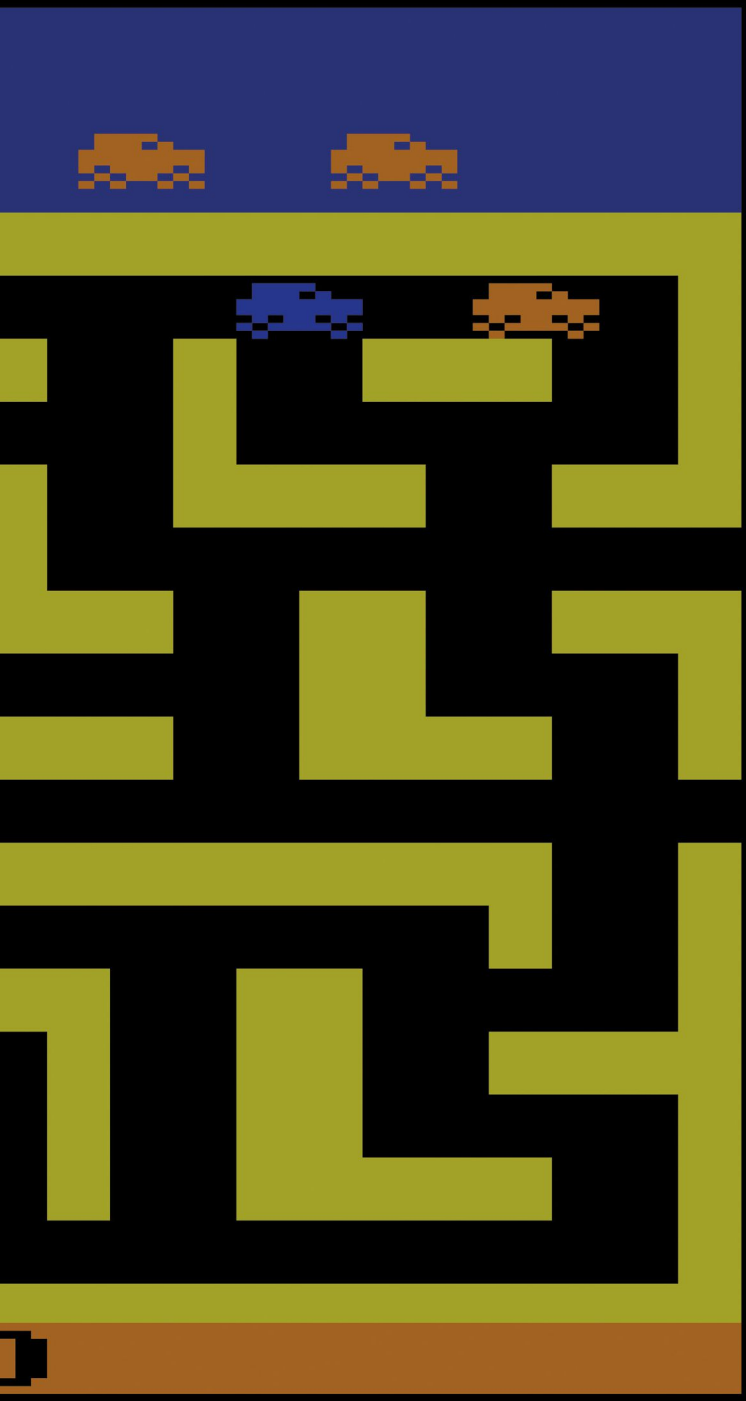


Bank Heist

While many of Fox's Atari 2600 games were based on movies, *Bank Heist* is one that actually wasn't but certainly looks like it should be. Take one look at that *Bugsy Malone*-inspired artwork and it will all seem instantly familiar. However, the actual gameplay in *Bank Heist* is pretty original and offers up a new take on the jaded maze game formula.

Playing the part of a career criminal, you're out to rob as many banks as possible, but, each time you perform a heist, a cop car takes chase. This continues until up to three of these are on your tail. Thankfully, you can chuck sticks of dynamite out the window in order to take the coppers out and give you a bit of respite. If you successfully blow up a cop car, a new bank target appears on screen. Once you've robbed enough banks, you can move on to the next town, which looks pretty much the same but features more aggressive police. The angry lawmen aren't your only concern, though, as you also have to watch your fuel. *Bank Heist* is a bit of a hidden gem for the vintage Atari system.

Platform
2600

Released
1983

Genre
Arcade

Developer and Publisher
20th Century Fox

M Network is perhaps the most unique third-party publisher of Atari VCS software because, unlike notable rivals, such as Activision and Imagic, it can trace its roots further back in time. Following the launch of the Atari VCS in 1977, toymaker Mattel justifiably decided that video games were set to be the next big money spinner, and the head of the company's Design & Development division, Richard Chang, set about producing an in-house gaming system which would compete with Atari's. As Mattel lacked any experience in this field, Chang formed a deal with APh Technology Consulting owner, Glenn Hightower, and the Mattel Intellivision was born.

David Chandler and his team at Mattel were in charge of engineering the hardware while David Rolfe and the staff at APh were responsible for the creation of the initial batch of game software for the machine. Graphics, meanwhile, were designed in-house at Mattel by a team of artists overseen by Dave James. It was a happy arrangement initially, and the system struck a chord with players thanks to Mattel's aggressive advertising campaign, which compared the superior visuals of the Intellivision with those of the technically inferior VCS. By 1981, the console had sold a million units. In the previous year, Mattel had reportedly generated $1.5 million of revenue per game, and that was set to double in '81. This financial success predictably created tension between Mattel and APh, which was apparently only paid a fee of $30,000 per game under the terms of the original agreement.

Aware that his team had worked hard without being fairly rewarded, Hightower concocted a cunning plan – APh would develop games for the market leader, the Atari VCS, and then offer them to the highest bidder. There was just one issue – Hightower had signed an exclusivity agreement with Mattel which forbade his firm from working with any rivals. To circumvent this problem, Hightower came up with a creative solution; he made his team of developers redundant and then immediately re-hired them as external consultants. With their revised roles in place, his team went about reverse-engineering Atari's console and creating unique and engaging games for it. However, in the end, Hightower decided against shopping these products around the industry and, instead, contacted Mattel and fibbed that APh had been offered a wide range of VCS titles that it was welcome to first refusal on.

Hightower's bluff worked, and Mattel, which was impressed by the quality of the games, decided to take on and publish said titles. In an additional stroke of genius, because Hightower claimed he was working with an external team of consultants, he was able to sign a revised and much-improved deal with Mattel that enabled him to not only demand money up front to pay his 'contractors', but also a handsome royalty on each and every copy sold – the end result being a much better agreement than the one APh had originally signed with Mattel to create software for the Intellivision.

"Activision had David Crane, and Imagic had Rob Fulop, but M Network's star player was Akers."

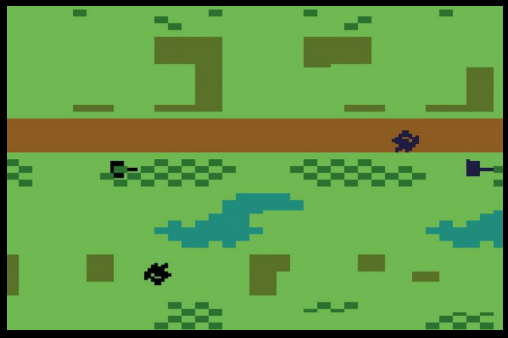
Dubbed 'Project Irata' within Mattel – that's 'Atari' spelt backwards, in case you were wondering – this venture would later be given the more official moniker of M Network, a label within Mattel that would compete with the likes of Activision and Imagic in a market that was growing, thanks to the relatively recent explosion in third-party publishing. APh's games sold around 200,000 copies each, and, with proof that the venture made financial sense, Mattel was emboldened enough to push the M Network brand to the next level, hiring a host of new talent to create software in-house. Led by Keith Robinson, M Network's best developers became known as the 'Blue Sky Rangers' and would include the likes of David Akers (*Star Strike*), Jeff Ratcliff (*Loco-Motion*), Steve Crandall (*Rocky* and *Bullwinkle*), Stephen Tatsumi (*Anteater*), Mike Sanders (*Advanced Dungeons & Dragons: Tower of Mystery*), Jane Terjung (*Kool-Aid Man*) and Jossef Wagner (*Masters of the Universe: The Power of He-Man*).

Activision had David Crane, and Imagic had Rob Fulop, but M Network's star player was Akers, who was responsible for some of the company's best games. These included lucrative ports of hit arcade titles *Bump 'N' Jump* and *BurgerTime*, both licensed from Data East. Speaking to *Retro Gamer* magazine, Akers recalls his route into the business: *"I studied Electrical Engineering in college, but took a lot of programming courses. After graduation, I got a job in aerospace, but I enjoyed playing video games in my spare time. I remember reading the first issue of* Electronics Games *magazine and realising that some people were actually making a living at developing games, and I thought, why couldn't I do that? I was living in the Los Angeles area at the time, and thought I would have to move to Silicon Valley to work at a game company, but then Mattel Electronics started advertising for game programmers for their Intellivision console. Mattel's headquarters was about a mile from where I was currently working. I applied for a job there and was accepted. As it turns out, they were also looking for Atari programmers too, and this was the division that I ended up being assigned to."* Akers would later join Atari's coin-op division and would create hits, such as *Klax* and *Escape from the Planet of the Robot Monsters*.

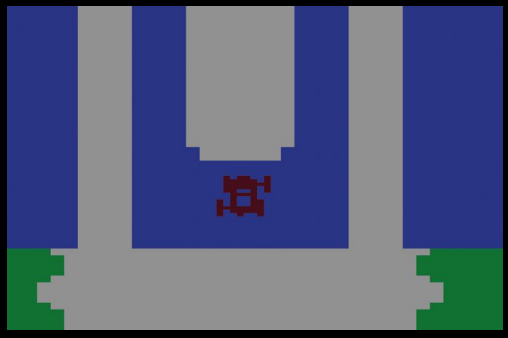
While there were some within Mattel who feared that, by supporting a rival system, it would cause sales of the Intellivision to falter, M Network ended up being a real success story for the toymaker; so much so that, even today, many Atari fans feel that the company's VCS output was, in many ways, superior to competing games on the console.

The fear that the VCS ports of existing Intellivision games would make the originals look bad – lest we forget, Mattel's console was technically a superior platform – proved to be unfounded. In fact, they were of such a high standard that M Network chose to rename several of them to avoid comparisons being made with the Intellivision originals. Therefore, *Astrosmash* became *Astroblast*, *Armor Battle* was rechristened *Armor Ambush*, and *Frog Bog* became *Frogs and Flies*.

Naturally, this rebranding process wouldn't work with M Network's many licensed games, which retained their original names on the VCS. These titles are some of the most fondly remembered on the console, and appeared at a time when media companies were only just beginning to wake up to the incredible commercial potential of video games based on TV shows, movies and toy lines. Disney's *TRON* movie was subsequently adapted, and, in stark contrast to today, the House of Mouse was curiously hands-off with the whole affair, preferring to trust M Network implicitly. *"Disney never even looked at any of the TRON games before they were released, or even after,"* Robinson told *Retro Gamer* magazine.



Armor Ambush / *2600 / 1982*



Bump 'n' Jump / *2600 / 1983*

"I was responsible for the entire Solar Sailer *game and the graphics. A number of others helped out, threw in ideas and worked on optimising the code, but, ultimately, I was responsible and no one from Disney or Mattel was looking over my shoulder. Some of the licensors did take more of an interest in their properties, though. The Dungeon & Dragons people did review the games before putting the D&D trademark on them, and Mattel Toys, our sister company, was very snickety about the* Masters of the Universe *game, particularly the colours used in the Castle Grayskull graphic. But I don't recall anyone from Disney taking any interest in any of the TRON games at all!"*

Programmer Hal Finney – who created the likes of *Adventures of TRON*, *Armor Ambush*, *Astroblast* and *Space Attack* while at M Network and would, some years later, prove to be a key player in the development of the Bitcoin cryptocurrency – spoke to *Digital Press* about the challenge of getting games up and running on Atari's weaker hardware. *"The Intellivision was much easier, but, in a way, there was more of a sense of satisfaction with the Atari since it was so difficult just to get a coherent picture on the screen. Everything in a VCS program was timed to synchronise with the TV screen – every scanline, every horizontal and vertical retrace. It was a really handcrafted assembler. With the Intellivision, we had interrupts to do the timing, and Dave Rolfe had created the Exec, which was a system control and library ROM that was in all the units and hid a lot of the gory details. I always thought* Dark Cavern *was one of my more successful porting efforts. There's the usual Atari flashing when we get too many sprites on a scanline, but it wasn't too bad. In fact, I think I may have even adjusted the 'A.I.', such as it was, of the bad guys to try to avoid that – they would turn away if they were going to get on the same line as others. We couldn't control the player's motion, of course, so it wasn't prevented altogether."*

Despite the obvious quality of its VCS output, Mattel was keen to ensure that M Network's games looked as close to the Intellivision versions as possible, and turned to a hardware solution in order to achieve this goal. The solution was the 'Super Charger' module, which plugged into the Atari VCS, bestowing an additional 2K of RAM as well as addressing circuitry, which allowed games to be four times larger in terms of size. The module was developed and readied for release while its debut title, *BurgerTime*, was put into planning. Sadly, the project met an untimely end when Mattel's Intellivoice speech module for the Intellivision flopped at retail, suggesting that consumers weren't interested in buying add-on devices for their existing machines. Given that these 'enhanced' games would only work on consoles with a Super Charger module attached, Mattel pulled the plug on the whole venture and decided that adding extra chips to the cartridges instead would prove to be a better solution. The first titles planned to use these new 'Enhanced' cartridges would be its Dungeons & Dragons games. Sadly, these were never released due to the high costs of production and the impending market crash.

As the video game industry grew at a seemingly unrelenting pace, so too did M Network and its third-party rivals. However, the crash of '83 sadly brought the whole venture to a grinding halt. *"For two years solid, I worked on Atari 2600 games at Mattel; it was non-stop,"* explains Akers. *"But then, almost overnight, the games market just imploded in America. We were all shown the door, with open projects just left in limbo, and Mattel Electronics closed down for good."* The sad thing is, just as the market was about to crash, Mattel was taking steps to safeguard its future in gaming – but it was to be a case of too little, too late. *"In July 1983, as all the video game companies started posting losses, Mattel Electronics revamped its management team and focus,"* Robinson told *Retro Gamer* magazine. *"From then on, games would be 'all flavours'– that is, for all platforms.*

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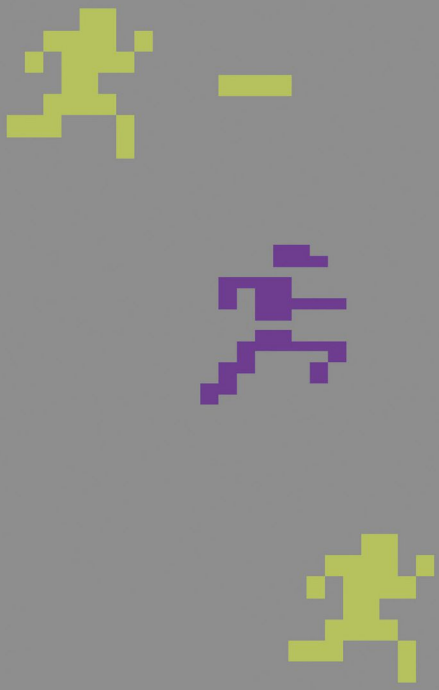
If you look at our commercial for BurgerTime *on YouTube, for example, you'll see at the end it's advertised as available for Intellivision, Atari 2600, ColecoVision, Apple II, IBM PC and Mattel Electronics' own computer, the Aquarius. We had games in development for all of these platforms, and were looking at Commodore 64 and Atari 8-bit at the end of 1983, too. So, had Mattel Electronics and M Network continued, I'm sure we would have developed for Nintendo and SEGA as those consoles came to market."*

> *"As the video game industry grew at a seemingly unrelenting pace, so too did M Network and its third-party rivals."*



Following the closure of the company, Mattel sold M Network's assets to Telegames, then a popular mail order company, which later republished M Network's games in revised packaging – a move which resulted in a decent return, especially when Atari Corp. released the Atari 2600 Jr. later in the decade. In the years since, we've sadly lost Hal Finney and Keith Robinson, both of whom were instrumental in the success of the company. The former succumbed to Amyotrophic Lateral Sclerosis in 2014, while the latter passed away three years later after a prolonged battle with ill health. Robinson was also a key figure in keeping the memory of the Intellivision and M Network alive; he launched the Blue Sky Rangers website to celebrate the history of Mattel's console, and even succeeded in securing the rights to the system, paving the way to officially licensed emulators and hardware. He even brought back M Network, albeit briefly, to publish *Sword Fight*, a previously unreleased two-player fighting game.

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Moonsweeper

"*Moonsweeper* was my first 8K bank-switched cartridge. Cartridges up to this point were 4 kilobytes in size, but improved technology allowed more circuitry on the ROM, and larger programs. We usually spent the extra program space on more graphics, screens or sound. I wanted to present a 3D play environment, but producing 3D graphics requires multiply and divide operations, and the 2600 had neither. I solved this by pre-calculating the 3D world, and storing that data in the extra ROM I had.

"We had an Apple II in the lab, mainly to play *Wizardry*, but we also were playing *Choplifter* at that time, so the 'rescue' gameplay came naturally. By the time I did Moonsweeper, we were all becoming a bit burned out on shooters, and looking for a new style of gameplay. *Moonsweeper* was an experiment in that direction. It has never been one of my favourite projects, but maybe that was a reflection of the rapidly declining 2600 market."

Bob Smith, programmer

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Imagic

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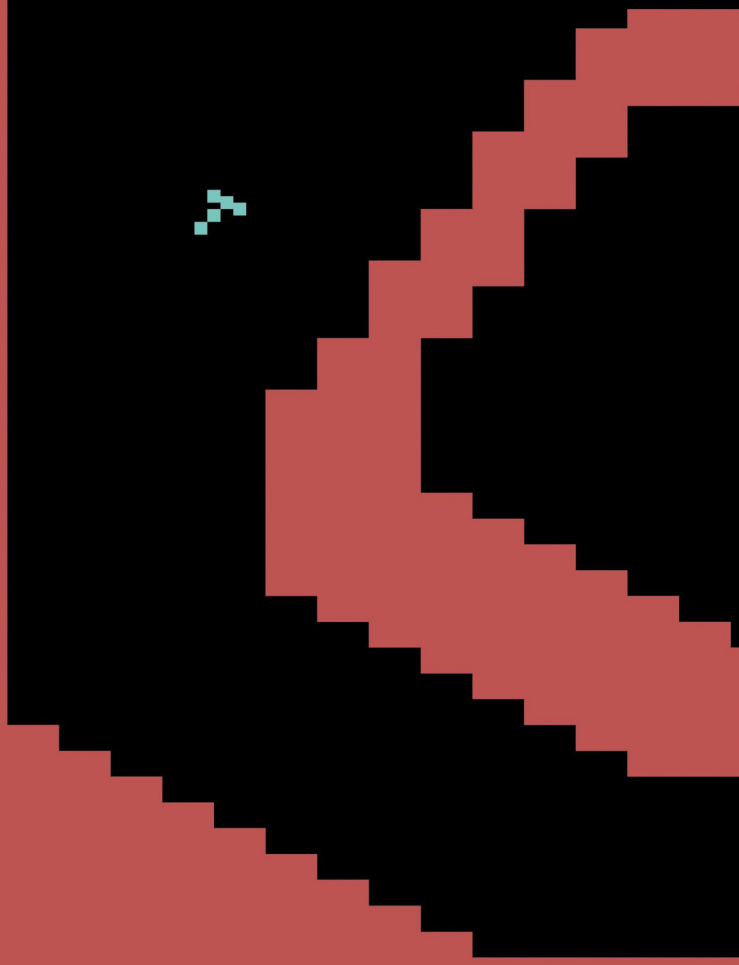
Gravitar

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Atari



"One of Atari's most difficult arcade titles made it to the 2600 in this excellent conversion – and with every bit of that difficulty intact. Your goal is to reclaim four galaxies that the evil *Gravitar* has enveloped in strong gravity fields. In the game, you fly a spaceship with *Asteroids*-style controls. You'll need to use your ship's thrusters carefully to counter each planet's gravitational pull, similar to what you find in Atari's *Space War*.

"Each galaxy in *Gravitar* contains three solar systems consisting of several different planets and an alien base. The goal is to destroy all of the alien bunkers to free each planet, which is much harder than it sounds, thanks to the gravity constantly pulling you towards the planet's surface. You must keep track of fuel and fill up at depots whenever necessary using a fiddly tractor-beam process. You can also skip all this and try igniting the solar system's main reactor, but then you must quickly exit the system through a near-impossible-to-navigate path before it explodes.

"No console of the period could replicate colour vector graphics correctly, but programmer Dan Hitchens did a solid job, even despite the 2600's low screen resolution. *Gravitar* first appeared as a silver-label cartridge you could only get as an Atari Club member via mail order. Wisely, in 1986, the then-new Atari Corp. repackaged the game as a red-label title with the release of the redesigned 2600.

"Because *Gravitar* is so tough, Hitchens included several variations that made things easier, such as giving you 15, 25 or even 100 ships instead of six, as well as the ability to turn off the shooting bunkers and saucers and even the gravitational pull. Getting good at *Gravitar* takes serious commitment, but it's worth the journey."

Jamie Lendino, guest reviewer

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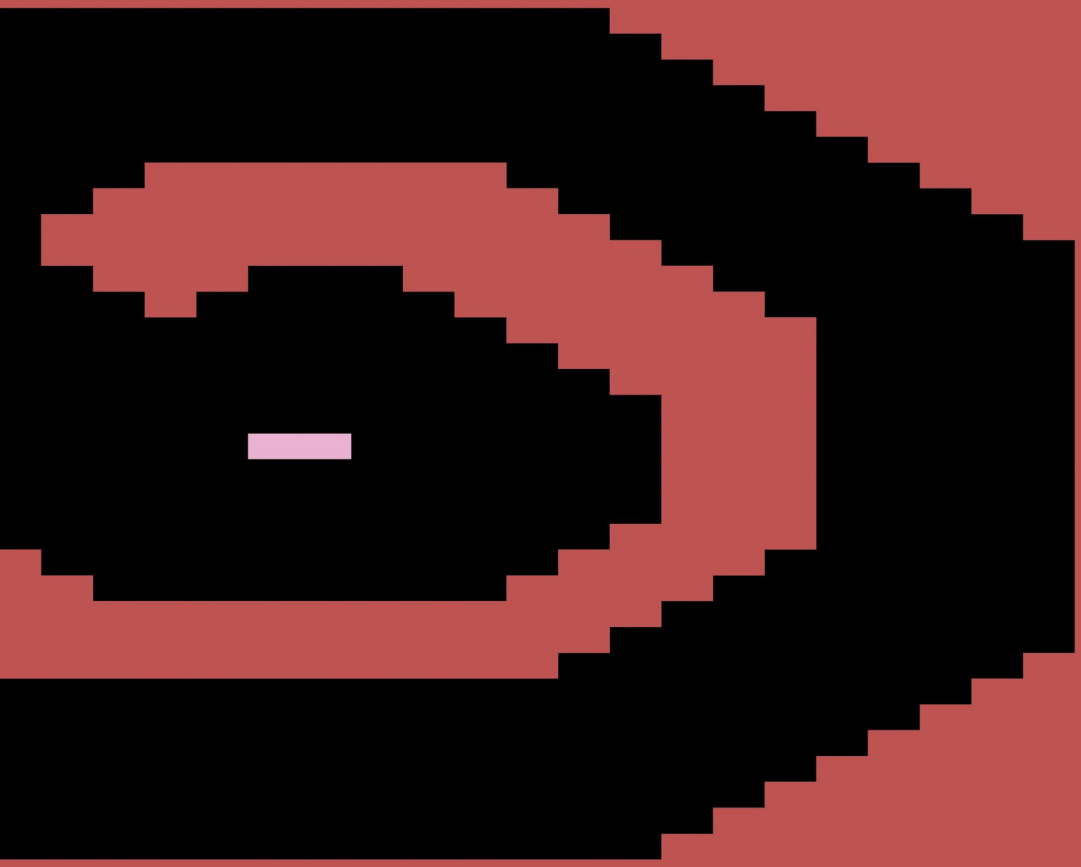

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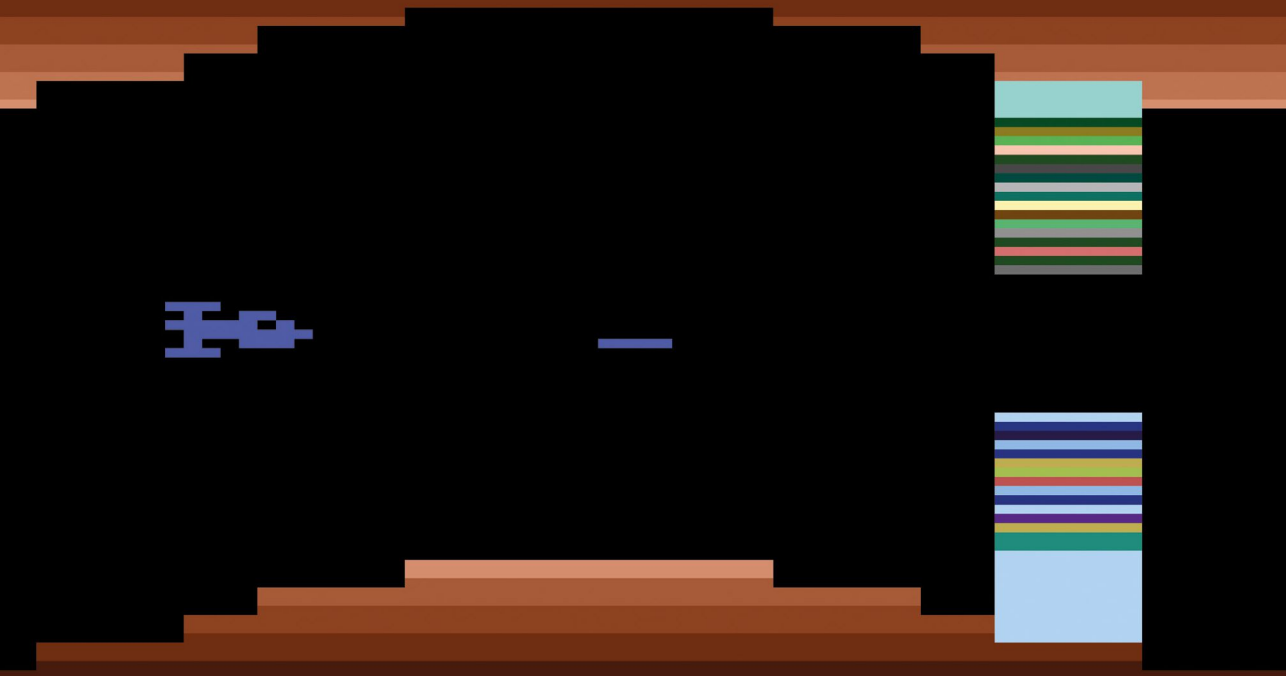

Laser Gates

Laser Gates was originally known as *Innerspace* and only released by Imagic after VentureVision went bust. Despite the name, it wasn't connected to the popular film of the time and was actually a sequel to *Rescue Terra I*, although all reference to this was removed from the final product. A third game, to make the trilogy, was apparently complete and was even reviewed by Imagic, which passed on publishing it, and no prototype has ever been found. *Laser Gates* is actually one of the most impressive horizontally scrolling shoot 'em ups on the 2600 and plays every bit as good as it looks. The ultimate goal of the game is to fly through caverns and set off the four detonators that can be found there.

Along the way, you must also shoot down waves of enemies, break through walls, and avoid the deadly laser gates alluded to in the title. Once you've set all the detonators, you can make your escape and watch the enemy stronghold explode into space dust! A handy status panel at the bottom keeps you in check with vital statistics: energy, shields, detonator time and, of course, your score. Consider *Laser Gates* a must-have for all shoot 'em up freaks.

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Platform
2600

Released
1983

Genre
Scrolling shooter

Developer
VentureVision

Publisher
Imagic

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Platform
2600

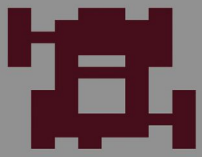
Released
1983

Genre
Racing

Developer
Mattel

Publisher
M Network

Originally by
Data East



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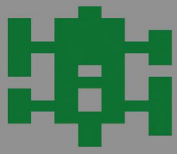
Bump ‘n’ Jump

“Arcade ports for the Atari 2600 vary greatly in quality – some notable titles are remembered especially poorly – but *Bump ‘n’ Jump* can be confidently placed in an upper tier. Typically, titles launched after the home video game crash were produced in numbers lower than those which came before, but finding a copy of *Bump ‘n’ Jump* is, thankfully, not too difficult. The game was re-released after Mattel Electronics closed in 1984, its inventory and game rights having been transferred to the newly formed INTV Corp.



“Atari 2600 games with background music are few and far between; even scarcer are games where the music isn’t at least a bit grating or tiresome. But, not only does *Bump ‘n’ Jump* offer a relatively pleasant in-tune melody, it has an underappreciated feature: the ability to toggle the music off. Regardless of musical preference, *Bump ‘n’ Jump*’s gameplay presents players with a satisfying mixture of memorisation and dodging, bumping, and smashing arcade action. All of this happens over multiple difficulty levels, and it altogether exceeds most expectations when it comes to approximating its arcade ancestor.

“One additional notable feature is a player’s ability to continue a lost game at their current level. Uncommon in arcades and in home video games of this era, *Bump ‘n’ Jump* allowed players to replay more difficult levels to improve, rather than having them first go through the slog of reconquering easier levels. It’s this kind of forward thinking, apart from the obvious quality of the game, that makes *Bump ‘n’ Jump* not only one of the best M Network titles for the 2600, but also one of the best arcade ports in the library.”

Rob Wanenchak, guest reviewer

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Platform
2600

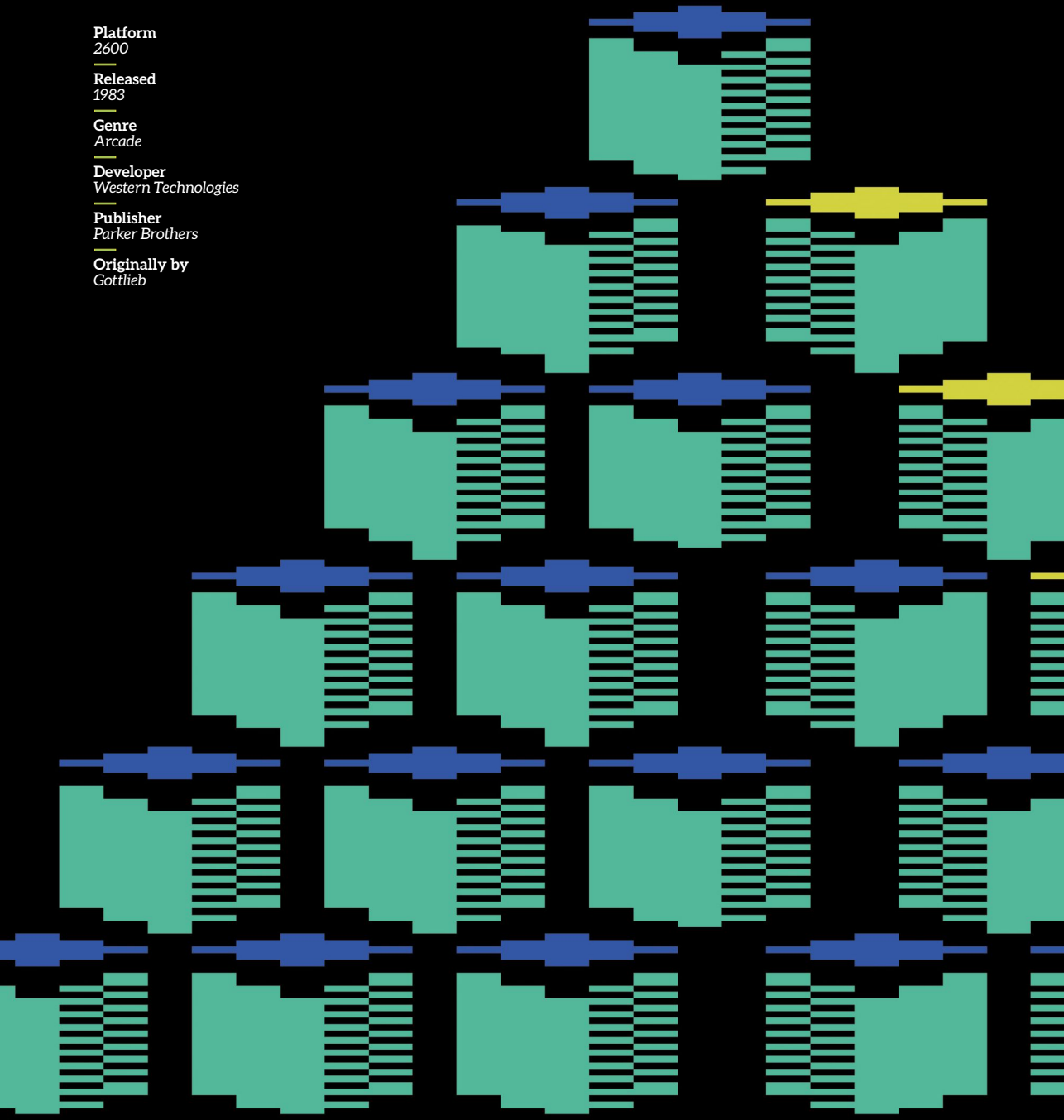
Released
1983

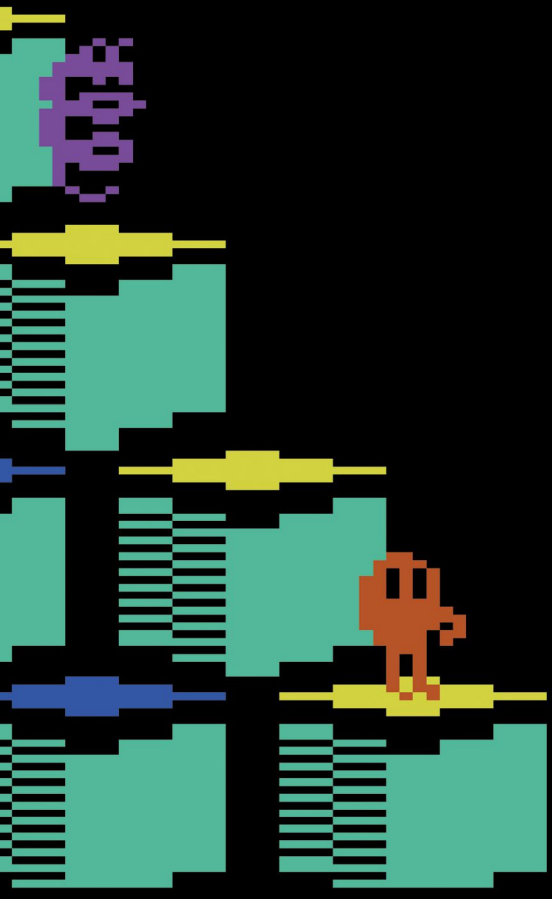
Genre
Arcade

Developer
Western Technologies

Publisher
Parker Brothers

Originally by
Gottlieb





Q*bert

"We brought in the arcade machine, and I went and opened the back, and I looked in the manual and found out which DIP switch you could set to infinite lives. So, I set the switch, and I started playing. My fellow game designer, Patrick King, took notes while I played, and I would just tell him what I was seeing in the levels so that he could write down the details. Then we put as much of this as we could into the 2600 version. The programmer, Dave Hampton, was the guy who later helped create the Furby and did all the programming for it. I also had to create the graphics for the characters. So, I got out some graph paper, drew them out and copied them into the 2600!

"Later on, when I was at Atari, they had licensed the game to re-release for the 2600 Jr., so I got the chance to work with *Q*bert* once again as the producer. We needed a PAL version, so I spoke to my old friend, Dave Hammond, and he told me which byte to change in the code."

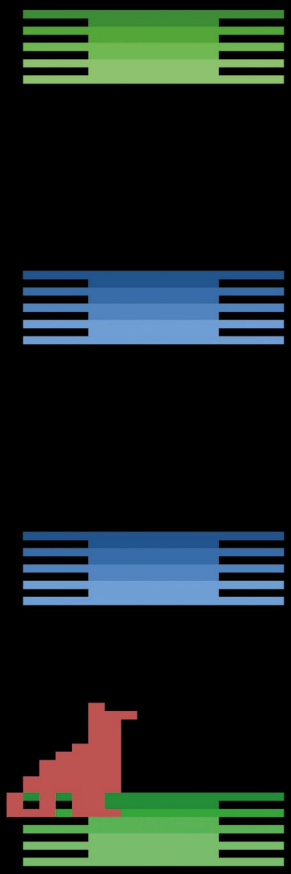
Tom Sloper, designer and producer

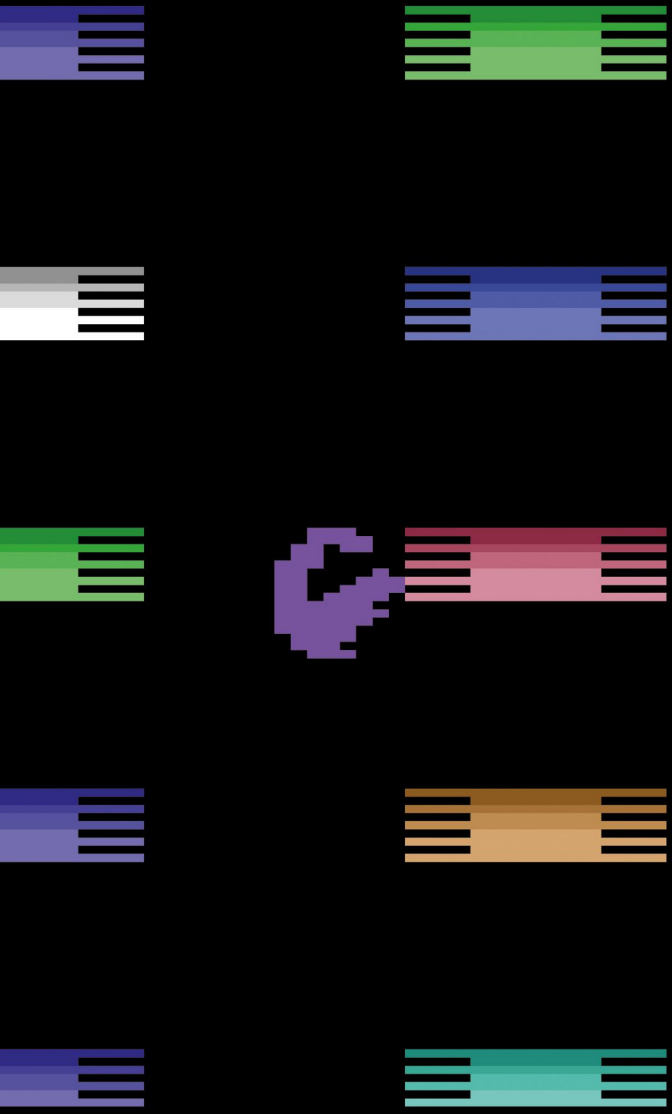
"*Q*bert* is one of the truly iconic characters from the early '80s, the golden age of arcade gaming – and, even if nobody really knows exactly what the foul-mouthed, noodle-nosed orange creature really is, there's no doubting the enduring legacy of his game.

"Granted, the Atari 2600 port has seen a couple of significant tweaks. As ever, the goal is the same: guide the oddball hero down and around the pyramid of cubes, attempting to change all of the surfaces to the same colour. Little enemies emerge to block your path and complicate the quest, plus later levels add in cubes that must be stepped on multiple times, or which change again when *Q*bert* crosses back over them. Due to hardware limitations, the Atari 2600 version removes the bottom row of cubes, along with music and a couple of enemies, but at least it still has the unintelligible cursing when *Q*bert* meets his demise.

"Given the alterations, *Q*bert*'s Atari 2600 legacy is divisive. Purists lament the omissions and their effect on the game, while it's hard to deny the impact the system had on *Q*bert*'s overall popularity. Ultimately, even if not arcade-perfect, it's still a heck of a lot of fun to play."

Andrew Hayward, games journalist





Quick Step

One of Imagic's lesser-known titles, *Quick Step* is a quirky and original platform game that almost plays like a scrolling version of *Q*bert*. Like the aforementioned arcade classic, the idea is to colour in the squares by jumping on each one, but, as the screen constantly scrolls, there's a much greater sense of urgency. Any coloured squares that drop off the bottom of the screen award you points, while new ones appear in different formations from the top, so you have to move quickly. All the while, a computer-based opponent is trying to stop you by changing the squares back and generally getting in your way. The only way they can be stopped is by jumping on one of the special squares, which freezes them for a limited amount of time. As the game progresses it gets faster and more fiendish, with fewer squares to jump on, meaning that you often end up getting trapped and dragged off the bottom of the screen yourself. Although *Quick Step* features some pretty simplistic graphics and sound, the fast-paced gameplay will challenge even the most ardent gamer, and keep you reaching for that new high score for some time to come.

Platform
2600

Released
1983

Genre
Platformer

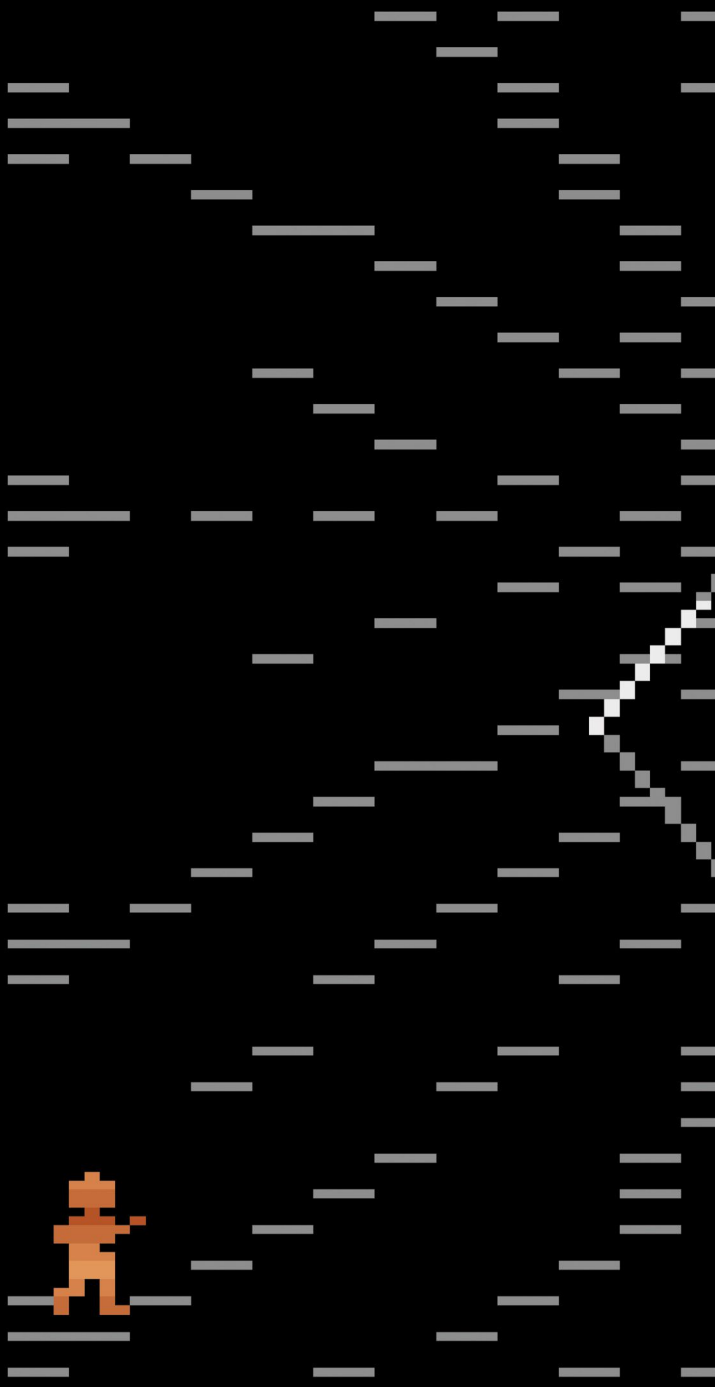
Developer and Publisher
Imagic

Krull

"Though some fans may prefer the frantic nature of the twin-stick Gottlieb arcade game, Atari's home port of the 1983 Peter Yates classic is nothing to scoff at. In fact, I kind of prefer *Krull* to the likes of *Raiders of the Lost Ark* and *E.T. the Extra Terrestrial*, and there are two reasons for that.

"Number one, the stages actually resemble parts of the movie. You've got the opening battle where Colwyn tries to defend his princess from the Slayers; the attempt to divulge the location of the Black Fortress from the Spider Queen; the quest to collect Glaives for the battles that lie ahead; and the final fight with the Beast, complete with the princess's transformation into a… fireball? Okay, so maybe that part's not entirely based on the movie. But, no matter. The game is incredibly well designed for a movie port, not to mention a lot of fun to play. True, the Spider Queen stage can be a bit on the tough side, especially if you have to repeat it. But it's got its heart in the right place, for the most part. And it has no business being this enjoyable, especially compared to other forgettable movie fare (I'm looking at you, *Porky's*)."

Robert Workman, games journalist



Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Atari

Platform:
2600

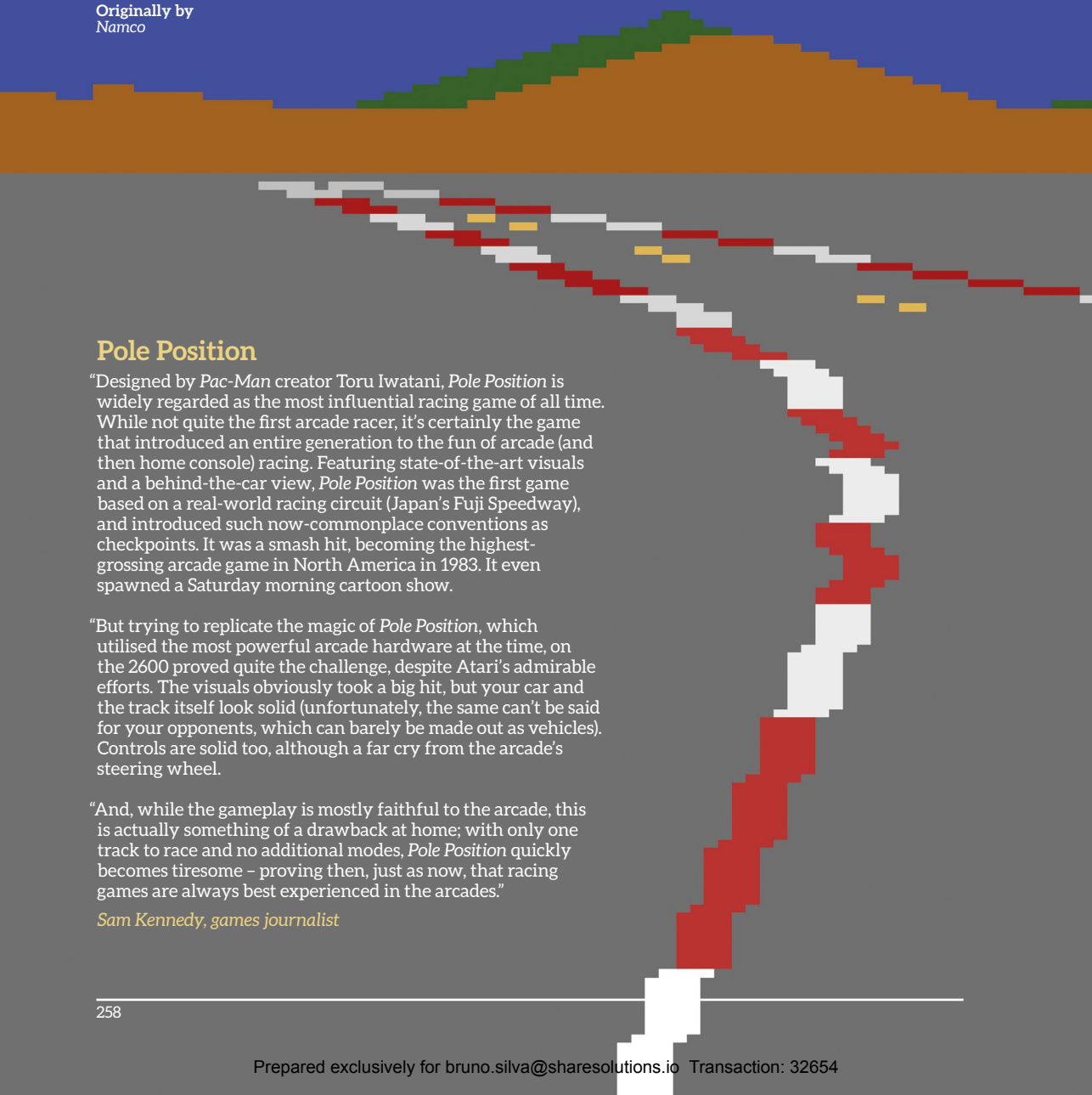
Released
1983

Genre
Racing

Developer
GCC

Publisher
Atari

Originally by
Namco



Pole Position

"Designed by *Pac-Man* creator Toru Iwatani, *Pole Position* is widely regarded as the most influential racing game of all time. While not quite the first arcade racer, it's certainly the game that introduced an entire generation to the fun of arcade (and then home console) racing. Featuring state-of-the-art visuals and a behind-the-car view, *Pole Position* was the first game based on a real-world racing circuit (Japan's Fuji Speedway), and introduced such now-commonplace conventions as checkpoints. It was a smash hit, becoming the highest-grossing arcade game in North America in 1983. It even spawned a Saturday morning cartoon show.

"But trying to replicate the magic of *Pole Position*, which utilised the most powerful arcade hardware at the time, on the 2600 proved quite the challenge, despite Atari's admirable efforts. The visuals obviously took a big hit, but your car and the track itself look solid (unfortunately, the same can't be said for your opponents, which can barely be made out as vehicles). Controls are solid too, although a far cry from the arcade's steering wheel.

"And, while the gameplay is mostly faithful to the arcade, this is actually something of a drawback at home; with only one track to race and no additional modes, *Pole Position* quickly becomes tiresome – proving then, just as now, that racing games are always best experienced in the arcades."

Sam Kennedy, games journalist

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

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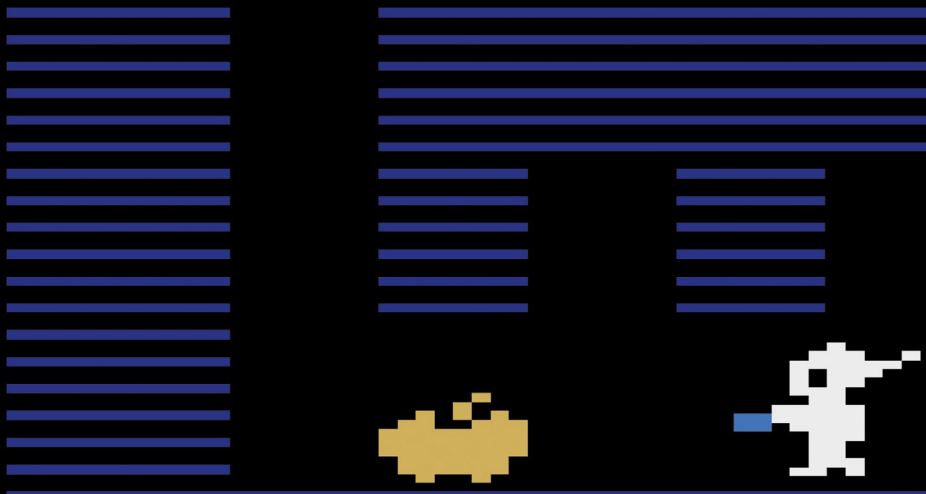
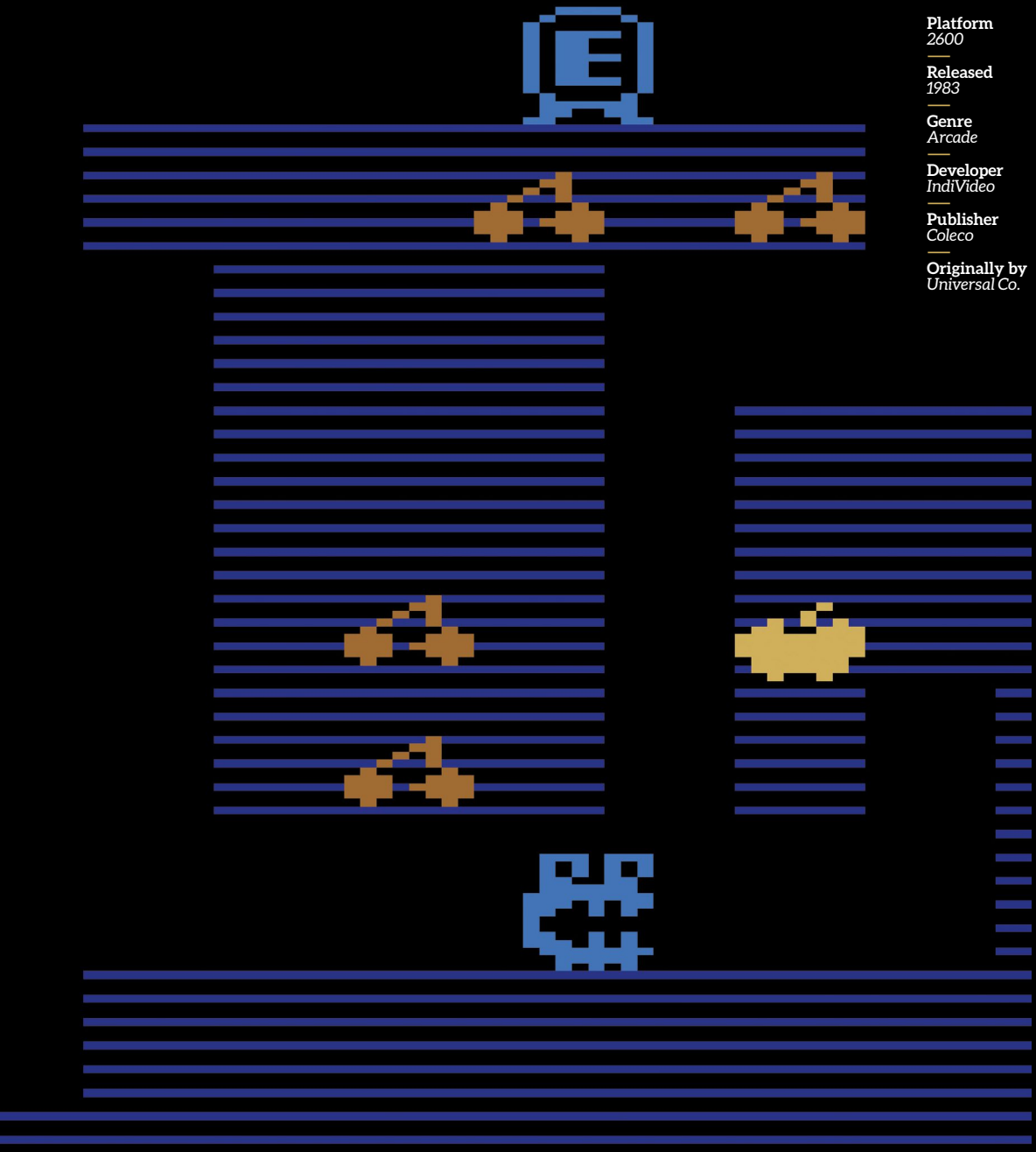
Mr. Do!

"Part of a kid's pitch for an Atari 2600 in 1983 was to emphasise all the saved quarters from avoiding the arcade. Heck, even *Mr. Do!* was on Atari! Essentially a more complicated, clowned-out upgrade to *Dig Dug*, *Mr. Do!* involved digging tunnels and crushing monsters. Kicking off the subterranean clown fad way ahead of Stephen King's 1986 novel, *It*, *Mr. Do!* certainly did just as much killing as Pennywise. As you burrow, collecting letters and music notes, you wield a magic ball that can result in instant kills – but the big points come from tunnelling under giant apples, setting traps to gruesomely crush enemies. Red delicious, indeed. The Atari port is rather lacking, with simpler screen layouts, fewer enemies, and six-note clusters to collect instead of eight. To a trained ear, it can be infuriating to not hear the full octave – although, it's even more infuriating to hear this game pronounced 'Mr. Doh', although that's probably correct (the notes you collect play do, re, mi, fa, so, la)."

Samuel Claiborn, games journalist





Platform
2600

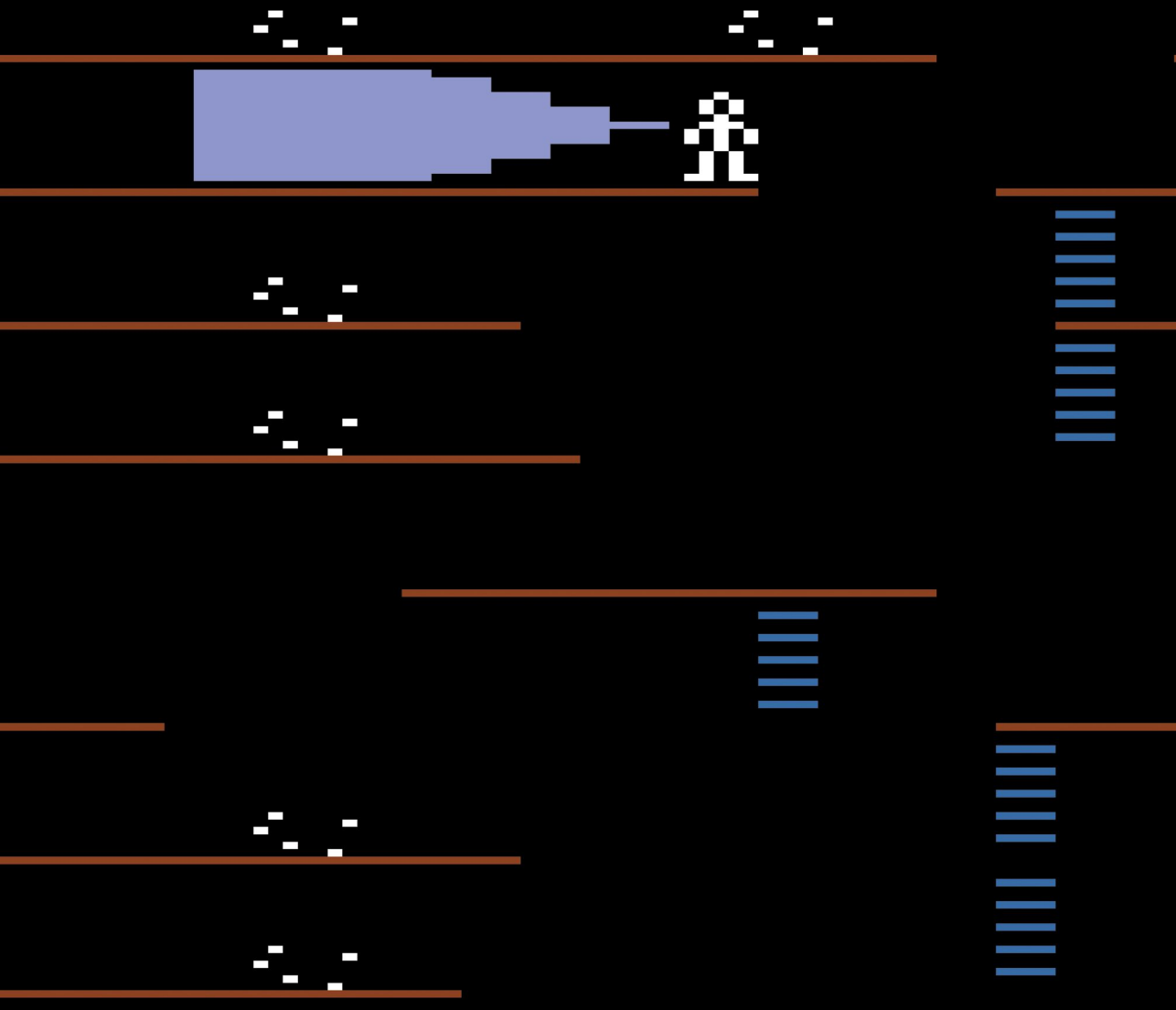
Released
1983

Genre
Arcade

Developer
IndiVideo

Publisher
Coleco

Originally by
Universal Co.



Mountain King

The Atari 2600 had been on the market for five years in 1983, and people were starting to find the technology rather limiting compared with its rivals. So several companies started to develop ways to push the hardware further, and CBS Electronics' answer was RAM Plus, an extra chip in the cartridge that added an additional 256 bytes of memory. They only released three titles that utilised this new format, but *Mountain King* was by far the most hyped. In the adverts, CBS promised some kind of 2600 revolution, but, in actual fact, it turned out to be a lot of hot air as *Mountain King* didn't really look any better than other similar titles of the time. That's not to say it's a bad game though; *Mountain King* is a perfectly competent scrolling platformer with some pretty unique gameplay features – it's just a little underwhelming when you compare it with similar, unenhanced games, such as *Pitfall!* and *Jungle Hunt*.

The idea of *Mountain King* is to explore the caves inside a mountain, recover the lost crown and return to the surface. But, with the whole game being set in the dark, you need to master new skills to complete your quest!

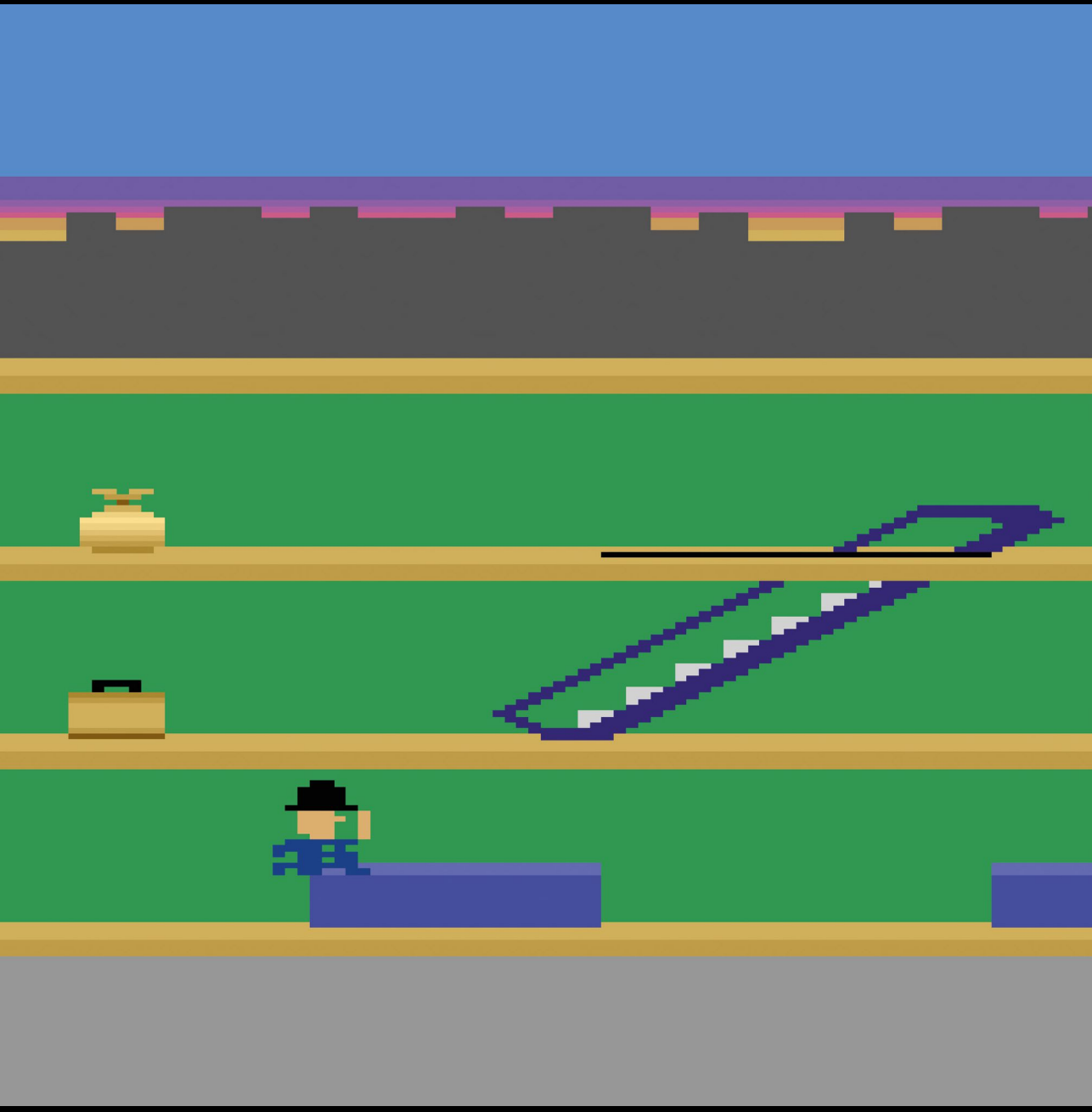
Platform
2600

Released
1983

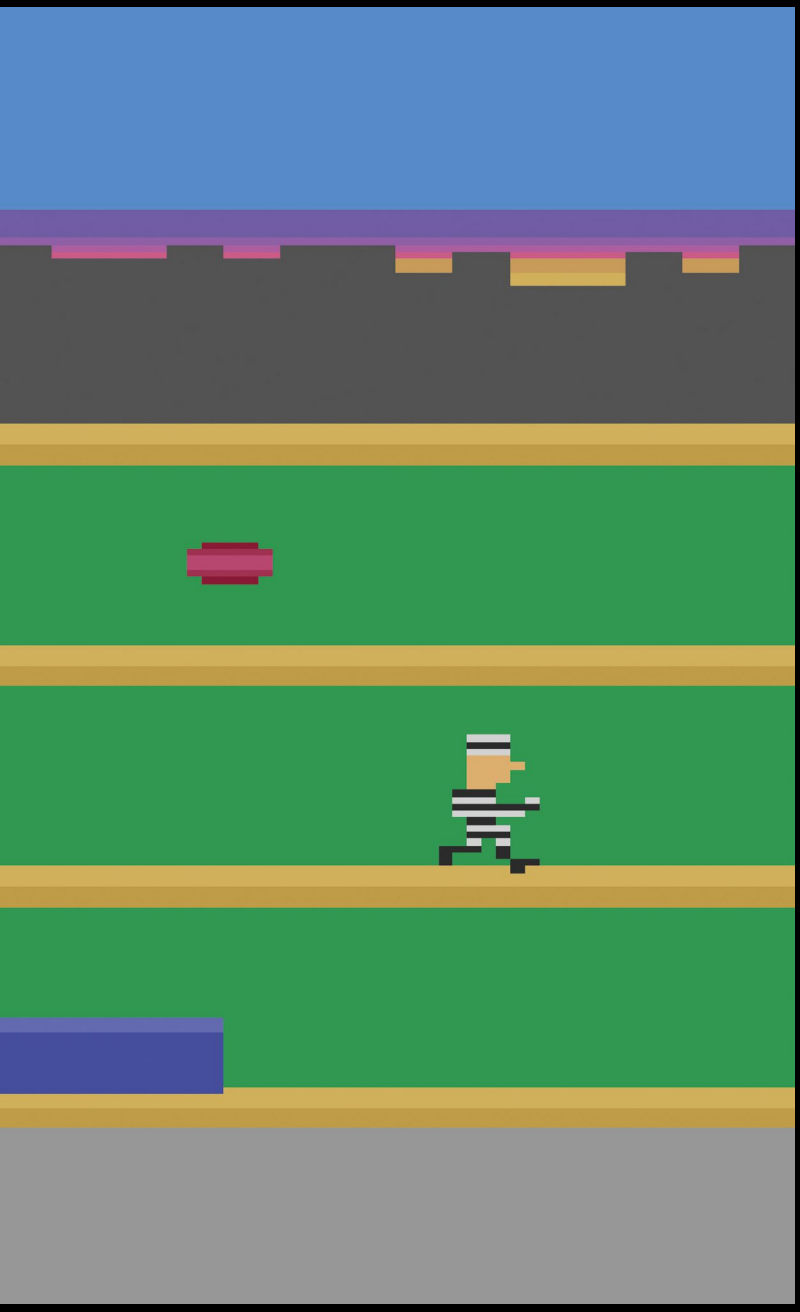
Genre
Action

Developer
VSS

Publisher
CBS Electronics



Platform *2600* / **Released** *1983* / **Genre** *Action* / **Developer and Publisher** *Activision*



Keystone Kapers

"*Keystone Kapers* was the first game that I created for Activision. I was excited to take a shot at designing my own 'little man' game. I also wanted to create a game that had a sense of humour. So, when the idea of a cop vs. crook scenario came to me, the Keystone Cops weren't far behind, as they were famous for their slapstick comedy. My original take on the game was actually very different from the final product. I envisioned a department store, but I had Officer Kelly climbing up the outside of the building, pursuing the crook, who was running from floor to floor inside the building. From the outside of the building, you could see the crook through the windows, often stopping to toss items down on the cop to slow his pursuit. The player had to manoeuvre the cop left, right, up and down to avoid the falling objects while trying to catch up to the crook. As a vertically scrolling game, it was kind of like *Spiderman* meets *Crazy Climber*!

"I had an early prototype of the game running when David Crane came out to visit from West Coast headquarters. We sat for a while in my office, discussing the game concept. David suggested that there might be more gameplay possibilities if I converted the concept to horizontal, screen-to-screen gameplay, rather than the vertical scrolling I'd been implementing. He mentioned that he'd found the horizontal screen-to-screen format to work very well on the game he'd just completed, a relatively unknown title named '*Pitfall!*'. David's suggestion was spot on, as, in the end, I was very pleased with the horizontal, screen-to-screen approach."

Garry Kitchen, designer and programmer

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Activision

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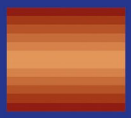

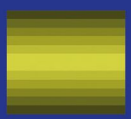

Pressure Cooker

"*Pressure Cooker* is an Atari 2600 game in which you control a chef making hamburgers to order. I remember exactly where I was and what I was doing when I came up with the idea – standing in the Burger King in Midland Park, New Jersey. I was waiting in line, and I noticed a burger patty moving on a conveyor belt over a flame. That was the ah-ha! moment.

"There are many reasons why this game was a natural for me to make. Firstly, I love hamburgers. Always have. Secondly, my last name is Kitchen. A cooking game was a must! Lastly, *Pressure Cooker* was my third 'little man' game in a row after *Donkey Kong* and *Keystone Kapers* for the 2600.

"One of the things I'm most proud of in *Pressure Cooker*, is the music. Rather than attempting to force the Atari to play tones that were 'in-tune,' I took the opposite approach. I sat next to my Atari development system with a Casio keyboard. I then played each Atari tone, checking to see if there was a corresponding key on the Casio that was a perfect match to that tone. At that point, we contacted a professional jingle writer – you should have seen his face when I showed him the keyboard and told him he could only use the marked keys! To his credit, he wasn't fazed, and he came up with a great jingle. Anyway, it worked! I love the *Pressure Cooker* jingle, and it sounds like real music."

Garry Kitchen, designer and programmer

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
2600

Released
1983

Genre
Action

Developer
Roklan

Publisher
Parker Brothers

Originally by
Nintendo

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Popeye

"It's jarring to see Nintendo's games on other platforms today, but Nintendo's *Popeye*, along with *Donkey Kong*, *Donkey Kong Jr.*, *Mario Bros.* and the lesser-known *Sky Skipper*, appeared as arcade ports on the Atari 2600 in that primal, pre-NES era. The story goes that *Donkey Kong*'s creator, Shigeru Miyamoto, wanted to license *Popeye*, Olive Oyl, and Brutus for what became *Donkey Kong*, but Nintendo couldn't make the deal happen. It was a happy accident as it resulted in the invention of Mario, Pauline and Donkey Kong, respectively. But, after *Donkey Kong* became a mega-hit, the *Popeye* licence became attainable. The resulting arcade game is a classic, with beautiful art and a mix of combat, ladders and collecting, not unlike *Donkey Kong*.

"The Atari version reproduced most of the gameplay elements: catching Olive's hearts and music notes; punching Brutus's thrown cans; and a cool pirate ship level. But, other elements were lost in the port process, including the colourful sprites and more complex levels. But hey, the home version saved you a trip to the corner 7-Eleven, right?"

Samuel Claiborn, games journalist

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Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Parker Brothers

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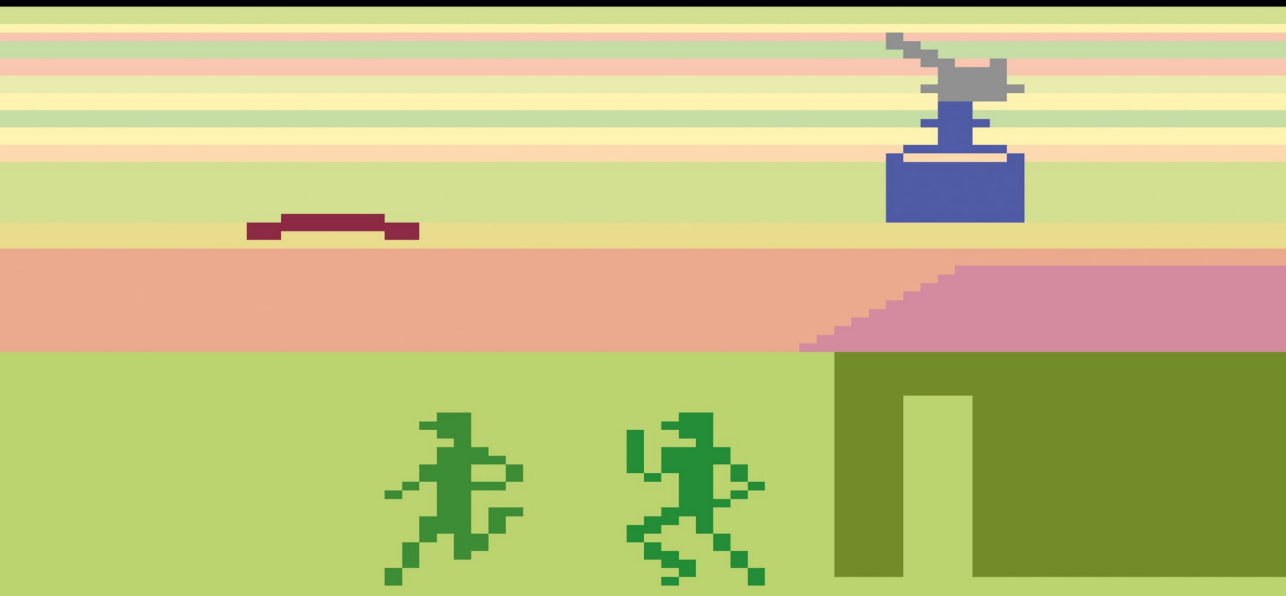
G.I. Joe: Cobra Strike

For those in Europe, you'll know this game as *Action Man: Action Force*, due to regional branding of the ever-popular action figures, but it's exactly the same game. You usually find with games like this that the plot is based upon that tired old trope of good vs. evil, but G.I. Joe manages to surprise us all by allowing you to play as either side! If you play as the good guys, your job is to protect the soldiers running across the screen from the venom being spat at them by the cobra above. You do this by using the paddle to move a shield back and forth above their heads.

On either side of the screen, there are gun turrets, and, by pressing fire, you release a missile that can then be guided into the cobra's eye. If you manage to hit it in the eye eight times, you kill it. Playing as the enemy puts you in control of said cobra and lets you kill all those goody two-shoes G.I.s by spitting your lethal venom on them. You can even team up with a buddy, or even play against them to see who wins the ultimate battle of good vs. evil!



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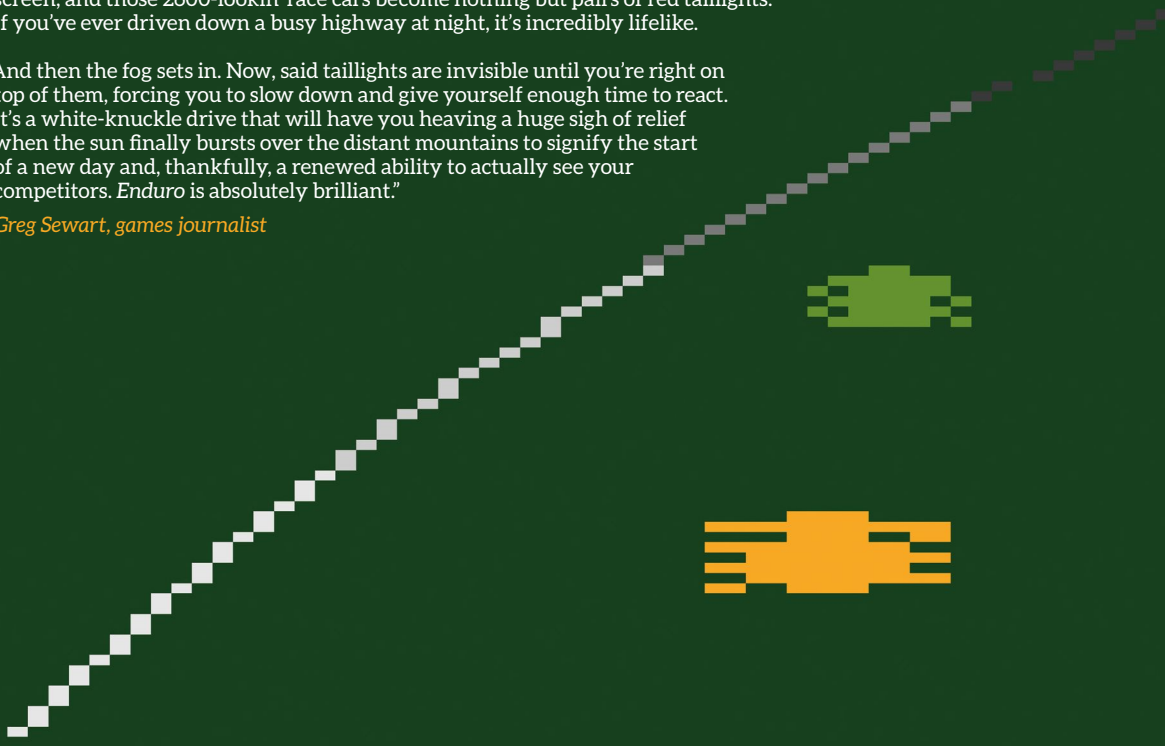
Enduro

"Early video games always require a certain suspension of disbelief. Objects are reduced to blocky interpretations on screen, bearing only a passing resemblance to their real-world counterparts. And, for the most part, *Enduro* falls into this category. The endless strip of road in the game is populated by decent renditions of what look like open-wheel race cars, but only if you're willing to use your imagination.

"That is, until night falls. The goal in *Enduro* is to drive for an entire day, passing a set number of cars in the process. As day turns to night, an inky blackness covers the screen, and those 2600-lookin' race cars become nothing but pairs of red taillights. If you've ever driven down a busy highway at night, it's incredibly lifelike.

"And then the fog sets in. Now, said taillights are invisible until you're right on top of them, forcing you to slow down and give yourself enough time to react. It's a white-knuckle drive that will have you heaving a huge sigh of relief when the sun finally bursts over the distant mountains to signify the start of a new day and, thankfully, a renewed ability to actually see your competitors. *Enduro* is absolutely brilliant."

Greg Sewart, games journalist



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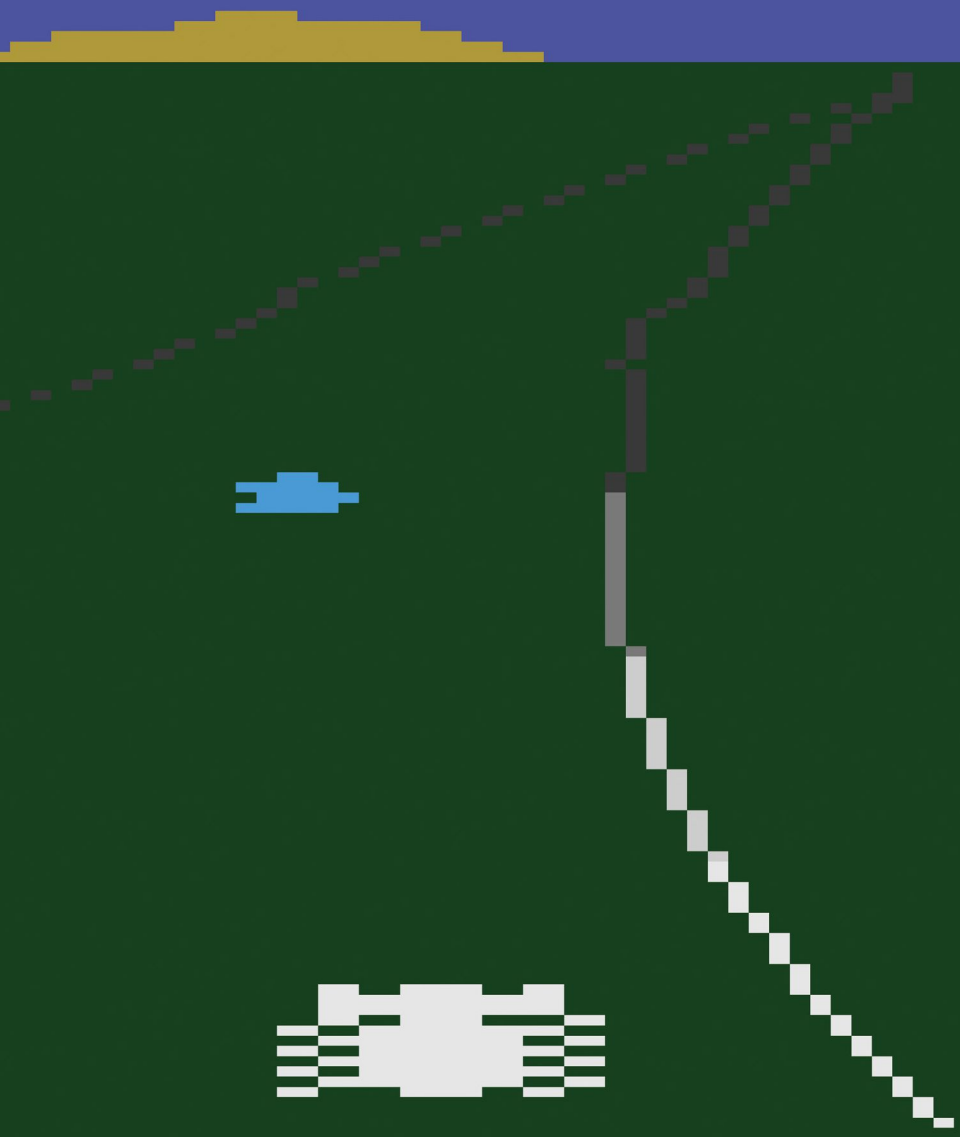

Platform
2600

Released
1983

Genre
Racing

Developer and Publisher
Activision

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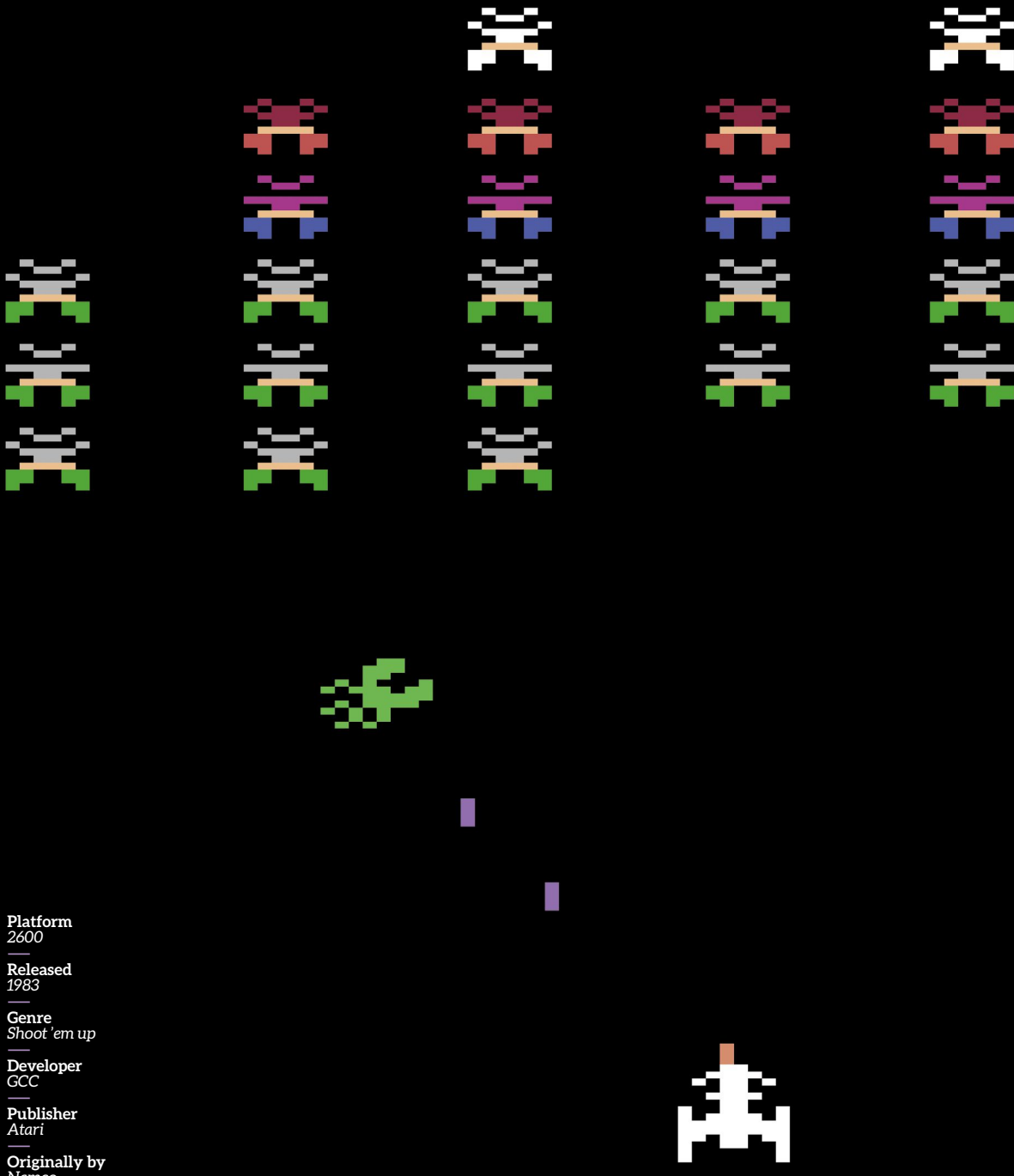


Platform
2600

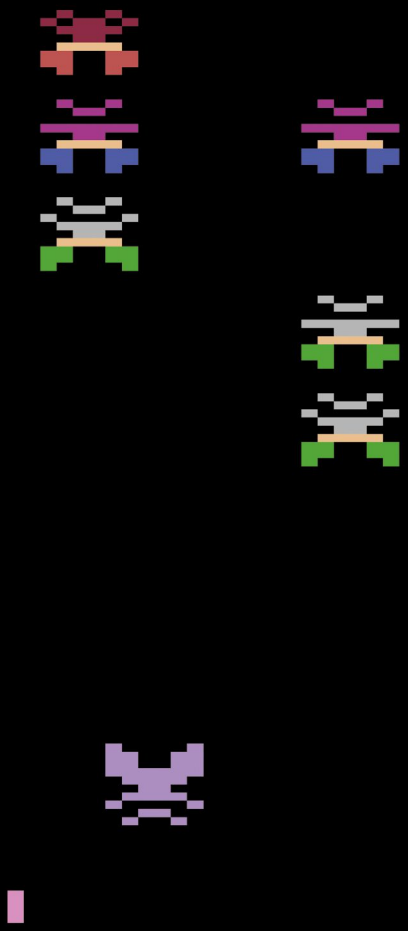
Released
1983

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Originally by
Namco



Galaxian

"Designed by Kazunori Sawano and programmed by Koichi Tashiro, Namco's *Galaxian* coin-op burst onto the scenes in Japan in late 1979, and became an instant hit with arcade-goers who poured money into the machine by the bucketful. While *Galaxian* initially appeared to be similar to *Space Invaders* – it features a formation of alien craft at the top of the screen that slowly move left and right and a player-controlled spaceship below – players were immediately surprised and delighted when the alien ships broke off from their formation and swooped down to attack. This was something completely different to *Space Invaders*, and it challenged their shooting skills in a whole new way. These aliens felt alive and were far more difficult to blast into oblivion than Taito's infamous arcade denizens.

"*Galaxian*'s all-new gameplay, combined with its eye-catching colour graphics, excellent jingles, and scrolling starfield backdrop, helped the game become a worldwide sensation during 1980 when it received a global release under the auspices of Midway. Indeed, the game sold upwards of 40,000 cabinets in North America alone!

"Despite hitting peak popularity at the turn of the decade, it took three years for a port of *Galaxian* to arrive on the Atari 2600, but, when it did appear in 1983, it was no disappointment. Featuring bright, colourful graphics and smooth-moving alien craft, the game looked and played just like its arcade counterpart. Ships swooped into attack in the same way that they did in the original coin-op, and even the scoring system was authentic. This makes it an evolutionary step up from the likes of Atari 2600 *Pac-Man* and *Space Invaders*, and, ultimately, one of the system's better arcade conversions."

Julian Rignall, games journalist

Atari 2600 game cartridges

"Creating a video game is the creative work of an author, not the work of a nameless engineer."

David Crane, game designer, programmer and co-founder of Activision

Prepared exclusively

Transaction: 32654

Moon Patrol

"Arcade-to-home ports aren't that easy to do on the Atari 2600, mainly due to the extreme limitations of the hardware at the time. Just ask anyone that purchased *Pac-Man* and expected anything relatively close to the original arcade experience. But then, around the end of the system's life cycle, Atari produced *Moon Patrol*, based on the Irem arcade game of the same name. And, surprisingly enough, it's one of the best ports out there.

"The game puts you on the surface of the Moon, scooting around in a 'space buggy' (or, in this case, an under-designed pink car) as you jump over gaps on the surface and shoot at both obstacles on the ground and enemies in the air. As you make your journey, the challenge picks up, with additional foes and more stuff appearing on the road.

"*Moon Patrol*'s interface is surprisingly clean, with a scoreboard and a progress meter over the course of each level. It also adds a bonus at the end of each stage, depending how much time you take to finish up. The presentation is surprisingly polished as well, with graphics that closely resemble the original game (well, in 4-bit style, anyway) and music that sounds just like the arcade version.

"The only real regret here is that not many players got to experience *Moon Patrol* since it released so late in the 2600's heyday. But it's a game still worth checking out today, with its excellent design and fun gameplay. It's well worth a trip around the universe."

Robert Workman, games journalist

Platform
2600

Released
1983

Genre
Action

Developer
GCC

Publisher
Atari

Originally by
Irem

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PARKER BROTHERS

While the nascent games industry of the '70s and '80s was primarily dominated by companies which had been established with the express purpose of creating interactive entertainment, there were some notable exceptions: Mattel and Coleco were perhaps the two most obvious examples, both of which were toy companies. Coleco actually began life as The Connecticut Leather Company in the 1930s before moving on to products aimed at children. Another major player during the glory days of the Atari VCS was Parker Brothers, a firm which could chart its history all the way back to the 1880s.

Founded by George S. Parker in 1883, the company's first venture was the board game Banking, which Parker created at the tender age of 16. Siblings Charles and Edward would later join the firm – hence the name Parker Brothers – and, during the Great Depression of the 1930s, it produced what is perhaps its most famous board game, Monopoly. Further classics – such as Risk, Sorry! and Cluedo – would follow, establishing Parker Brothers as a household name around the world. The company remained a family-run business until 1968, when it was acquired by General Mills, a multinational more famous for its food brands.

When the video game boom occurred in the late '70s, Parker Brothers decided it was uniquely positioned to capitalise on this new technology due to its status as one of the leading board game creators in the world. It started by creating electronic handheld games, of which 1978's *Merlin* was the most successful, selling five million units. Mindful that the handheld gaming craze had a limited lifespan, Parker Brothers quickly transitioned into producing video game software for the popular formats of the period, one of which was the Atari VCS.

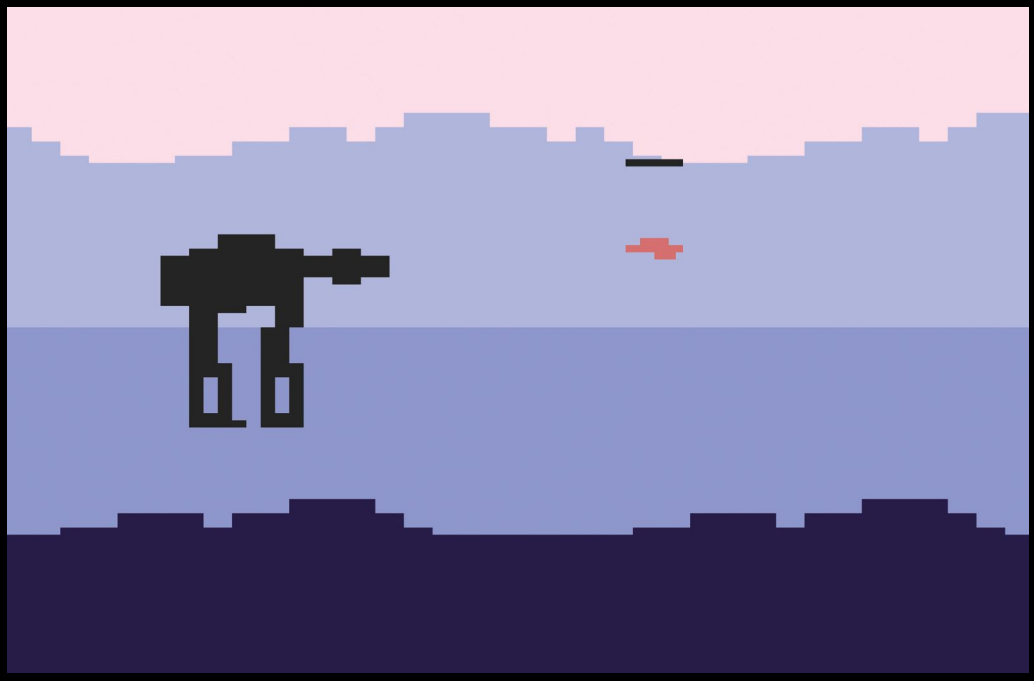
Parker Brothers assembled a team to reverse-engineer Atari's home console and figure out how it worked, and many of these individuals came from the company's handheld electronic game division, including Rex Bradford. *"My first project was an electronic Monopoly game,"* he told *Retro Gamer* magazine. *"I completed the prototype right around the time that the video game go-ahead happened, and so then transitioned into working with Jim McGinnis and Mark Lesser to determine how the 2600 was programmed. Mark and Jim did the hardware-level reverse engineering. The 2600's zany graphics chip was the key thing there. My first contribution was to write a disassembler for already published cartridges. When analysis of the circuitry presented ideas for how the sprites and background worked, I wrote small test programs on the 2600 to verify our assumptions. With these combined efforts, we figured out how everything worked in a few months."*

It didn't take long for the firm to score its first major smash hit on Atari's popular system. In 1982, Parker Brothers licensed the arcade hit *Frogger* for cartridge formats and duly produced conversions for all of the popular cart-based consoles of the period, including the Atari VCS, Mattel Intellivision and ColecoVision. A whopping $10 million was spent on marketing the game, and the aggressive approach proved successful. Three million Frogger cartridges were sold, making it Parker Brother's most successful first-year product, besting even the likes of *Merlin*, its previous record-breaker. A console-exclusive sequel entitled *Frogger II: ThreeeDeep!* followed in 1984, and gained positive reviews. Parker Brothers also licensed Nintendo's *Sky Skipper* and *Popeye* arcade machines, both of which were ported to the VCS in 1983.

By licensing games like *Frogger*, *Sky Skipper* and *Popeye*, Parker Brothers was merely following a trend established by Atari when it ported Taito's *Space Invaders* and Namco's *Pac-Man* to its console – a tactic that had never been attempted before. However, two other key 1982 releases would also rely on licensing deals, and would break new ground at the same time. 1982's *Star Wars: The Empire Strikes Back* holds the distinction of being the first video game adaptation of George Lucas' famous space opera, pre-dating Atari's famous wireframe arcade title by a year. Parker scored a pretty significant coup by securing the rights to the franchise from under Atari's nose, and its history as a toymaker was pivotal in this. *"It was an easy sell because Parker's marketing muscle demonstrated that the licence would be a great moneymaker for Lucasfilm,"* Parker designer Sam Kjellman told *Retro Gamer*. *"Parker Brothers had momentum in the electronic game arena; the company was not limited to paper and plastic games. It was a big factor that Parker committed to publish its titles across all viable platforms, and it had a long history of successfully licensing properties for all kinds of games."* Kjellman laid down the design for the game, which was programmed by Rex Bradford.

The Empire Strikes Back uses the iconic Hoth battle sequence as the basis of its action, but Kjellman and Bradford were fighting against the limitations of the technology when it came to replicating the details accurately. Parker Brothers' marketing department was understandably keen to include the ability to trip up the hulking Imperial AT-ATs with tow cables, just as Luke Skywalker does in the film, but Bradford had the unenviable task of explaining that it simply wasn't possible at the time. *"I defused one tense meeting by stating that I would write the basic game first, and then we would see if we could fit it in later. It never got done, obviously. The sprites were already in use, and it would have been pretty tough to do any sort of horizontal rope graphic with missiles. And we didn't have any room in the ROM for animations of walkers falling over."*

> *"Parker Brothers assembled a team to reverse-engineer Atari's home console and figure out how it worked."*

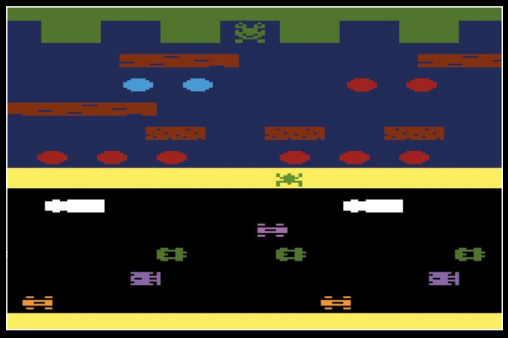


Star Wars: The Empire Strikes Back */ 2600 / 1982*

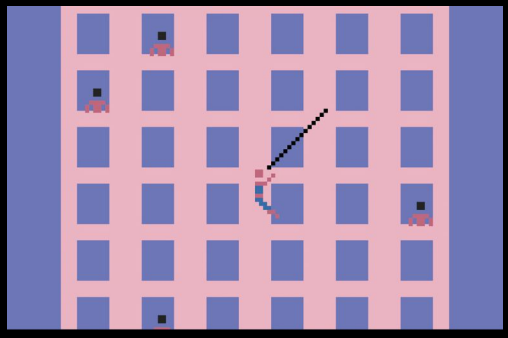
The second significant 1982 release for Parker Brothers was equally noteworthy. *Spider-Man* – which was designed by Laura Nikolich – was not only the first video game to feature the famous web-slinging comic book hero, it was also the first video game to be based on a Marvel character. The game was unique in that it focused on vertically scrolling stages which allowed the character to climb tall buildings, just as he did in the comics. Speaking to Atariwomen.org, Nikolich recalls how, after one testing session, an inquisitive youngster identified an issue with the current build of the game that she hadn't even thought of. *"This one little kid, he's supposed to get Spider-Man to climb up the building, and, all of a sudden, the kid decided that he wanted Spider-Man to climb up on the sky. It never occurred to any of us – climbing in the sky. So we immediately put hit detection on the sky, so the Spider-Man character would fall down if anyone tried to climb the sky."* Like *Frogger*, *Spider-Man* was a massive commercial success; the video game market was booming and Parker Brothers, like so many of its rivals, was reaping the rewards of catering to the demands of a seemingly insatiable audience of players.

However, as was the case with a few other publishers at the time – including Atari itself – Parker Brothers was perhaps a little guilty of resting on its laurels. A port of the popular Gottlieb arcade smash *Q*bert* was released for the VCS, but it failed to accurately replicate the finer details of the coin-op original, a fact which earned it a few negative reviews. More Star Wars titles were pushed out onto store shelves – including a much-hyped port of Atari's aforementioned 3D coin-op, released by Parker Brothers because it had snapped up the home console rights – but, by the time that 1983's *Jedi Arena* was released, it was painfully clear that the bottom of the barrel had been reached. While the cover promised thrilling lightsaber battles with Luke Skywalker and company, in reality, the game was restricted to a single screen and involved deflecting a training drone, as depicted in a short scene on the Millennium Falcon in the first Star Wars movie.

Still, Parker Brothers was well aware that attaching a licence to a video game could make all the difference when it came to sales. Suave British spy James Bond was duly signed up for console release, although the game endured a long development period, with Charlie Heath – who ported Gottlieb's *Reactor* to the VCS in superb style – failing to impress his employers with a version based on the climactic scene from the movie *Moonraker*. His design was abandoned, and, in 1983, Western Technologies was enlisted to create a new version based on the film *Octopussy*, but the company failed to complete the game in time for release. The aptly named On Time Software was hired by Parker Brothers to produce the eventual James Bond title, which covered scenes from four different movies: *Diamonds are Forever*, *The Spy Who Loved Me*, *Moonraker* and *For Your Eyes Only*. Parker Brothers also created a video game based on the popular military toy line *G.I. Joe*. Released in 1983, *G.I. Joe Cobra Strike* tapped into a renewed interest in the action figure series, thanks, in no small part, to an animated cartoon and a new wave of toys.



Frogger / *2600* / *1982*



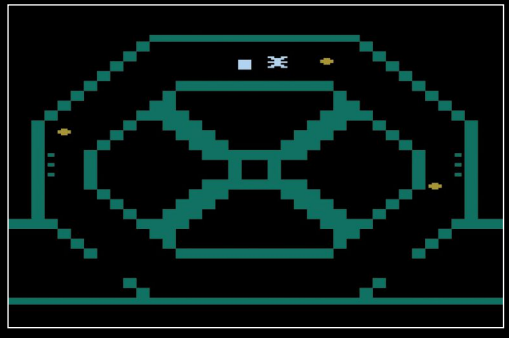
Spider-Man / *2600* / *1982*

Like so many publishers at the time, Parker Brothers was hit hard by the 1983 video game crash and, despite continuing to launch games well into 1984, began to scale down its operations. It's a shame because Parker was releasing some interesting titles around this period, including Robert Jaeger's superb *Montezuma's Revenge* and the aforementioned *Frogger II*. In addition to these warmly received titles, the firm clearly had some ambitious plans for the future. *Star Wars: Return of the Jedi: Ewok Adventure* and *The Incredible Hulk* were two games that were mooted in a 1983 promotional catalogue, but they never saw the light of day. Mark Lesser – developer of *Frogger II: ThreeeDeep!* – also confirms that his video game adaptation of *Lord of the Rings* was actually completed but was never released. The company had clearly decided that it wanted out of the games business, and, in 1985, was merged with Kenner – a fellow General Mills subsidiary – to create Kenner Parker Toys Inc., which was subsequently purchased by rival toy firm Tonka in 1987 for a cool $555 million.

Despite getting its hands burnt by the video game crash, Parker Brothers – via its new owners – continued to keep a toe in the water, so to speak. The year that the company was swallowed up by Tonka, a deal was signed that would give Tonka the North American distribution rights to the SEGA Master System, the 8-bit rival to the dominant Nintendo Entertainment System. As a result of Nintendo locking down third-party publishers and preventing them from releasing their titles on other systems, some of Parker's classic properties were resurrected to fill the void – including *Montezuma's Revenge*, which was ported to the Master System by Micro Smiths, a studio led by *Frogger II: ThreeeDeep!* developer Mark Lesser. The board game Monopoly was also ported to the system, but SEGA's console ultimately failed to make a dent in Nintendo's market share. Tonka ran into trouble soon afterwards as its purchase of Kenner Parker was funded largely on borrowed cash. By the time the new decade dawned, the firm was eagerly courting potential suitors to extract itself from the financial hole it was in. Hasbro acquired Tonka and its properties in 1991, and now the Parker Brothers name exists solely to push Hasbro's line of board games.

> *"Like* Frogger, Spider-Man *was a massive commercial success. The video game market was booming and Parker Brothers, like so many of its rivals, was reaping the rewards of catering to the demands of a seemingly insatiable audience of players."*

Q*bert / *2600* / *1983*



Reactor / *2600* / *1983*

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Imagic

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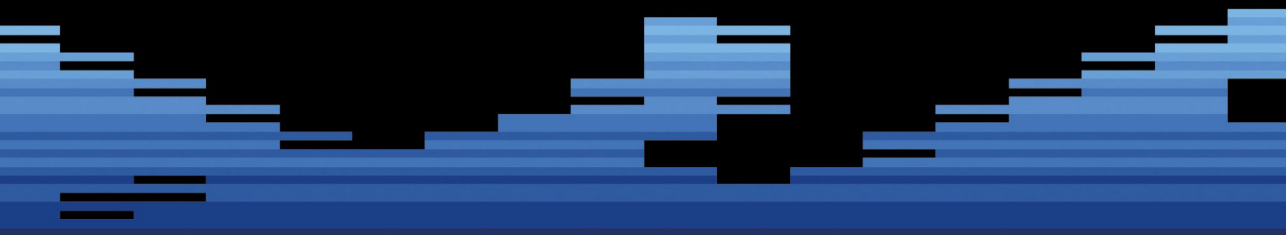

Subterranea

"Imagic quickly proved its bona fides as a third-party 2600 developer with its top-quality releases, instantly recognisable with their angled cartridge edges and shiny chrome labels. One of the company's more obscure titles was *Subterranea*, a *Defender*-style space shooter that piled on the action and the speed, if not the search-and-rescue component, of the original arcade coin-op.

"In the game, you fly the Cave Ranger ship into dark caverns. The first stage has you fending off the monstrous Hexuplex and its attacking Aerobots; destroy them all, in order to grab the Treasure Crystal. Then, you'll descend into the second portion, which plays much more like regular *Defender*, albeit with larger sprites, simplified but still addictive mechanics, and (thankfully) none of the flicker present in the official Atari 2600 version of the arcade game. You must shoot all the aliens in a given tunnel without touching the walls or the skulls. Once you do so, you must then successfully fly through an Electro-Gate, a process that gets tougher as the game progresses.

"You can choose from Regular and Advanced skill levels, though the Regular version is plenty challenging to begin with. (Tip: not all games let you hold down the fire button for repeated shots, but this one does, so take advantage of it.) Both *Subterranea* and *Chopper Command* do *Defender* on the 2600 better than Atari's genuine arcade conversion."

Jamie Lendino, guest reviewer

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Jungle Hunt

"Beginning with *Jungle Hunt*, I focused primarily on writing the kernel, or the part of the code that executed on screen and gave the game its visual capabilities. Someone else would work on the gameplay, and our teams also included people to design the graphics and animations as well as the music and sound effects.

"One of the parts of *Jungle Hunt* I enjoyed designing was the scrolling background in the first part of the game when the character is swinging from vine to vine. I came up with a way to have the background have two layers that scrolled at different speeds, giving the game a similar depth as the arcade original. Another common trick was changing the graphics 'on the fly', as the television beam moved horizontally across the screen (TVs don't work this way anymore!). You can see times when the vine is the same colour as the character flying through the air because there wasn't time to change both the graphics and the colour. A key to 2600 games is deciding what compromises you can make without sacrificing the overall quality."

Michael Feinstein, programmer

Platform
2600

Released
1983

Genre
Action

Developer
GCC

Publisher
Atari

Originally by
Taito

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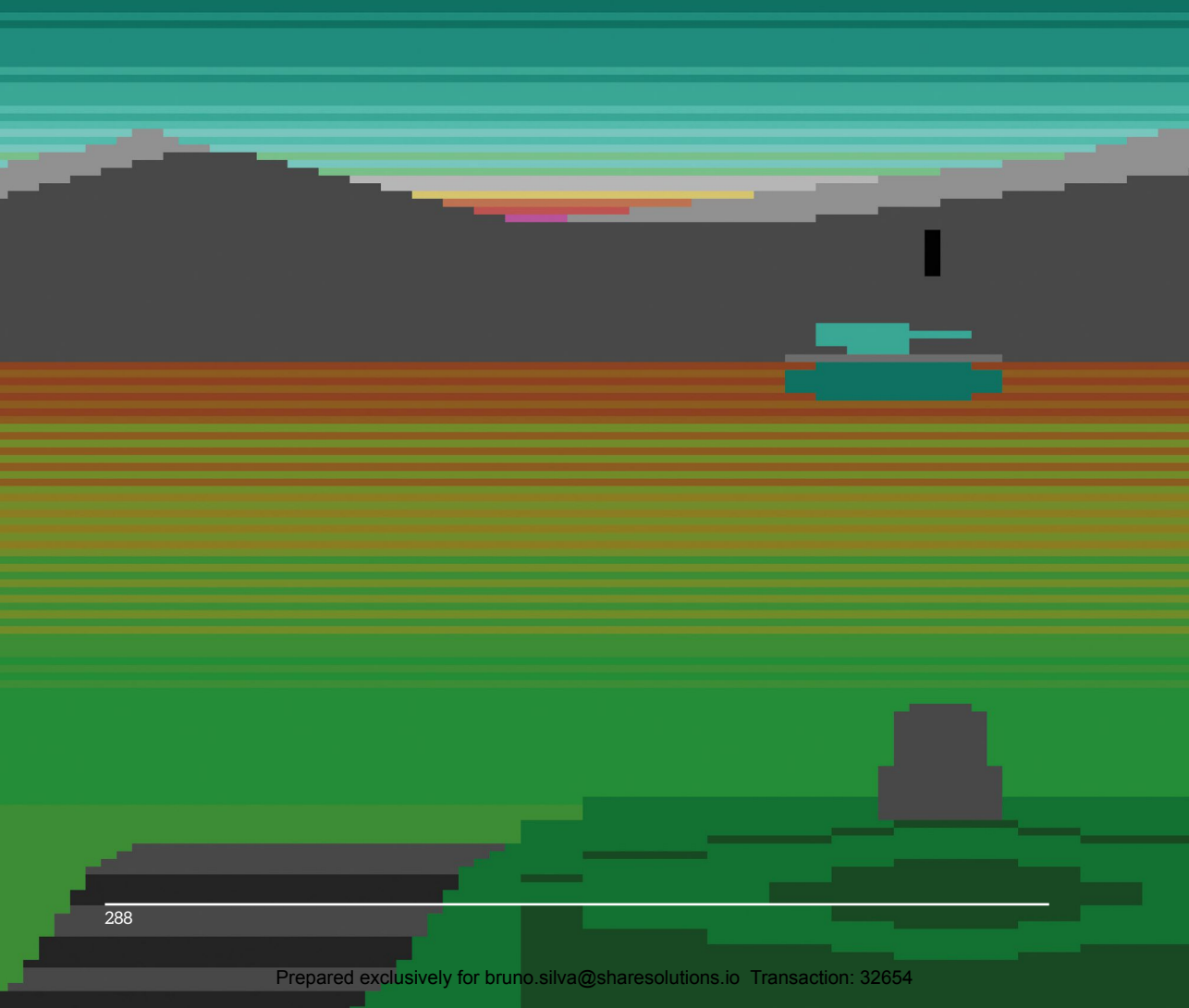
Platform
2600

Released
1983

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari



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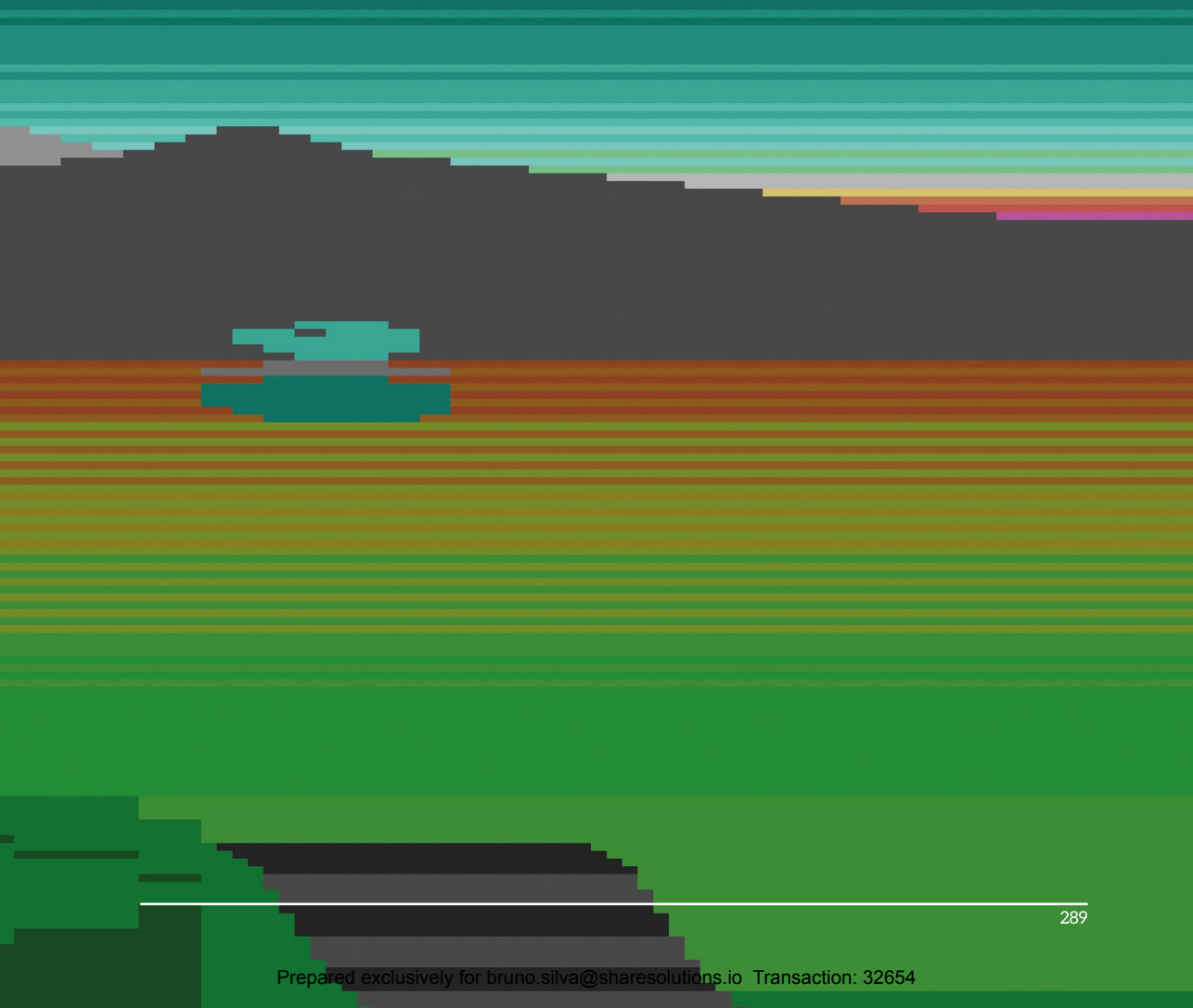
Battlezone

"As a first person-shooter game with the action taking place 360 degrees around you, all the objects in *Battlezone* had to move around you whenever your tank moved. This required advanced maths, and those maths functions were not built into the 2600. My co-designer wrote short approximations for the required trigonometric functions and used them to calculate how to move all the objects on the screen efficiently. This gives the game a very realistic feel as you move and rotate.

"The most fun I had in this game was generating the death sequence when your tank was hit. The visuals of the game were the displays you were looking at from inside the tank, showing you what was ahead of you and where everything was on a circular radar. When you got hit, I wanted the display to go haywire, and to have it be different every time. But, I also wanted to do it in a controlled fashion so that we didn't 'lose sync', or have the screen flip. The death visual is gradual, with the working screen slowly fading out as the screen goes crazy. Then, as in the arcade game, things snap right back for your next life, ready to play."

Michael Feinstein, programmer



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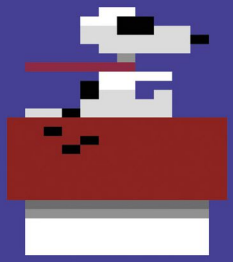
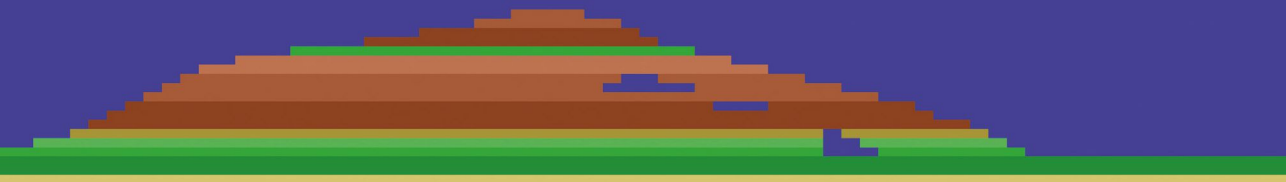
Snoopy and the Red Baron

Anyone who grew up following the adventures of Charlie Brown will remember the fantastical dream-like adventures of his dog, Snoopy, and, in particular, his battles with the dastardly Red Baron. Atari obviously loved them as much as we did because it thought this would be a great idea to turn into a video game, and it was right! In a way, the game plays a little like the seminal *Combat*, but, here, the screen scrolls both left and right, and it's strictly a one-player affair. The idea is to hunt down the Red Baron across four different difficulty levels. He takes eight hits to destroy – and the same for you – but you also have three spare doghouses should one get destroyed. One game variation sees you collecting the items the Red Baron drops while flying around whilst avoiding the skulls and crossbones. If the player collects all of the treats and downs all of the Red Barons, bonus points are awarded. A Gold Baron is earned when the player downs a grand total of 50 Red Barons. Although *Snoopy and the Red Baron* is aimed at younger audiences, it's a great deal of fun for older gamers too!





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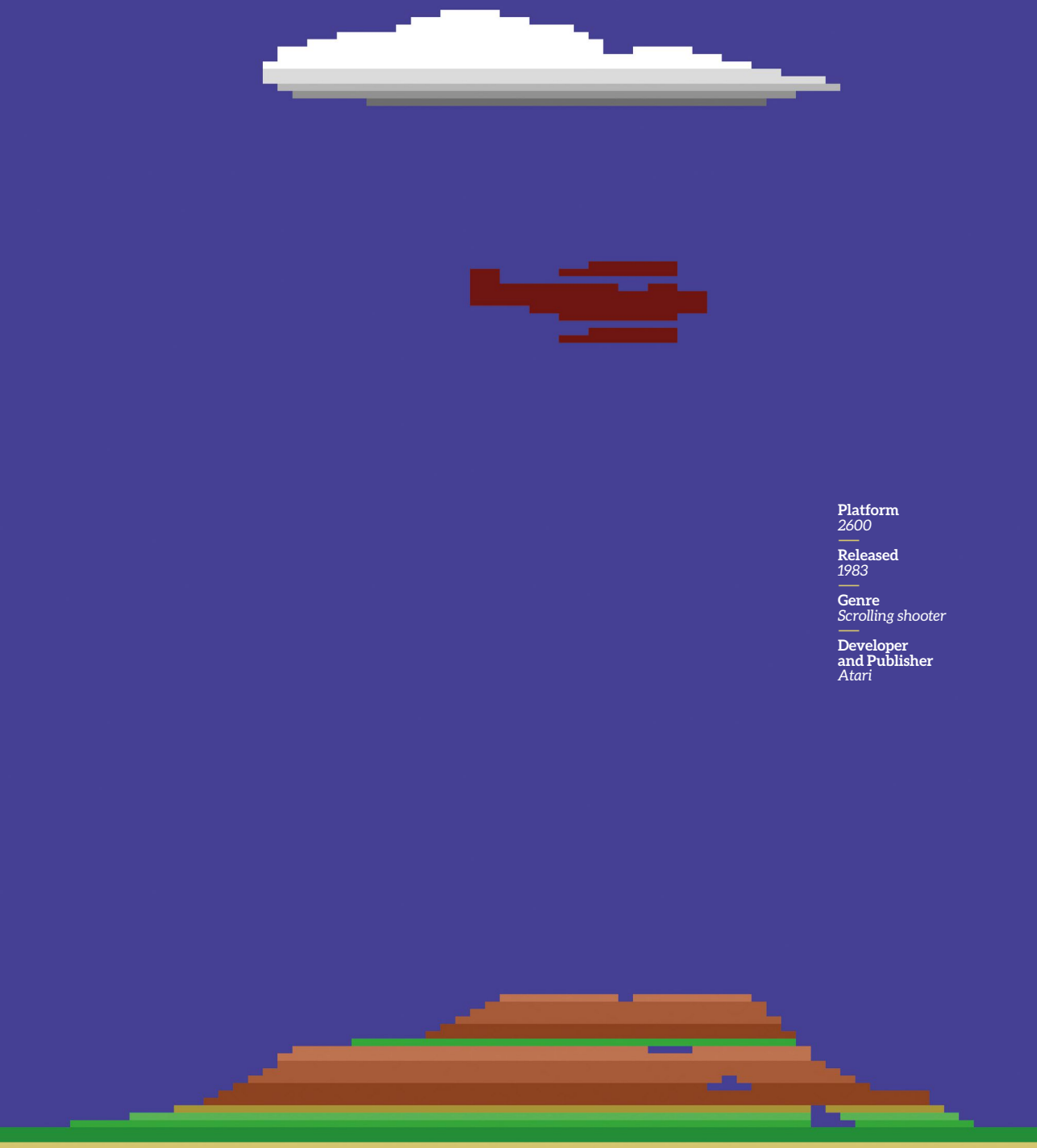

Platform
2600

Released
1983

Genre
Scrolling shooter

Developer and Publisher
Atari

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"Talented people made that simple machine stand up and dance."

Bob Smith, game designer, programmer and co-founder of Imagic

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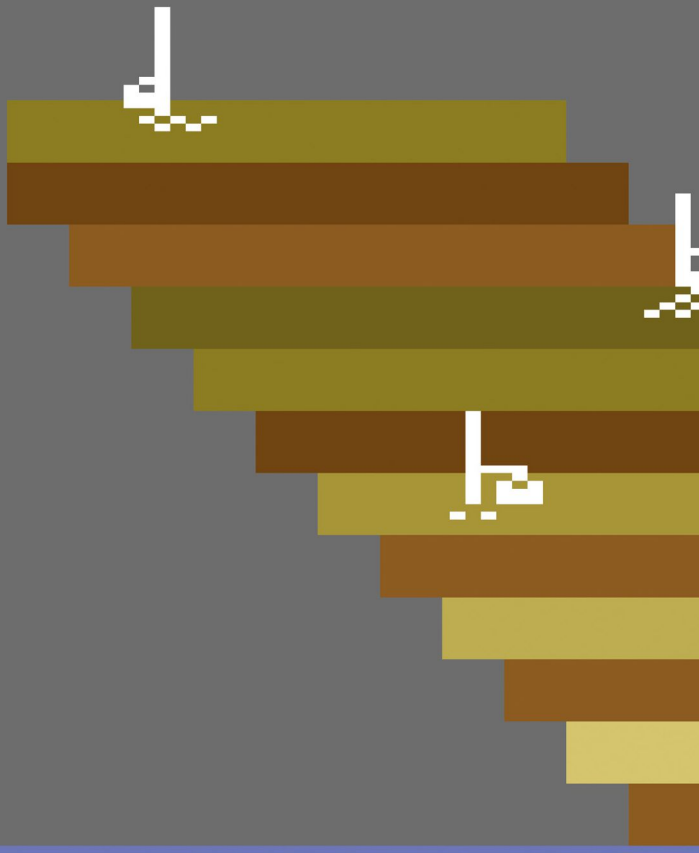
Atari 2600 'Vader' console */ 1982*

Sorcerer's Apprentice

One of several games to come out of Atari's short-lived alliance with Disney, that almost saw them buy the company, *The Sorcerer's Apprentice* is based upon the famous sequence in the animated movie *Fantasia*. You play as Mickey Mouse, collecting the falling stars and meteorites up on the mountain so you can keep the walking brooms from filling the Sorcerer's cavern below with water. With every star caught, a bucket appears to remove some of the water from the cavern. Mickey is also given the opportunity to catch the brooms before they get to the bottom of the stairs and flood the cavern even further. If the cavern floods completely, it's game over, so you'll need to stay on your toes and continually move between the two screens to keep on top of things. Atari did a grand job here of keeping the game authentic to its roots; the cartoon-like graphics and sound are both a joy to behold and really add to the whole experience. As part of Atari's children's range, you'd obviously expect the game to appeal to younger people, but anyone with even a passing interest in Disney will find a lot of joy in *The Sorcerer's Apprentice*.



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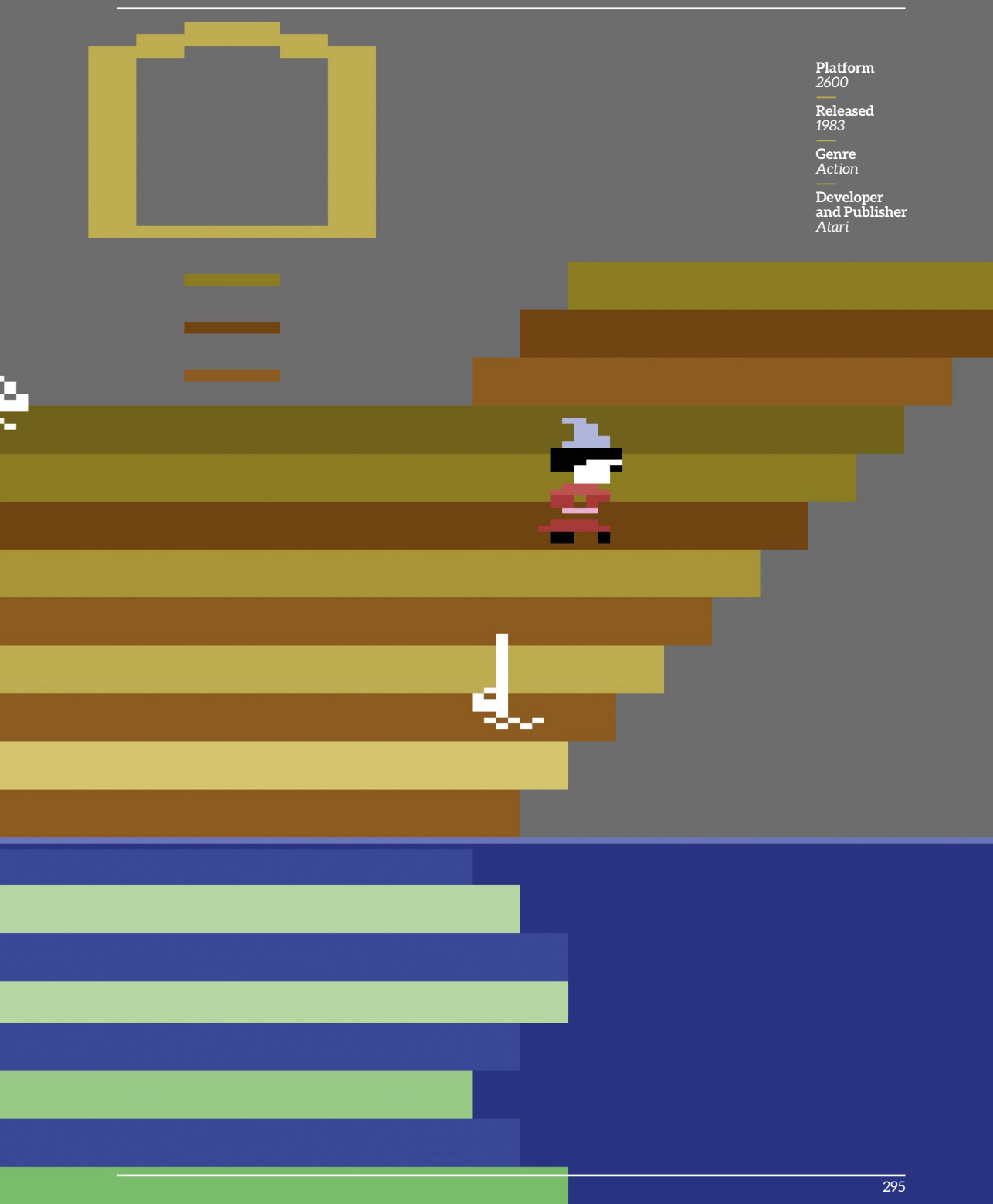

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Atari

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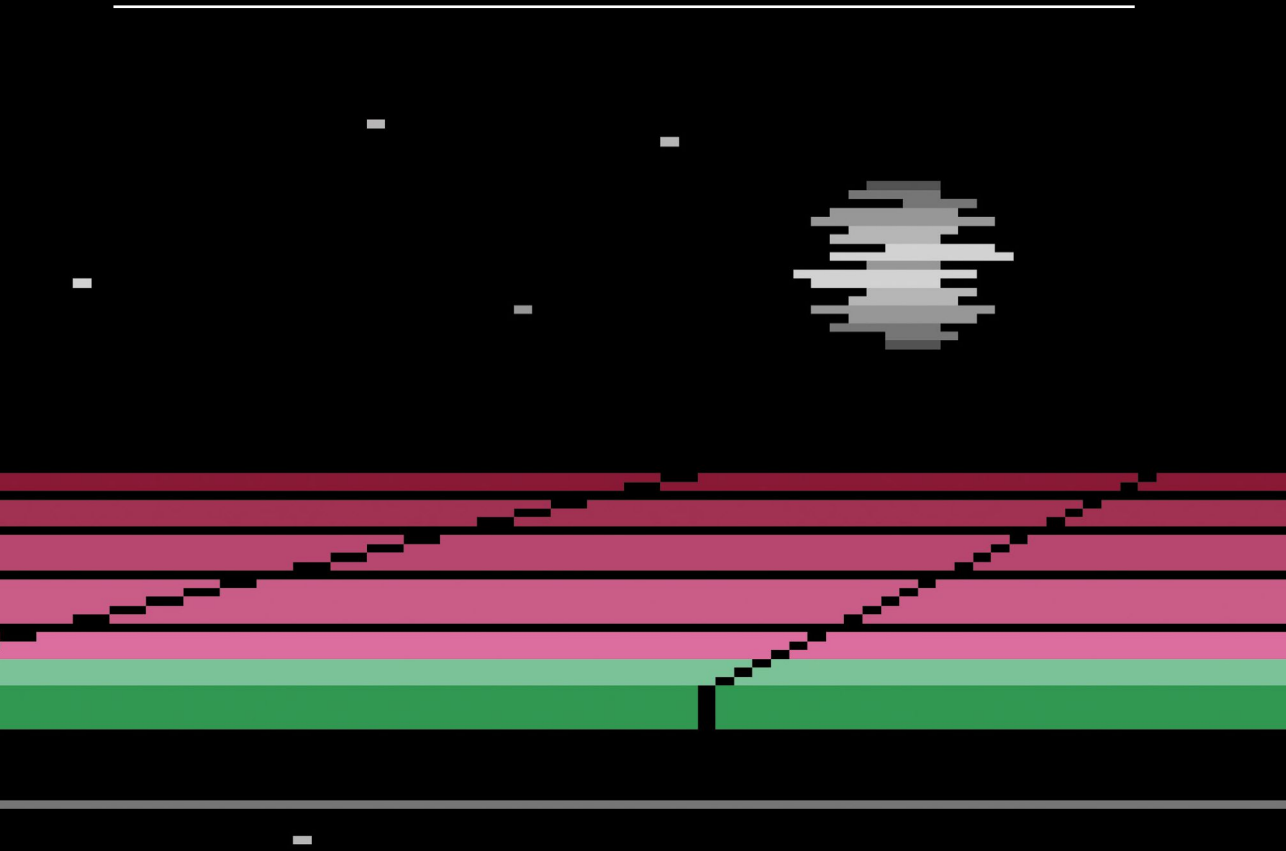


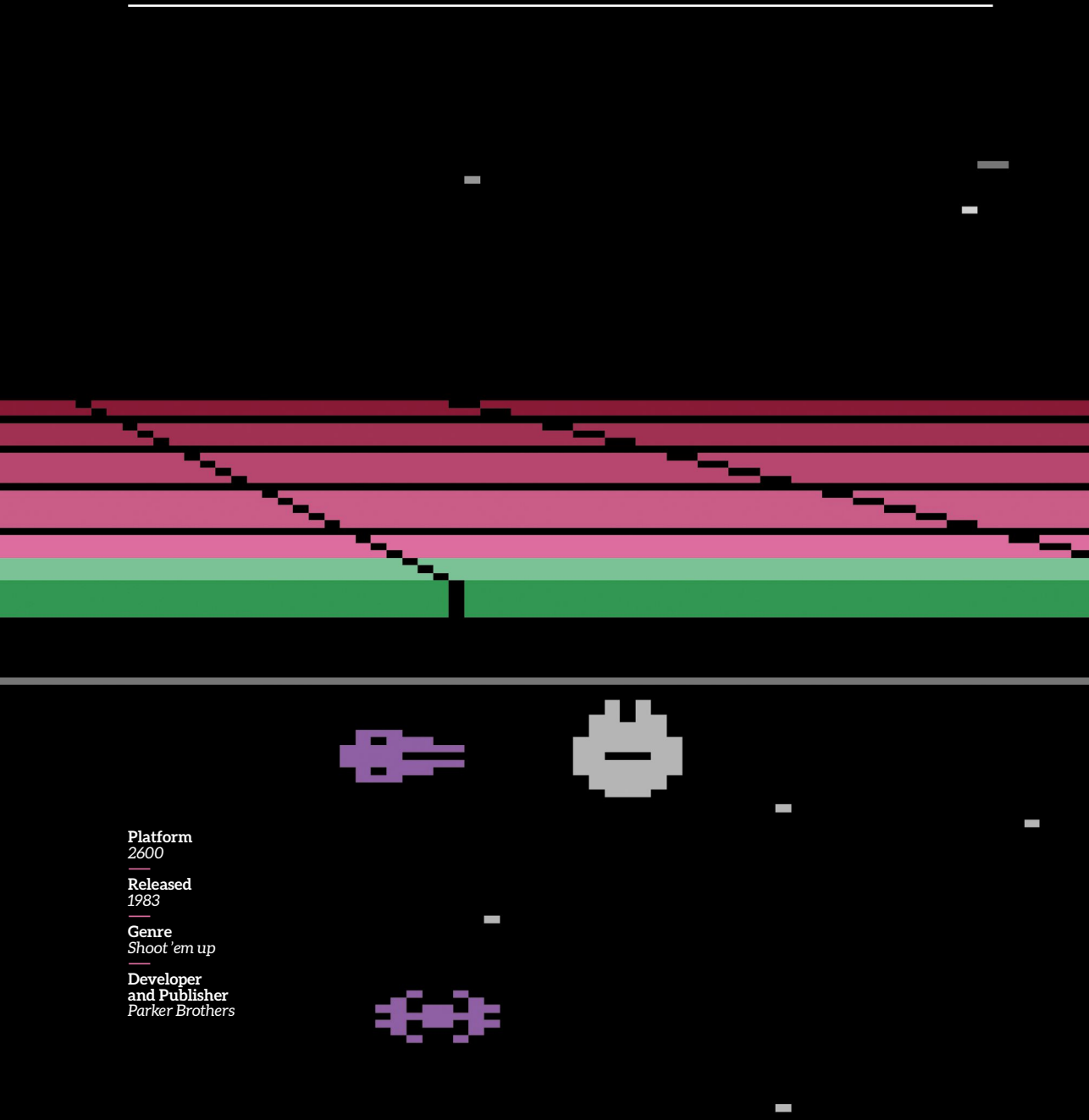
Star Wars: Return of the Jedi - Death Star Battle

"Piloting the Millennium Falcon was the dream scenario of many a *Star Wars* fan in the early '80s – ditto that for taking down the Death Star. Luckily for Atari 2600 owners, Parker Brothers combined those two elements into *Star Wars: Return of the Jedi – Death Star Battle*, which recreates part of the climactic scene from 1983's trilogy-capping flick.

"It's a unique hybrid of elements. Embodying the one and only Lando Calrissian, you first pilot the Falcon on the bottom half of the screen, zapping enemy TIE Fighters that come near. All the while, you're waiting for a large hole to appear on the Death Star surface above, at which point, you can fly through and trigger the second part: blasting upwards to chip away at the work-in-progress space station until you detonate its core.

"*Return of the Jedi – Death Star Battle* is curiously lacking classic Star Wars music within, but it still looks the part as you manoeuvre the tiny, iconic ship around the screen. While not as impactful as *The Empire Strikes Back* – the first Atari 2600 Star Wars game – or as immersive as the *Star Wars* arcade port, *Death Star Battle* delivers another fun twist on the franchise."

Andrew Hayward, games journalist

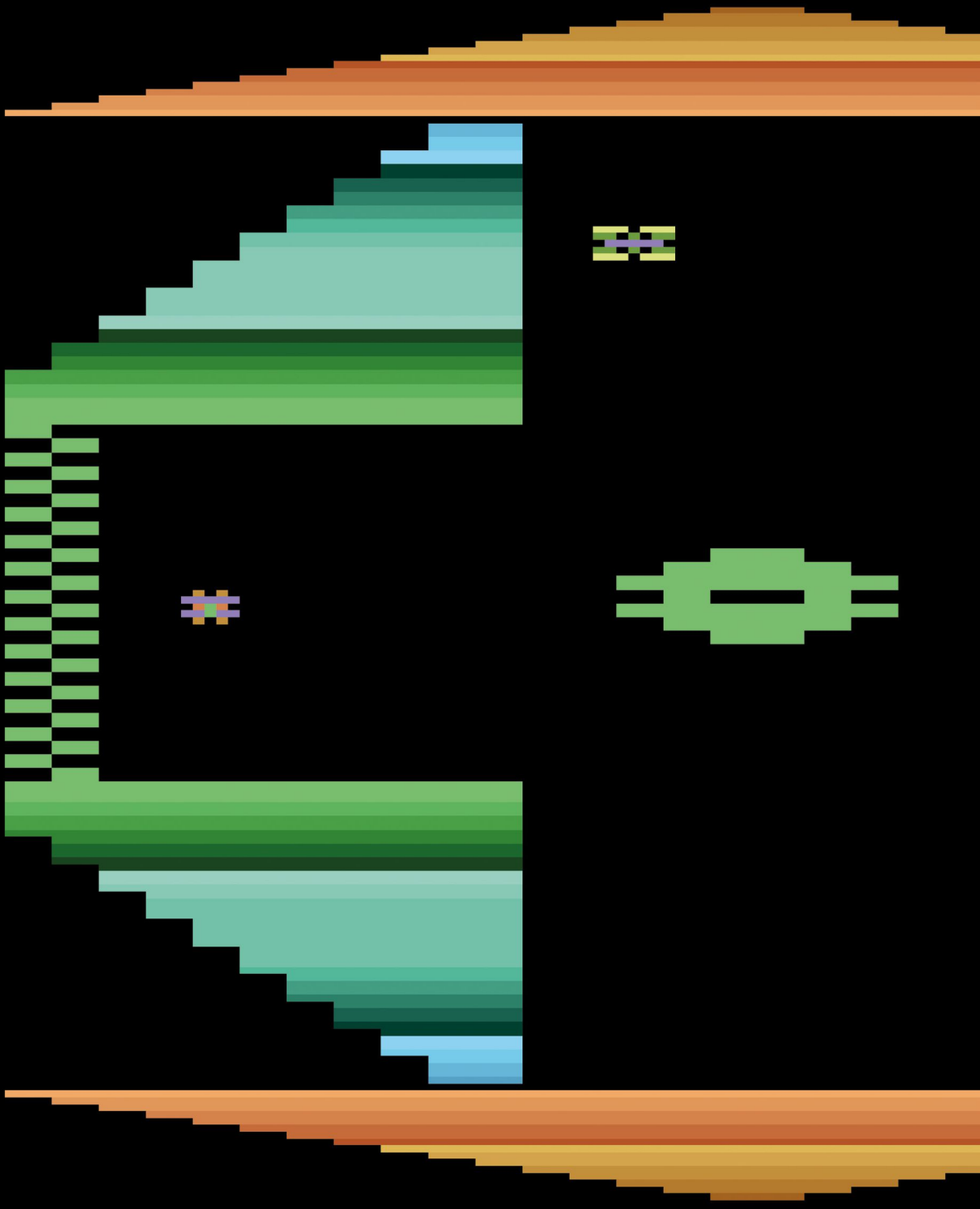


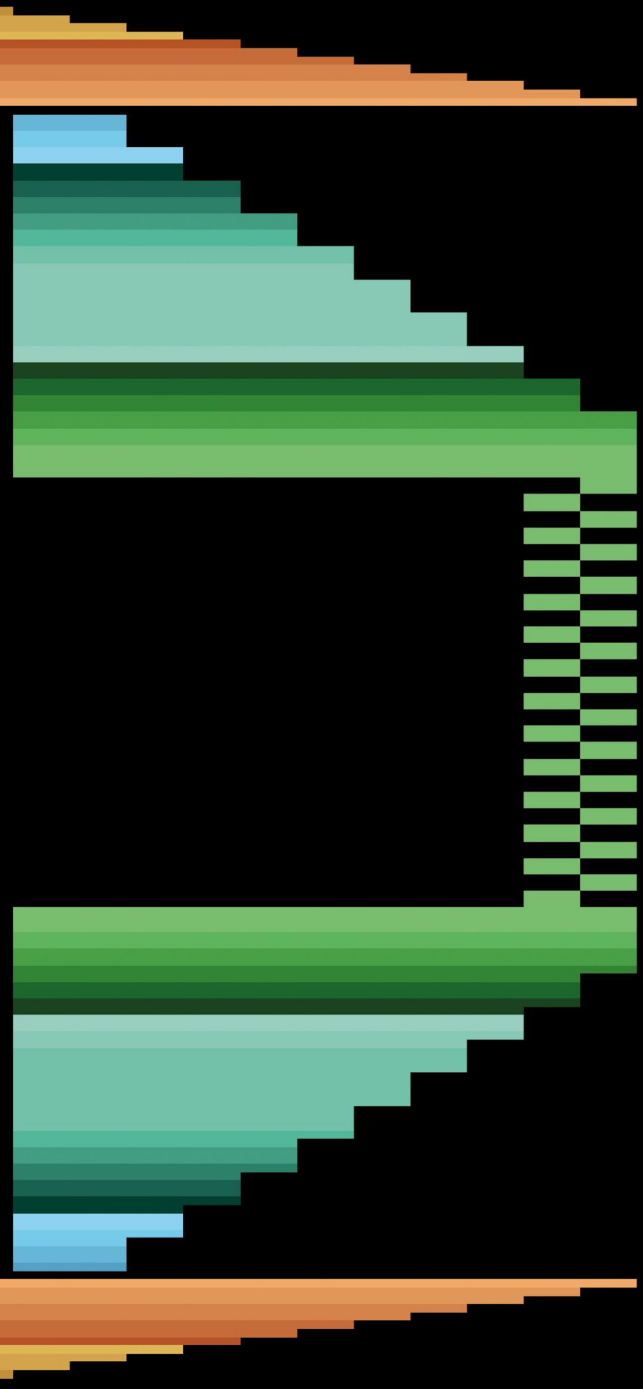
Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Parker Brothers





Quadrun

"I was hired by Atari to work on the 5200, but I insisted on making games for the Atari VCS (2600). My reason was that I loved that machine when I was a kid, and to get the chance to make games on it was something I couldn't resist! The manager who hired me said, *'Fine!'*, literally threw the 2600 programming manual down at my feet, and said, *'Have fun!'* And I did!

"*Quadrun* was my first original Atari game that I learned the ropes on. My mum came up with the name for the game. When I was trying to think of a name for it, my mum said, *'It's got four sides, why not call it Quadrun?'* I figured it would be cool to get my voice in the game and it took us almost all day to get one take that was usable at around 700 bytes. It turns out that *Quadrun* was the very first Atari 2600 video game cartridge produced by Atari with voice. This was also the first game where I put in the multicoloured top and bottom triangles. From that point on, all of my Atari games had this as sort of a visual signature.

"The game was focus-tested with young girls, and they kept saying, *'It's not like Ms. Pac-Man,'* so marketing decided to make only 10,000 copies and sell it through the *Atari Age* magazine. I think the game became very collectable because there was only a production run of 10,000 units, it was the first Atari-produced 2600 cartridge with voice, and it was a very difficult shooting game."

Steve Woita, designer and programmer

Platform
2600

Released
1983

Genre
Action

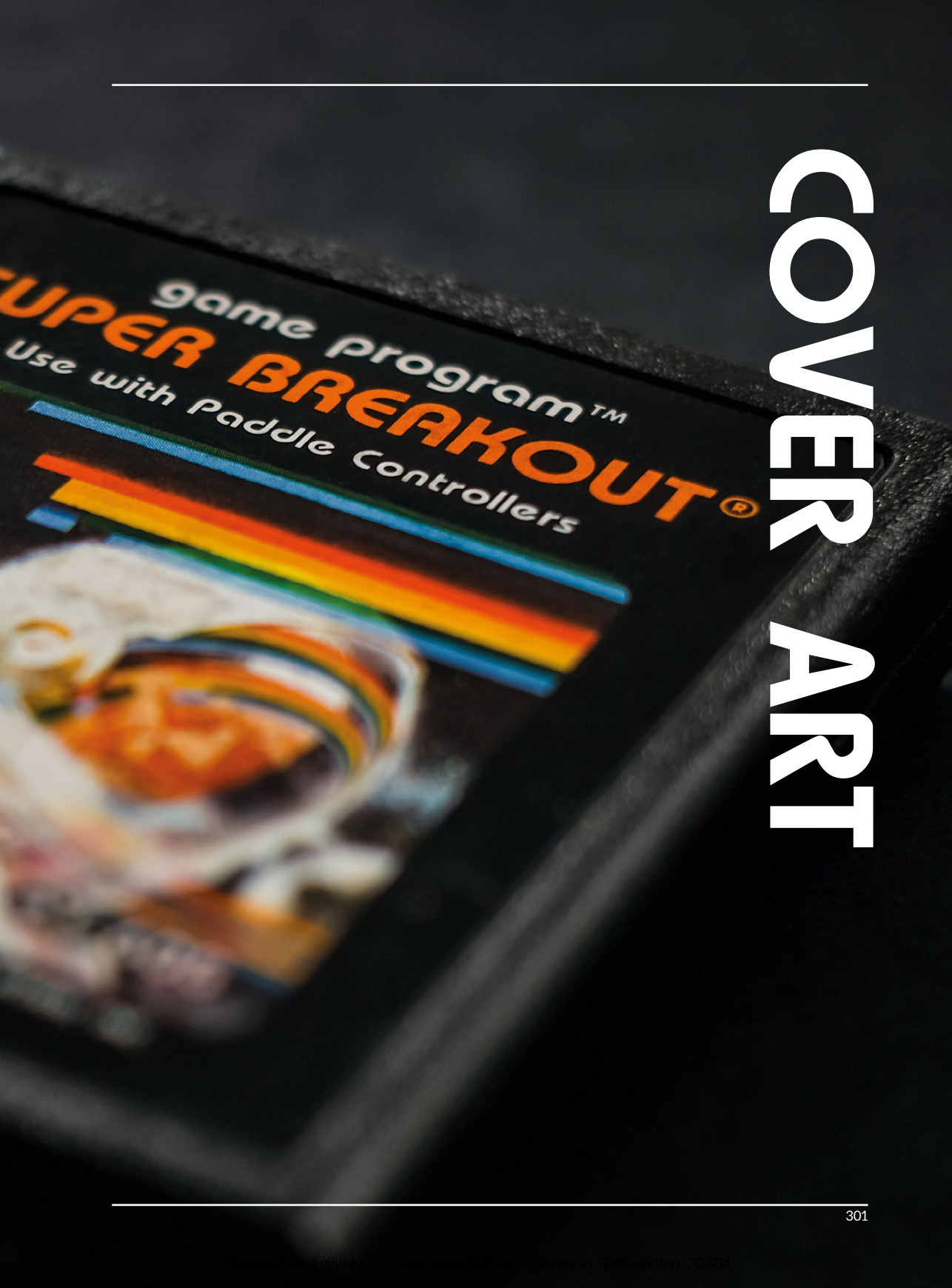
Developer and Publisher
Atari

A picture paints a thousand words

At a time when video game visuals were basic and functional, it fell to the cover artwork to really sell a title to a prospective player – and, to this end, Atari employed a team of insanely talented artists, the work of whom you can see across the following pages.

Prepared exclusively for [redacted]

COVER ART



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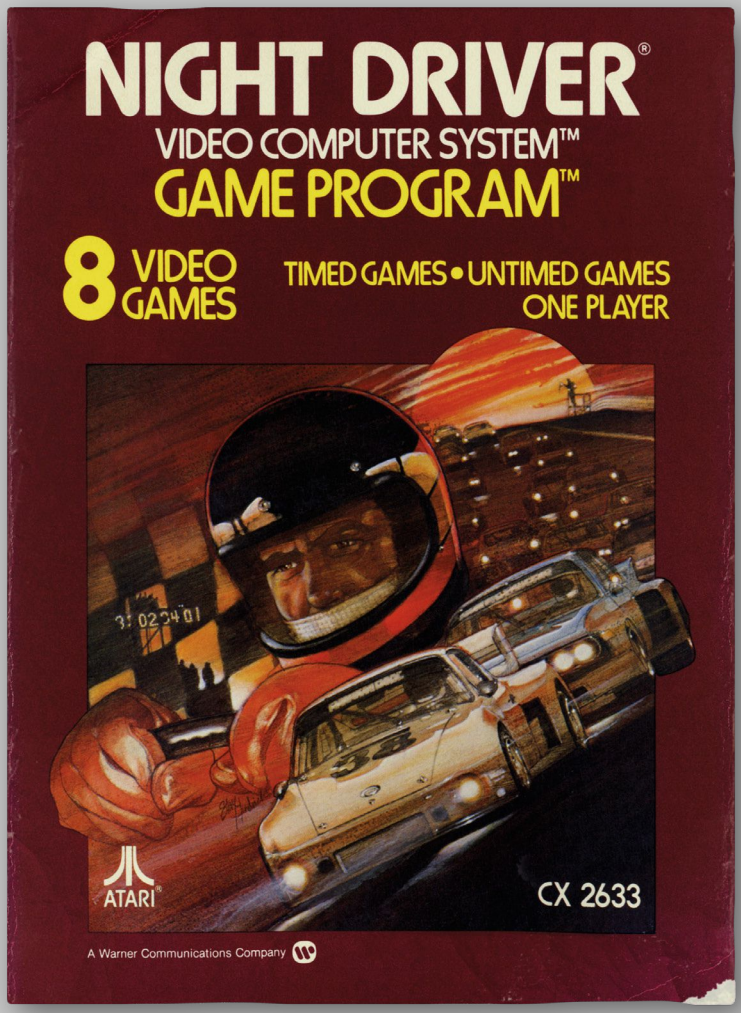

Platform
2600

Released
1980

Genre
Racing

Developer and Publisher
Atari

Night Driver

Designed by Dave Shepperd, Ron Milner, Steve Mayer and Terry Fowler, the 1976 coin-op version of *Night Driver* was a revolution for the racing genre as it was one of the first games which presented the player with a first-person view of the action – a real departure from the top-down perspective that was commonplace in most racing games of the era. However, the impression of movement was achieved quite crudely, with white blocks simulating the edges of the road, viewed in the pitch-black darkness of nighttime (hence the name). The bonnet of the player's car was present in the coin-op original, but this was, in reality, a sticker applied to the arcade cabinet's glass screen. The Atari VCS version was ported to the console by Rob Fulop, who added a splash of colour, rival cars to avoid and eight different game variants to keep players occupied; on the downside, the gear-shifting mechanic was removed. Steve Hendricks contributed the atmospheric cover for the home conversion; his stylish artwork shows what appears to be a Porsche and BMW engaging in some illegal street racing. Rick Guidice's alternative cover treatment – a rear-view image of some cars racing down a winding road – was never used.

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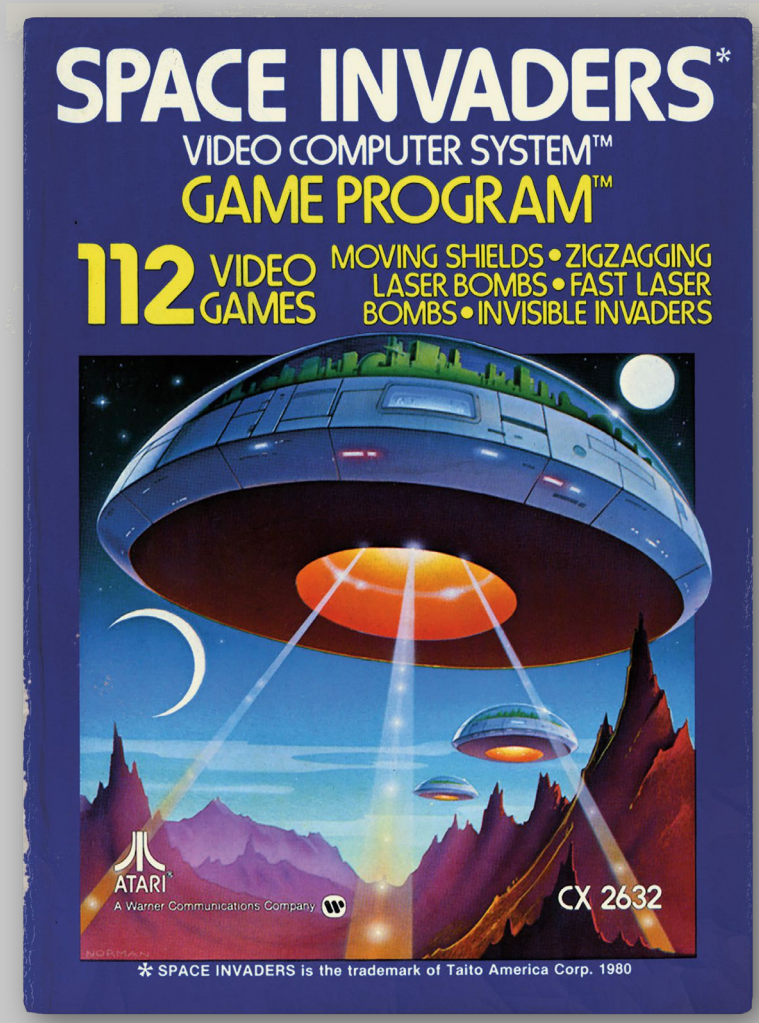

Platform
2600

Released
1980

Genre
Shoot 'em up

Developer and Publisher
Atari

Originally by
Taito

Space Invaders

Arguably one of the most famous video games of all time, Tomohiro Nishikado's 1978 smash hit *Space Invaders* is one of the earliest 'shooter' titles and tasked the player – who controls a ship at the bottom of the screen which is restricted to x-axis movement – with destroying wave upon wave of alien invaders which drop down the screen, intent on vaporising any and all resistance. Like fellow coin-op successes *Pac-Man* and *Donkey Kong*, *Space Invaders* would prove to be a cultural phenomenon with a degree of recognition that went far beyond the realm of video games. When Atari licensed the title for release on the VCS from original creator Taito in 1980, it was breaking from convention; up until that point, it was generally accepted that only Atari's games would appear on Atari's hardware. The conversion of *Space Invaders* triggered a massive leap in popularity for the VCS as arcade-goers snapped up consoles in their millions in order to play their favourite title in the comfort of their own home. The cover of the Atari VCS version was created by an unknown artist, signed only as 'Norman', and appears to be inspired by the sleeve artwork for the first two albums by the American hard rock band Boston – both of which showcase very similar-looking flying saucers.

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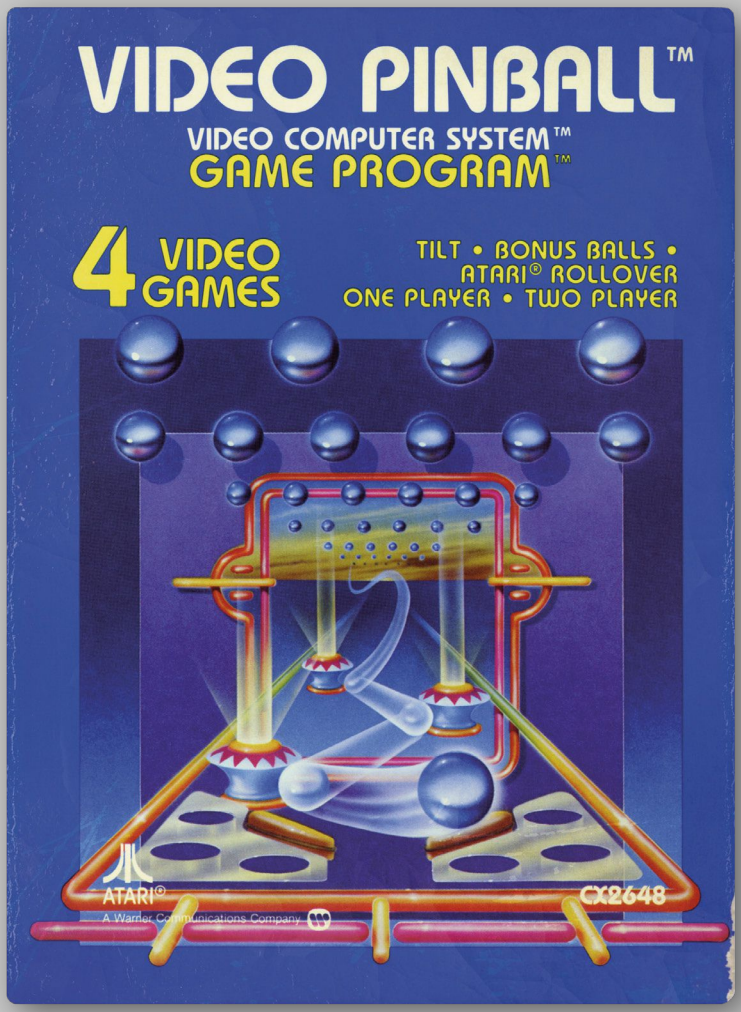

Platform
2600

Released
1981

Genre
Simulation

Developer and Publisher
Atari

Video Pinball

In the early days of video gaming, when home hardware was relatively crude and underpowered, developers had to find inventive ways of making pre-existing concepts fit within the confines of consoles like the Atari VCS. Surprisingly, they succeeded more often than not, and 1980's *Video Pinball* is a shining example of this. Designed by Bob Smith, it awkwardly crammed a pinball table – which, lest we forget, is traditionally oriented in a 'portrait' layout – into the 4:3 aspect ratio of a television set. The end result was a squashed playfield, but the fact that *Video Pinball* allowed the player to 'nudge' the ball – a nefarious technique that was often applied to real-life tables by canny players – gave it an incredible feeling of authenticity. The game would even punish players for nudging too aggressively by including a 'tilt' detection feature – again, this is something that is present in real pinball tables. *Video Pinball* was rebranded as *Arcade Pinball* by Sears for its Tele-Games system, a variant of the VCS, but both versions utilised the same striking airbrushed cover art, showcasing a rather spaced-out pinball table which appears to stretch off to the horizon.

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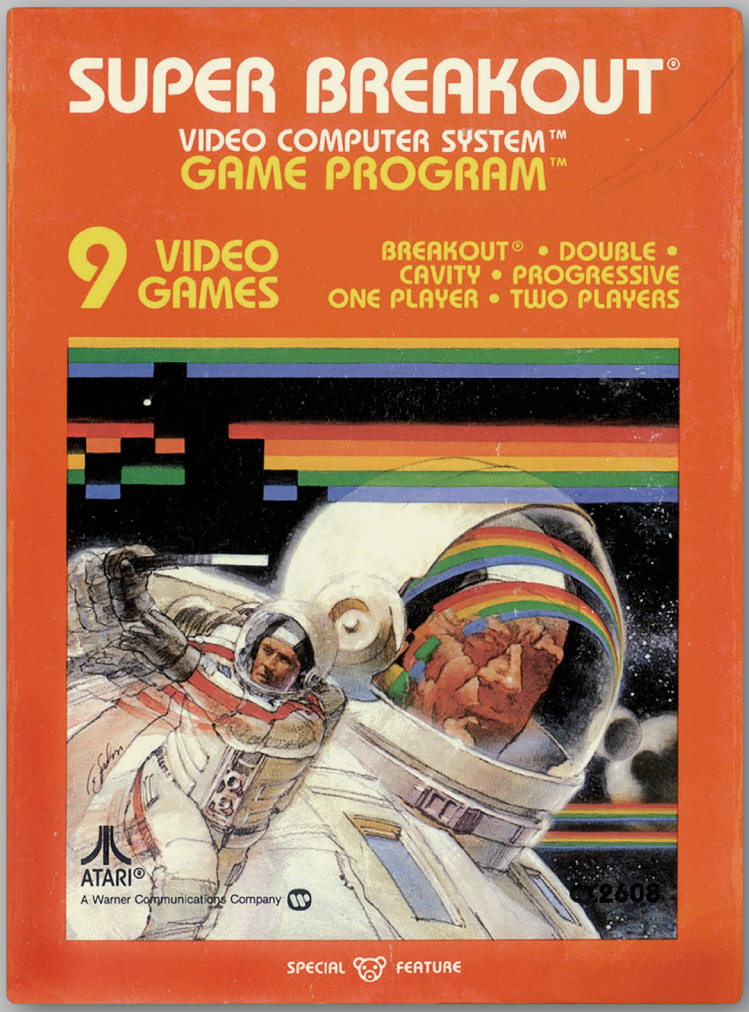

Platform
2600

Released
1982

Genre
Arcade

Developer and Publisher
Atari

Super Breakout

The sequel to Nolan Bushnell, Steve Bristow and Steve Wozniak's trailblazing coin-op classic *Breakout*, *Super Breakout* was coded by Ed Rotberg (*Battlezone*) and made the core gameplay more complex by unleashing multiple balls into the play area. Three game modes were included: 'Double' tasked the player with controlling two paddles, one above the other, with two balls in play at the same time, while 'Cavity' initially featured a single ball, but others could be released by smashing cavities in the wall. Finally, 'Progressive' made the wall move down the screen, with its rate of movement increasing the longer the ball remained active.

Compared with the VCS cover for the original *Breakout* – which used modern-day tennis players to communicate the paddle-and-ball gameplay – Cliff Spohn's follow-up cover for the sequel chose to focus on the 'advanced' nature of the experience by featuring tennis players in futuristic spacesuits. The VCS port was followed by an enhanced version for the Atari 5200 console, which was ultimately included as a pack-in title with the new machine.

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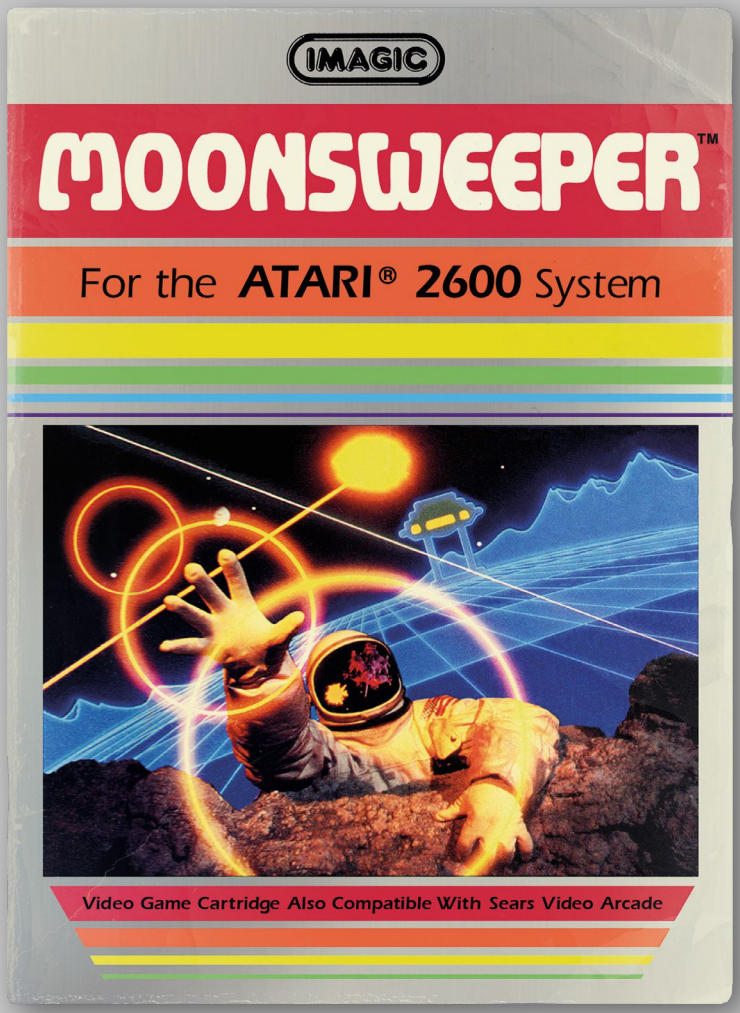

Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Imagic

Moonsweeper

One of Imagic's lesser-known titles, 1983's *Moonsweeper* remains an impressive technical achievement when you consider the limitations of the VCS hardware, which, by that point, was starting to look very long in the tooth. The gameplay alternated between in-space sequences – where the objective was to avoid incoming projectiles and take out enemy units – and the 'moon sweeping' of the title. At points, it was possible to fly down onto a moon and skim its surface, picking off enemy emplacements and rescuing stranded miners before seamlessly shooting back off into space to start all over again.

The 3D effect was mind-blowing for the time, using a similar graphical trick to the one seen in Konami's *Axelay* on the SNES – a game that wouldn't see the light of day until almost a decade later. *Moonsweeper's* cover shows one of the stranded miners you must liberate from the game's many moons, reaching his hand skywards in the hope of imminent salvation.

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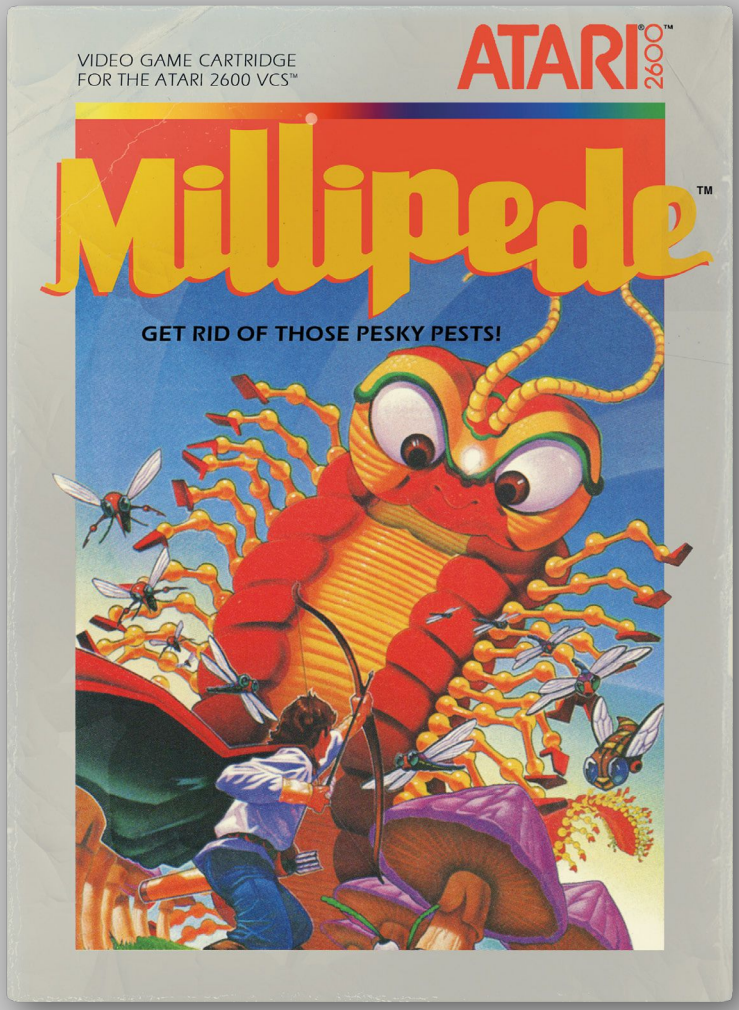

Platform
2600

Released
1984

Genre
Shoot 'em up

Developer and Publisher
Atari

Millipede

1981's *Centipede* was one of many hugely successful arcade hits for Atari, and was the brainchild of Dona Bailey and Ed Logg – in fact, it was one of the first video games to have been designed by a woman. However, it would be Logg who would go on to produce the sequel. *Millipede* ramped up the challenge by introducing additional enemy types and making the main enemy – the titular insect – move a lot faster. Originally named *Centipede Deluxe* to make the link between the two games even more obvious, *Millipede* also gave the player 'DDT' bombs which could be used to take out groups of enemies in a single move. This also made the scoring more complex and rewarding as every foe taken out by a bomb blast was worth three times its normal amount. While Millipede had a tough act to follow and couldn't match the incredible success of its predecessor, it remains a solid update of an already classic concept.
Hiro Kimura's lavish cover artwork for the VCS port shows the heroic archer taking aim at the malevolent opponent amid a forest of mushrooms, itself packed with secondary enemies. As was typical of Kimura's work for Atari, the image is bold, bright and sharply defined, making for a memorable piece of cover art.

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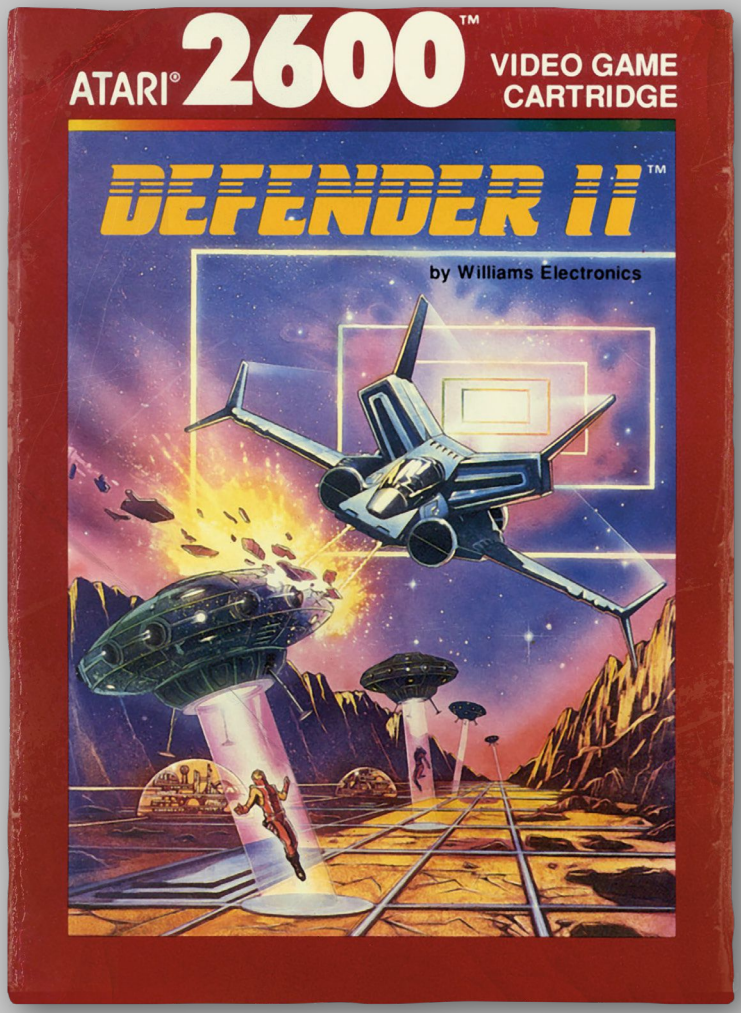

Platform
2600

Released
1987

Genre
Scrolling shooter

Developer and Publisher
Atari

Originally by
Williams

Defender II

Known in the arcades as *Stargate*, this sequel to the seminal *Defender* was created by Eugene Jarvis and Larry DeMar under their short-lived company, Vid Kidz, and was released in arcades by Williams Electronics in 1981. While the core premise remained the same, *Stargate* added in new enemy ships as well as the ability to make the player's ship invulnerable for a short period of time. The VCS port of *Stargate* was a marked improvement over the conversion of the original *Defender*, with graphics that were much closer to the arcade version. The vast majority of the home ports were renamed *Defender II*; it's believed that toy company Kenner had trademarked the name *Stargate*, and Atari was keen to avoid any legal wrangling. However, to confuse matters, the VCS version was originally released under the *Stargate* moniker before reverting to *Defender II* for its 2600-branded re-release shortly afterwards. Both versions showcase the same cover artwork, although, on the *Defender II* version, the image has been flipped horizontally. In both variants, the player's ship is seen flying out of a stargate to blast an enemy lander before it can finish abducting a hapless human. Like all of the best box artwork from this period, it does an amazing job of extrapolating the basic visuals of the game to create something truly captivating.

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Platform
2600

Released
1978

Genre
Action

Developer and Publisher
Atari

Outlaw

Released in response to Midway's *Gun Fight*, *Outlaw* took the time-honoured concept of gun-slinging cowboys and brought it into arcades. Thanks to its light gun technology, the game was about as close to the real thing as it was possible to get in 1976; however, the subsequent port to the Atari VCS used joysticks instead, allowing two players to take each other on to find out who really was the fastest gun in the Wild West. *Outlaw* on the VCS was reconceptualised by David Crane, and expanded on the arcade original by including environmental objects – which could be used as cover – and different game modes, such as a target practice feature which gave players the opportunity to improve their aim. John Enright's cover artwork hints at an epic adventure with all the thrills and spills of a full-blown Hollywood epic, and, while the game itself is rather tame in comparison, it does an excellent job of setting the scene. The main cowboy on the cover is interestingly based on an advertising photo for the Clint Eastwood movie *The Outlaw Josey Wales*.

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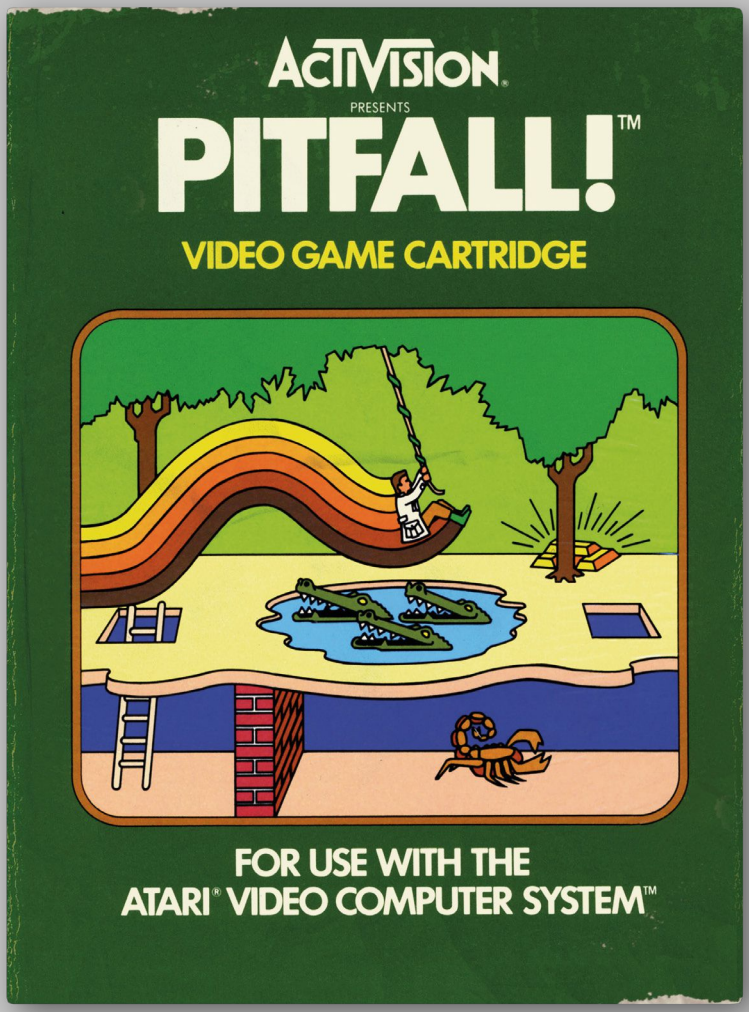

Platform
2600

Released
1982

Genre
Action

Developer and Publisher
Activision

Pitfall!

Few video games can claim to be as groundbreaking as David Crane's *Pitfall!*, one of Activision's first mega-hits. The objective was simple enough: guide Pitfall Harry through a hazard-packed jungle and collect all of the treasures within the 20-minute time limit. Crane later explained that coming up with the concept took around ten minutes, but it would take around a thousand hours to perfect and realise this idea. *Pitfall!* is regarded by many as the first true 2D platformer, and, without it, we'd have no *Super Mario*, *Sonic* or *Crash Bandicoot*. Over four million copies were sold on the Atari VCS alone, and Crane followed up his success with the equally brilliant *Pitfall II: Lost Caverns*, but subsequent sequels fared less well. In 2012, Crane tried to revive the concept with a spiritual successor, named *Jungle Adventure*, but it failed to get anywhere near its $900,000 Kickstarter goal. At least we still have the original, which is blessed with one of the most iconic VCS covers ever produced, showing Pitfall Harry swinging bravely across a pool of hungry crocodiles. In keeping with Activision's other covers of the period, *Pitfall!* ignored realistic artwork in favour of a bright, cartoon-like aesthetic.

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Platform
2600

Released
1977

Genre
Action

Developer and Publisher
Atari

Combat

Designed and developed by Joe Decuir and Larry Wagner, *Combat* was the original pack-in cartridge that came with the first wave of VCS consoles and took the core gameplay seen in the Atari coin-op hits *Tanks* and *Jet Fighter* and spread it across a whopping 27 different gameplay variants. Pitting one player against another, it was one of those games that was utterly perfect when you and a friend were in the mood for some good-natured rivalry. The eye-catching cover artwork is the work of Cliff Spohn, who was never entirely happy with the way the image has been 'cut' into three sections. Speaking to Tim Lapetino, Spohn said, *"It always really bothered me that the rocket's trail goes from one level to the top level."* Still, despite the misgivings of the original artist, *Combat*'s cover remains a classic piece of Atari artwork, filling in the gaps left by the relatively simplistic on-screen visuals to present a stirring and exciting landscape.

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Platform
2600

Released
1981

Genre
Shoot 'em up

Developer and Publisher
Atari

Asteroids

When you talk about the 'golden age' of arcade games, *Asteroids* is a name that's going to crop up quite often. Released in 1979, it laid down the foundation for countless imitators and rivals and would become one of Atari's most famous releases of the '70s. The game's inception occurred during a chat between Atari designers Lyle Rains and Ed Logg, and the decision was made to leverage Howard Delman's arcade hardware, previously used for *Lunar Lander*. An unfinished title by the name of *Cosmos* provided the platform for *Asteroids*, which also took inspiration from Nolan Bushnell's *Computer Space*, as well as *Spacewar!*, the 1962 game which ultimately influenced Bushnell himself. Boasting a realistic physics model which replicated the inertia of a moving spaceship, *Asteroids* used vector graphics to create pin-sharp imagery which helped it stand out from the blocky, raster-based games of the period. The Atari VCS version – released in 1981 – would go on to sell three million copies. Chris Kenyon's action-packed artwork graced the cover, and did a superb job in illustrating the frantic and challenging gameplay contained within.

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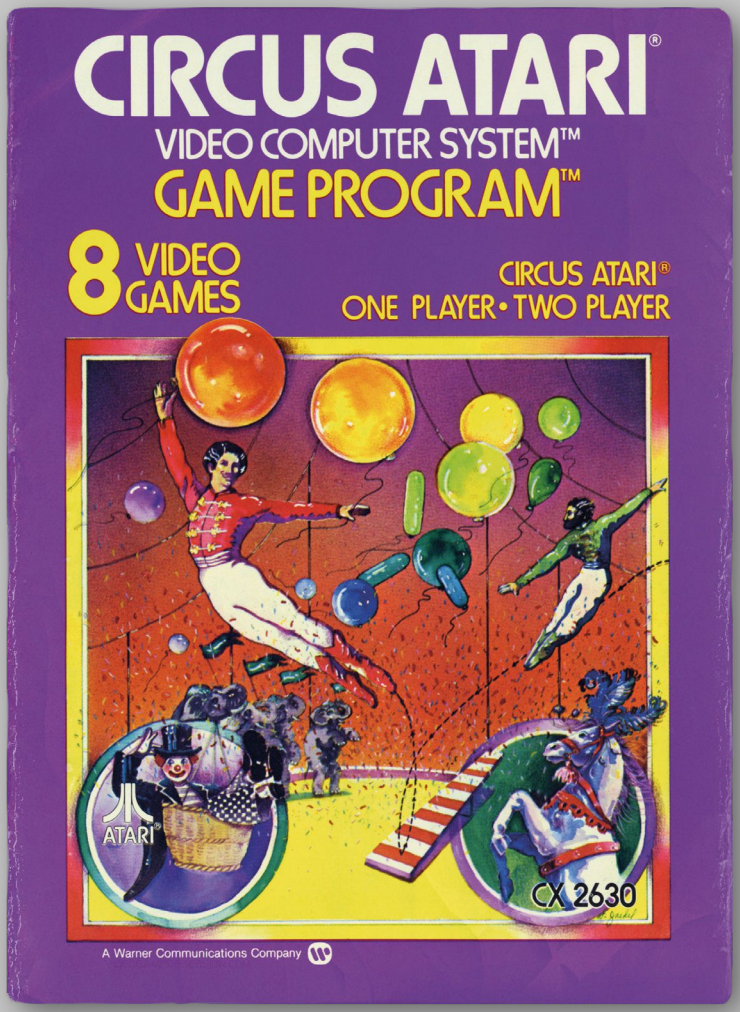

Platform
2600

Released
1980

Genre
Action

Developer and Publisher
Atari

Circus Atari

On the surface, *Circus Atari* appears to be a rather shameless clone of Exidy's 1977 arcade title *Circus*, but the company can probably be forgiven when you consider that Exidy's game was essentially a reimagined version of Atari's *Breakout*, only with the paddle replaced by a seesaw and the ball replaced by a clown. The objective was to break the wall of blocks (which were supposed to represent balloons) at the top of the screen, catapulting the clown skywards with the aforementioned seesaw.

Atari wasn't the only company to copy Exidy's original concept; WMS Industries (*Clowns*) and Taito (*Acrobat*) produced licensed versions of the game, while SEGA (*Seesaw Jump*) and Banpresto (*Devil Circus*) took their chances without asking for permission. *Circus Atari* launched in 1980 and, alongside Datasoft's 1982 title *Clowns* and *Balloons*, does an excellent job of imitating Exidy's original. Susan Jaekel's dreamlike cover was, according to the artist, heavily influenced by The Beatles' *Yellow Submarine* movie.

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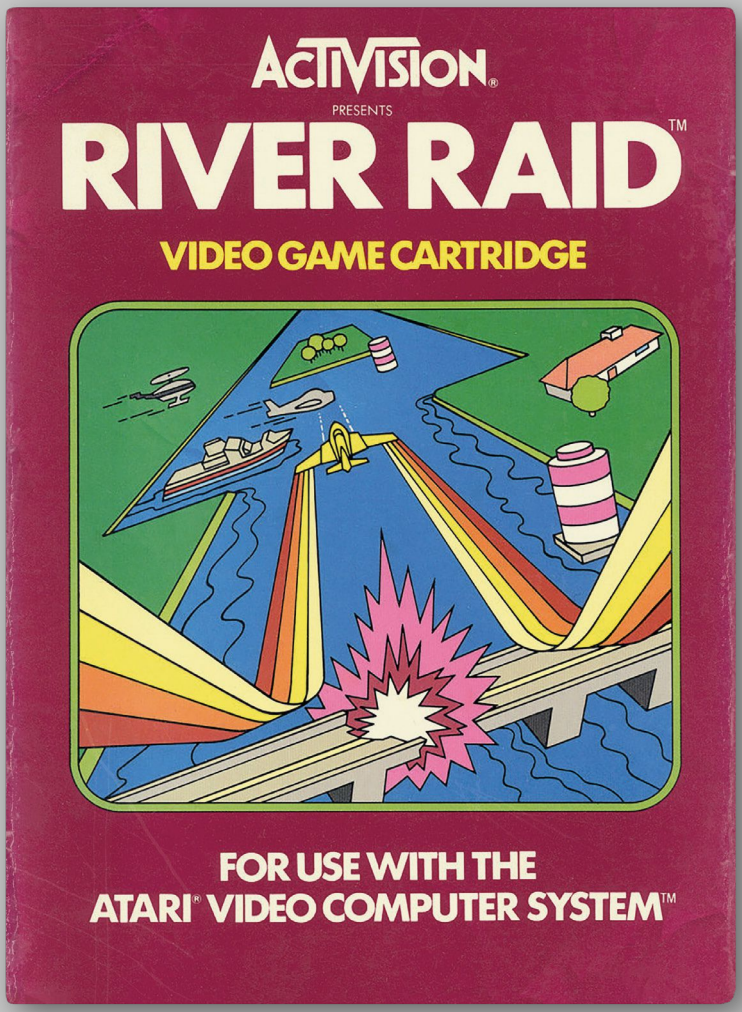

Platform
2600

Released
1982

Genre
Scrolling shooter

Developer and Publisher
Activision

River Raid

Alongside *Pitfall!*, *River Raid* is arguably one of Activision's most famous Atari VCS releases. This groundbreaking vertically scrolling shooter tasked the player with guiding their fighter jet down the deadly 'River of No Return', where they would have to avoid obstacles and enemy fire, as well as take out hostile units, such as tankers, helicopters and jets. *River Raid* was notable for being one of the first games to be developed by a woman; Carol Shaw designed and programmed the VCS and Atari 5200 versions, and was able to create a massive non-random, repeating landscape by employing a procedural generation algorithm linked to a hard-coded vector, so memory space was saved, but the game would have the same massive landscape every single time it was played. In keeping with Activision's other cover artwork from the period, *River Raid*'s packaging uses bold, cartoon-like colours to draw in prospective players. A sequel was later released without Shaw's involvement.

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Platform
2600

Released
1981

Genre
Action

Developer and Publisher
Atari

Warlords

Developed by Carla Meninsky, this unique action title had a surprisingly elaborate backstory involving four princes contesting control of the throne in a deadly blood feud. The ultimate objective was to destroy the castles of your three rivals while ensuring that your own fortress remained intact. It's understood that the arcade version of *Warlords*, which allowed four players to take the controls, was actually inspired by the VCS version, but delays to the latter meant that the game reached arcades first. More recently, a 3D version of the game was released on Xbox 360, and the original continues to be lauded as a quintessential competitive multiplayer game. Steve Hendricks was responsible for the cover artwork for the Atari VCS version, presenting a knight clad in full armour, with additional detail showing the flaming projectiles that are used to destroy castles in the game itself.

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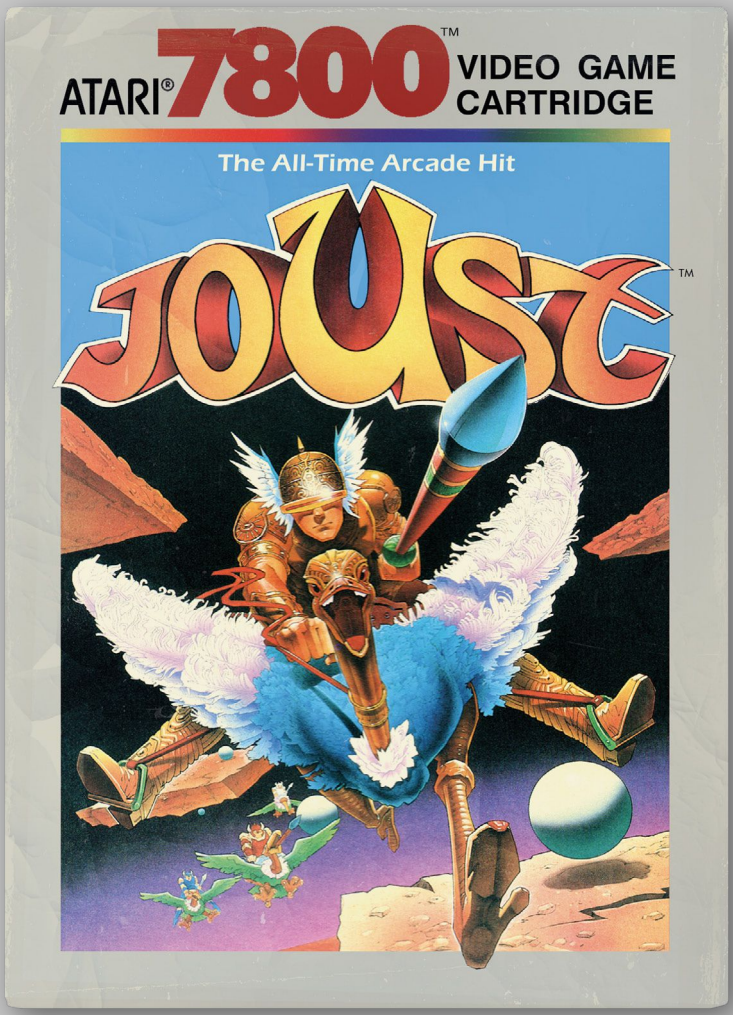

Platform
7800

Released
1984

Genre
Action

Developer
GCC

Publisher
Atari

Joust

Originally released in arcades by Williams in 1982, *Joust* proved to be a runaway hit despite its rather unusual premise: players assumed the role of a knight riding on the back of an ostrich. The controls were kept simple – you could move left or right, and a button press would cause your winged steed to flap its wings and take to the sky. Enemies were defeated by bumping into them and ensuring that your lance was higher than that of the opposing knight. *Joust*'s easy-to-understand mechanics made it an instant hit, but the two-player mode – where a second player assumed the role of a stork-riding knight – really made the game sing.

Atari produced ports for several of its systems, including the 2600, 5200 and 7800. As you might expect, the latter was the most visually alluring, offering a very close replication of the original coin-op. Hiro Kimura's superb cover – showing one of the ostrich-riding knights flying towards the viewer – is one of his finest pieces of work from his productive time at Atari. An interesting side note on *Joust*: the Nintendo Entertainment System version was coded by the late Satoru Iwata, who would later become CEO of Nintendo.

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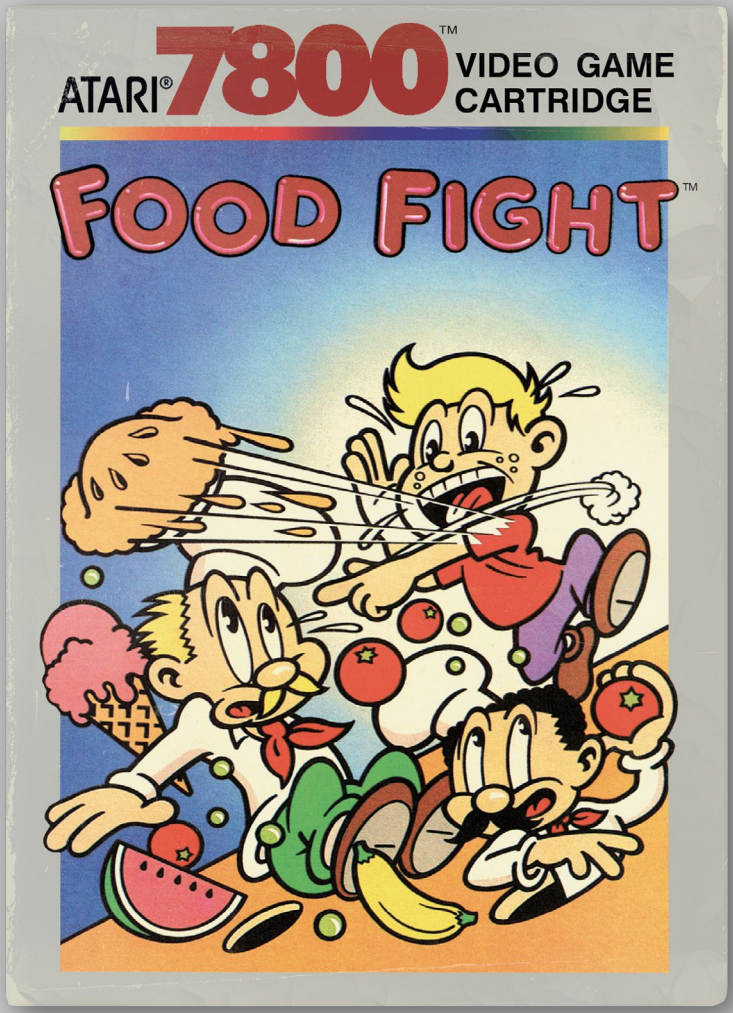

Platform
7800

Released
1987

Genre
Arcade

Developer
GCC

Publisher
Atari

Food Fight

Created by General Computer Corporation and rumoured to have been inspired by the infamous food fight scene in the 1978 comedy *Animal House*, *Food Fight* placed the player in the role of Charley Chuck, who must consume an ice cream cone situated on the opposite side of the screen before it melts. Four malevolent chefs intend to thwart Charley's gluttonous ambitions and chase after him in an attempt to prevent him reaching the delicious ice cream. General Computer had effectively been paid off by Atari to prevent the company from producing more 'enhancement kits' for its arcade games (it had already produced an upgrade kit for Atari's *Missile Command*), but the company produced *Food Fight* regardless and offered it to Atari for release in arcades. It never received a port to the Atari 2600, but, in 1984 – prior to Atari's purchase by ex-Commodore boss Jack Tramiel – it was converted to the new 7800 console which would ultimately be mothballed until 1986. Lou Brooks supplied the slapstick cover artwork which calls to mind the classic 'rubber hose' animation style popularised by studios such as Disney and Fleischer in the 1930s – a style resurrected more recently by the Xbox One and Switch title *Cuphead*.

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Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Robotron 2084

Unquestionably one of the most iconic arcade shooters of all time, *Robotron 2084* was created by Eugene Jarvis and Larry DeMar and was released by Williams Electronics in 1982. The top-down action takes place in the year 2084, where robots have risen up against their creators. Faced with a seemingly endless flood of robotic enemies, the player was tasked with repelling the incoming hordes while saving other humans. A twin-stick control system enabled players to shoot and move in different directions, but this interface was sadly not retained on the Atari 5200 and 7800 conversions. Even so, the latter was hailed as a close port of the arcade original upon its release. Eager to leverage coin-op classics to push the recently launched 7800 console, Atari produced a conversion that looked and sounded very much like the real deal, giving 7800 owners a true slice of arcade history in the process. The cover artwork shows the hero of the game shielding a mother and child from the encroaching robot hordes, seemingly unaware that a hostile mech looms behind them. The bold, cartoon-like look is perhaps at odds with the rather violent subject matter, but it's a fantastic cover nonetheless – which is probably why Atari used it on the 2600, 5200 and 7800 versions.

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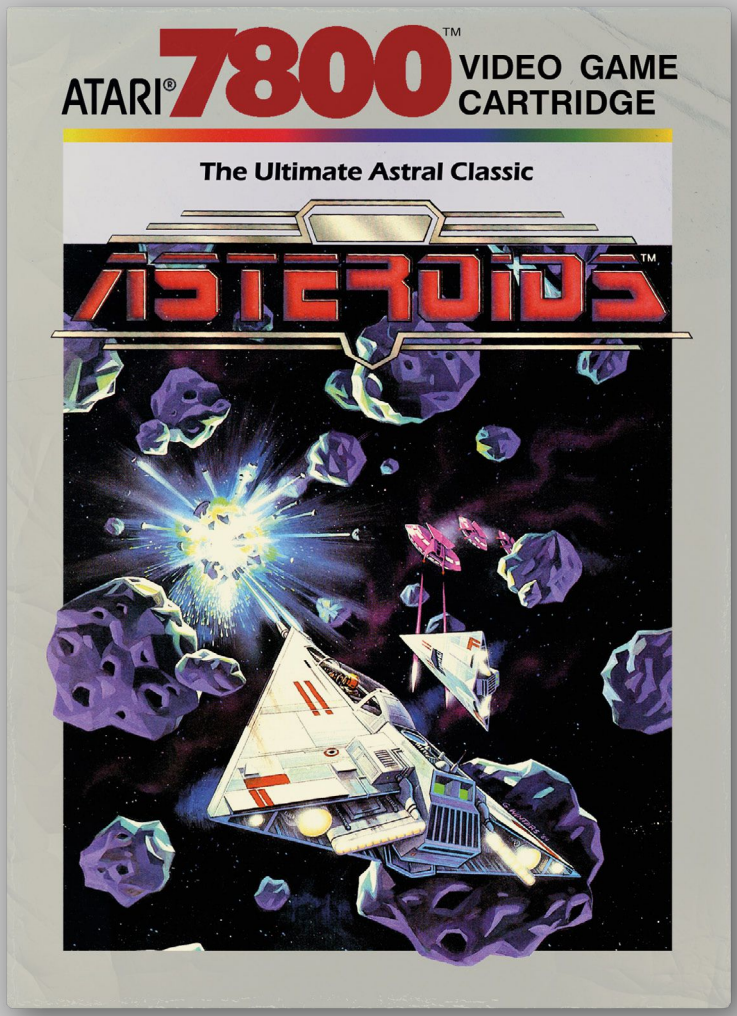

Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Asteroids

This port of the 1979 original featured improved visuals, sound and gameplay elements and was another of Atari Corp's attempts to leverage its arcade back catalogue to propel the 7800 console to success. As well as the standard gameplay mode with alternating multiplayer, 'Competition Asteroids' allowed you to compete with another player for bragging rights. Both players appeared on screen simultaneously, and were capable of destroying one another as well as the titular asteroids. A second new mode – dubbed 'Team Asteroids' – was a more cooperative affair, with two players sharing the same lives, and friendly fire being non-existent. While this 7800 update was so much more than a simple arcade conversion, it perhaps gave the impression that Atari was relying too heavily on past glories when it came to 7800 software. Still, Greg Winters' fantastic cover artwork was at least eye-catching and appealing, and takes more than a little inspiration from the design of the snow speeder craft seen in *Star Wars: The Empire Strikes Back*.

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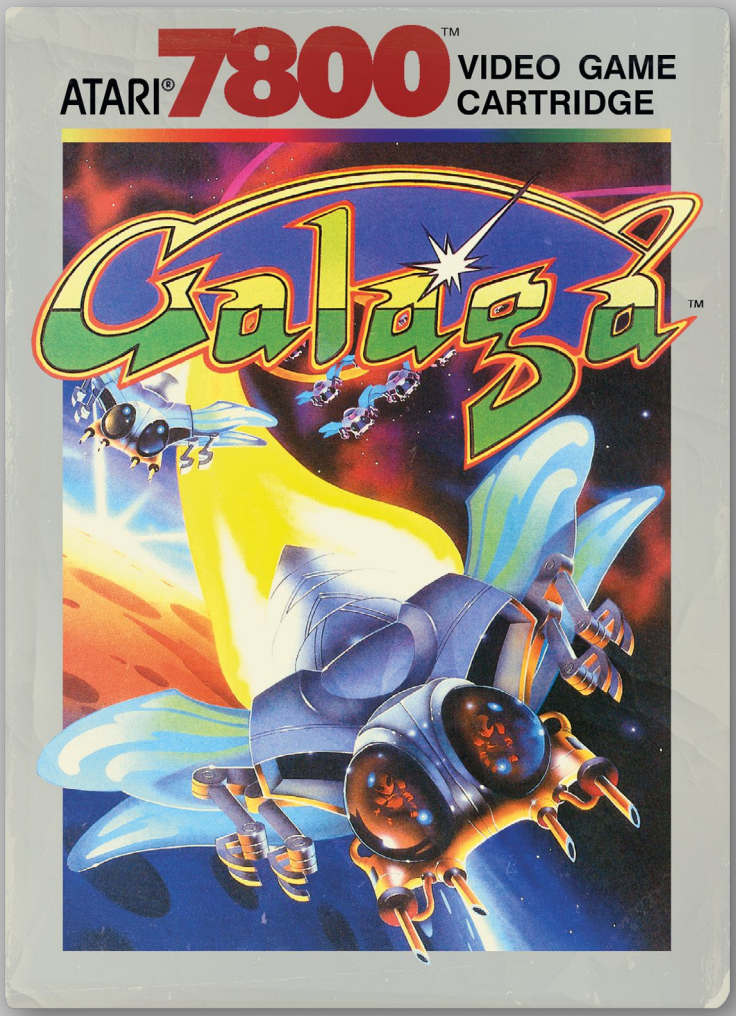

Platform
7800

Released
1986

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Galaga

The Atari 7800 may have been going up against the Nintendo Entertainment System and its bumper crop of exciting Japanese games, but it was still incredibly reliant on arcade hits from a bygone era – as was evidenced by a port of Namco's ageing *Galaga*. While the conversion work is excellent, with the 7800 hardware more than capable of delivering an accurate facsimile of the 1981 original – it could hardly have been considered cutting-edge in 1986, when it was released alongside the much-delayed console.

Marc Ericksen's stunning cover art was inspired by his service in Vietnam, and he called to mind the gun mounts on combat vehicles when designing the alien ships. Ericksen wanted the guns to look more like needles, however, and, while it was still clearly a machine – complete with aliens visible within the eye-like windows – the hostile craft would retain an insect-like appearance.

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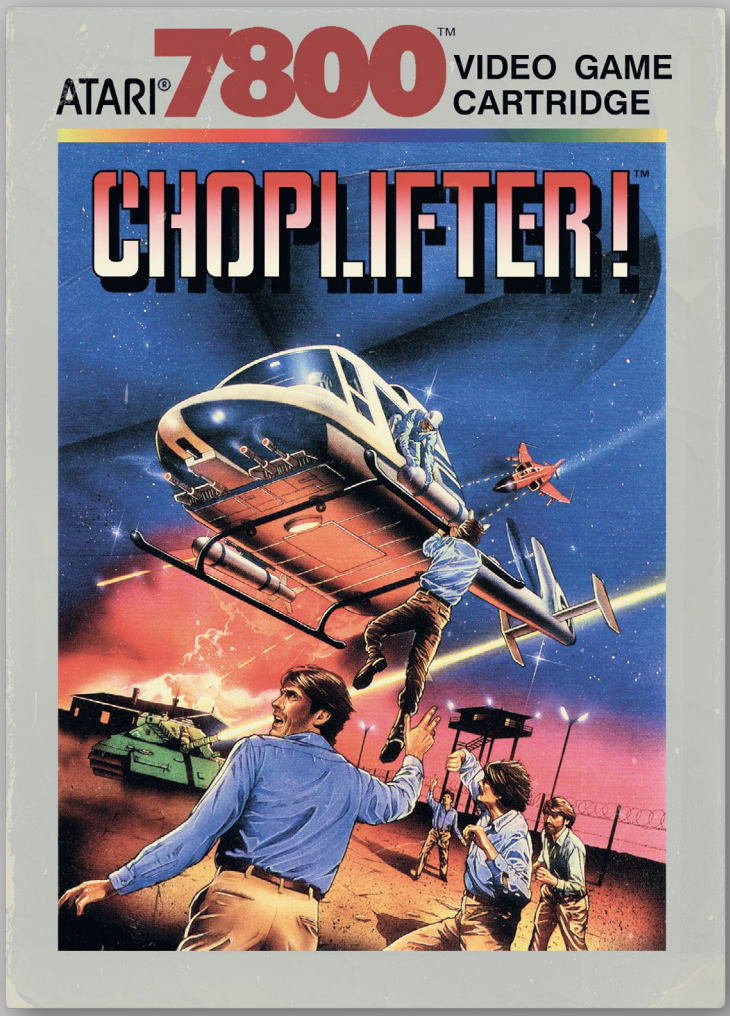

Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
Ibid, Inc.

Publisher
Atari

Choplifter!

Hailed as an instant classic upon its initial release on the Apple II in 1982, *Choplifter!* was duly ported to pretty much every other gaming platform of the era, including the ill-fated Atari 5200 console. Placed in the role of a helicopter pilot, the player was expected to save hostages and transport them to the safety of a friendly base while dealing with the unwanted attention of enemy combat units. An Atari 7800 port followed in 1987 – another of the hot coin-op conversions that Jack Tramiel's Atari Corp. hoped would give its new console the edge in the war against the Nintendo Entertainment System and SEGA Master System – and its faithfulness to the original coin-op was clear for all to see. Warren Chang's detailed artwork graced the game's cover, and did an excellent job of conveying the hair-raising action that players could expect when they slotted the cartridge into their shiny new Atari 7800 console. The lurid colours – especially the bright pink and orange shades – stand in striking contrast with the silver box design which was common for 7800 releases.

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Fathom

"*Fathom* represented my departure from black screens and outer space games. The game started out as a graphic of a dolphin jumping out of the water. I started with this animation and just made up the game as I went along – and it shows! I never really knew what I was making until the end, and, by that time, it was too late to go back and fix stuff. Another two-play pattern game, *Fathom* was played by the player navigating either a dolphin or a seagull. The underwater gameplay came first, and I never liked it; I was always planning to go back and rework it, and then ran out of time. The seagull gameplay is much more satisfying, with an elegant 'flapping' mechanic lifted from the coin-op hit *Joust*.

"What I wanted to do, but never did, was revisit the underwater gameplay using the same sort of flapping mechanic to give the dolphin more grace and glide, instead of the rough way it darts around. I would have needed another month to fix *Fathom*, and I really wish I had lobbied for that month!"

Rob Fulop, designer and programmer

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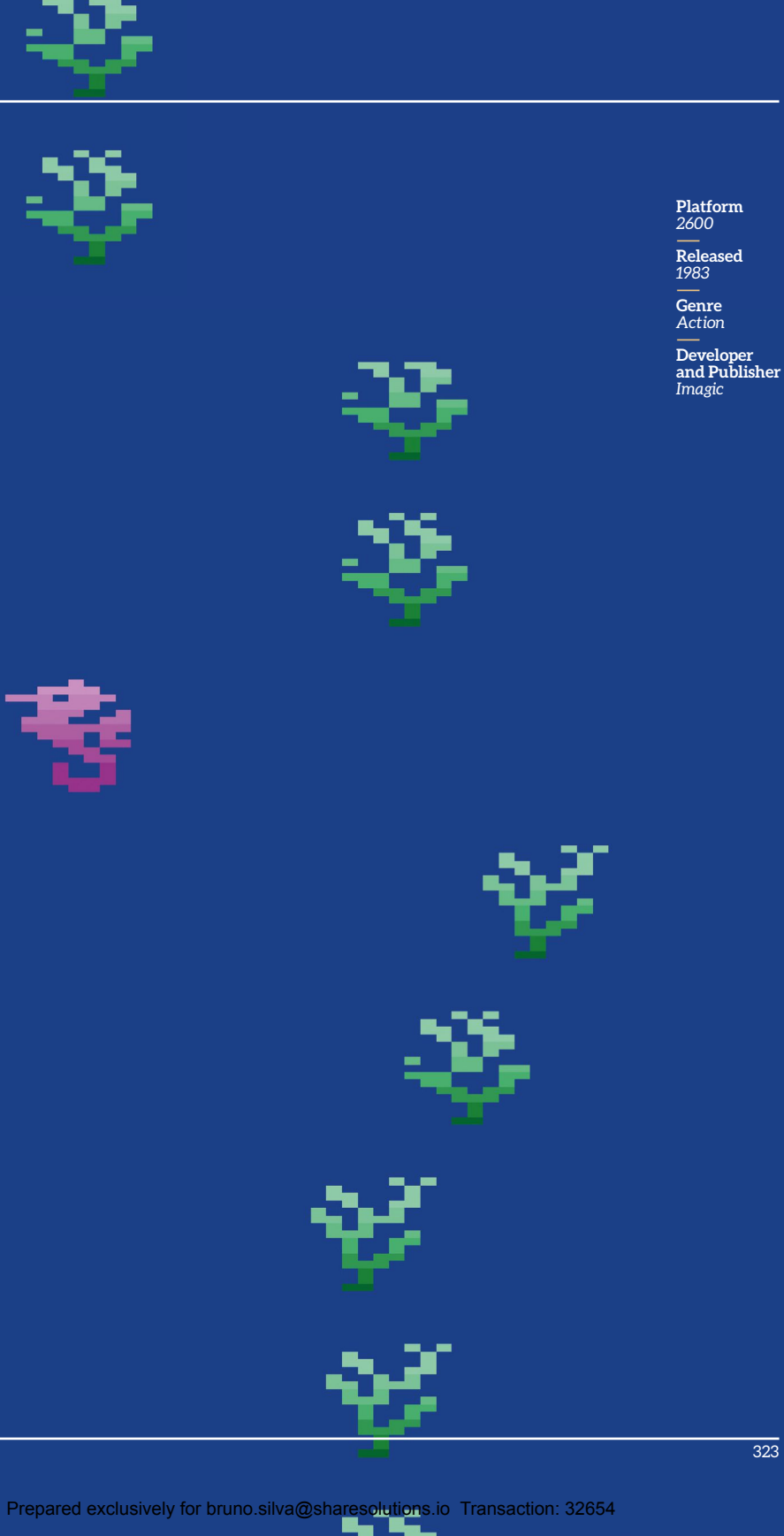

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Imagic

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Platform
2600

Released
1983

Genre
Shoot 'em up

Developer and Publisher
Activision

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Seaquest

"*Seaquest* was perhaps the world's first 're-skin'. A space game called *Defender* was very popular in the arcades at the time, in which players piloted a ship flying horizontally across the surface of Mars. The goal of the game was to shoot the enemy ships, blow up space mines, and pick up survivors. In *Seaquest*, players piloted a submarine horizontally through the water. The goal of the game was to shoot enemy submarines, blow up killer sharks, and pick up divers. I basically took *Defender* and re-skinned it with an underwater theme.

"Shortly after the game's release, Activision was sued by an undersea salvage company called Seaquest, Inc. They claimed I had stolen the name and game idea from their business. The suit was based largely on the copyright on the back of the box that mentioned picking up sunken treasure. I had to explain in a deposition that I had never heard of their company, that the name *Seaquest* had been loosely based on an old classic TV show called *Sea Hunt*, and that there was actually no buried treasure in the game – the copy on the back of the boxes in those days was simply used to create a fantasy in the player's mind."

Steve Cartwright, designer and programmer

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Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Bit Corporation

Bobby is Going Home

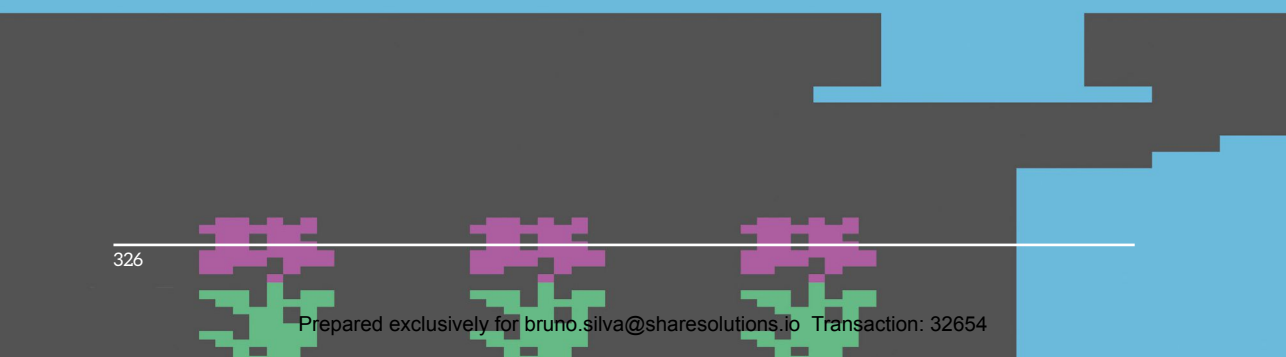
"*Bobby is Going Home* may be the most globally popular Atari 2600 game that almost no one in North America had an opportunity to play in the 1980s. Its ubiquity mainly confined to regions of the world that use PAL format television, Bobby was found on countless cartridges, multicarts and various clone consoles with built-in games. Chances are that anyone familiar with it will have lived in a region where the Atari 2600 made international inroads (e.g. Europe, South America, Oceania).

"A simple adventure game, *Bobby is Going Home* is one of nine titles distributed by Bit Corporation, a Taiwanese company that was likely the original source for a great number of distributors and 'pirate' reseller companies. The player's task is to guide Bobby on a multi-screen journey past perils and pitfalls, all the while accompanied by a decent rendition of the familiar Christian hymn *What a Friend We Have in Jesus*.

"Notable as an early video game that gave the player aerial control of their character during a jump (à la Super Mario). The precision control is needed to successfully navigate past erratic flying obstacles, as well as to conquer the greatest threat to most players: the collapsing bridge.

"*Bobby is Going Home* is tougher than it appears, especially if one tries to maximise their score, which is based on the time it takes to complete each screen. Though the background scenery is relatively attractive, and the game is well remembered enough to have inspired a 2016 song and music video, there ultimately isn't very much to make the gameplay stand out from other early platforming video games."

Rob Wanenchak, guest reviewer



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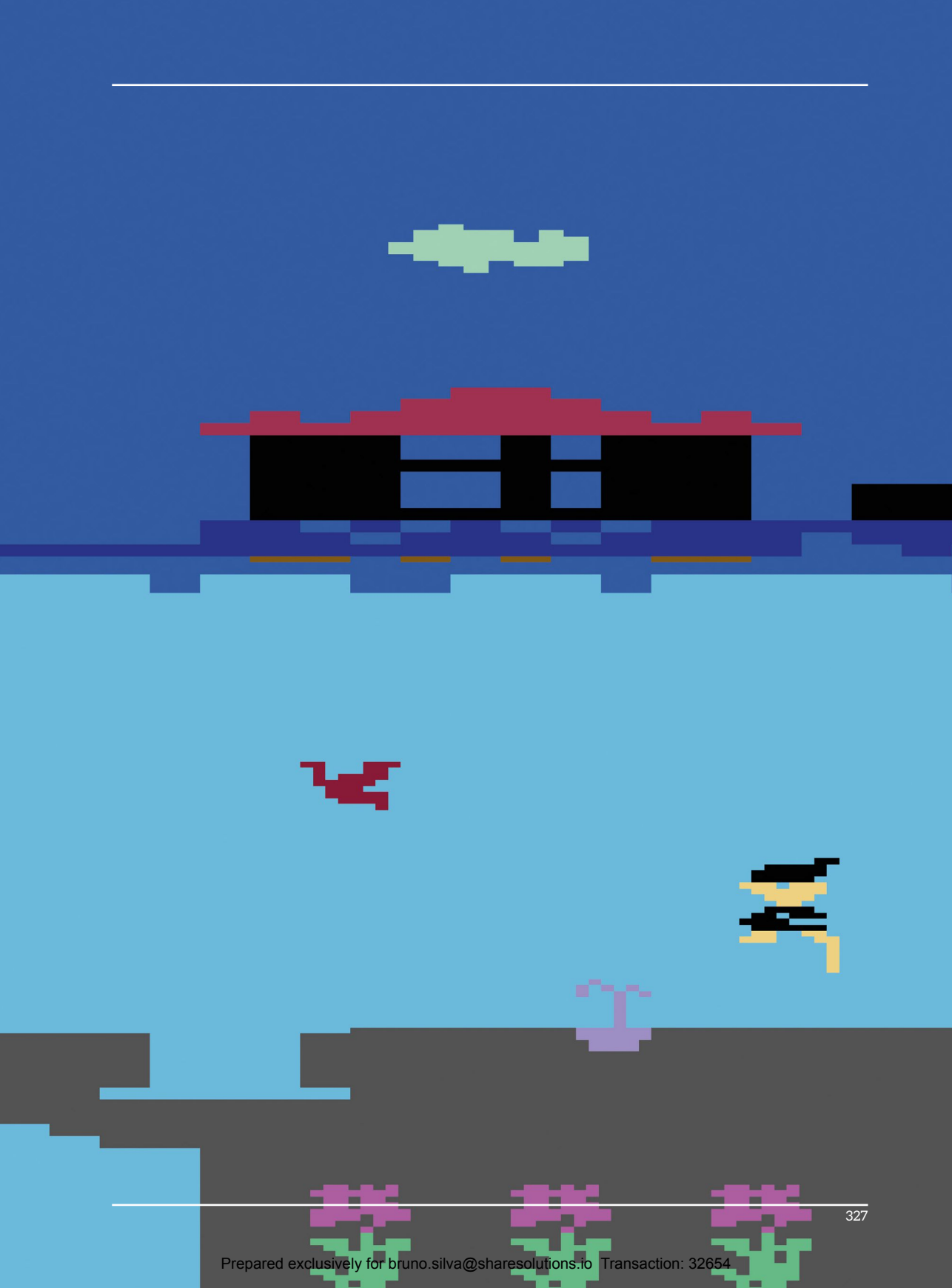

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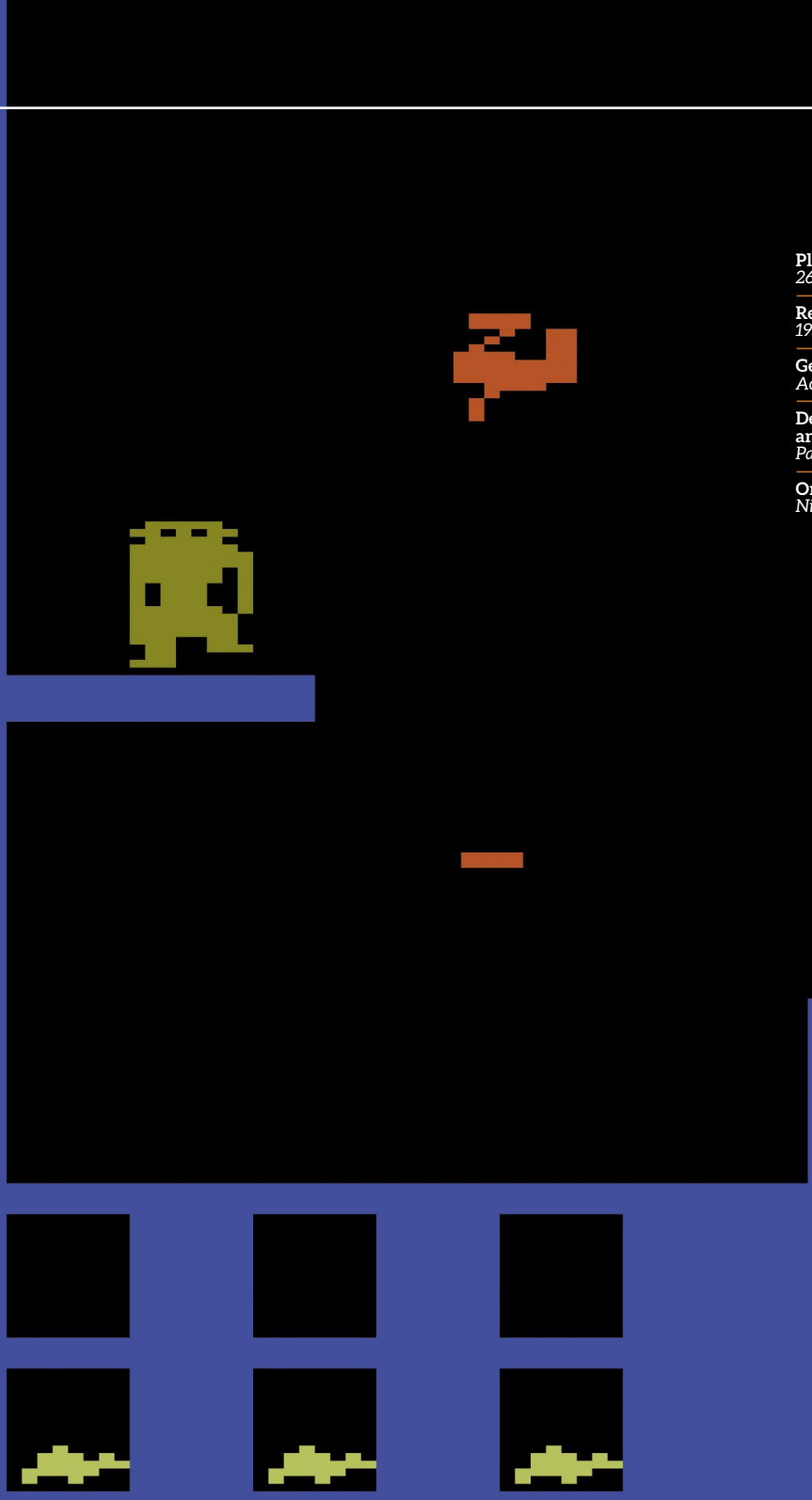

Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Parker Brothers

Originally by
Nintendo

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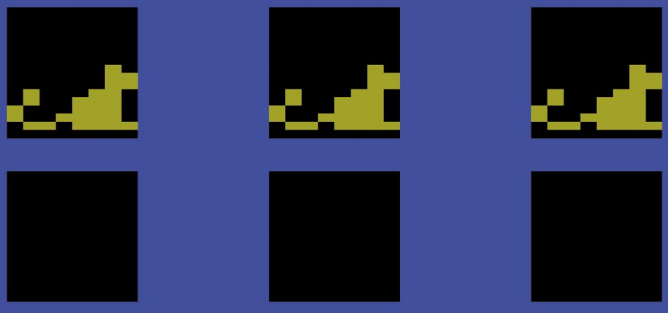
Sky Skipper

"Nintendo's *Sky Skipper* didn't test well in the arcades and was mainly recalled and converted to *Popeye*. When *Popeye* was licensed to Milton Bradley for the Atari 2600, *Sky Skipper* came with the deal. The Atari port was the only way many people experienced this Nintendo rarity until emulation came about. And, without any indication that this was a Nintendo game, many don't recognise it as part of the Donkey Kong Extended Universe (DKEU). Okay, maybe that's a little bit of a stretch, but it does have giant apes. Said apes, along with the titular biplane, are about all that *Sky Skipper* for the Atari 2600 has in common with the arcade game. In the Atari version, you drop bombs on gorillas and collect what appear to be cats in a primitive cityscape. It lacks the colour, gameplay, and sheer wackiness of the arcade version, but *Sky Skipper* remains a cool footnote in Nintendo's pre-NES history."

Samuel Claiborn, games journalist



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“There was a lot of playtesting. You’d know if your game was any good by how many people played it at lunchtime.”

Rob Fulop, game designer, programmer and co-founder of Imagic

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Atari 2600 game cartridge

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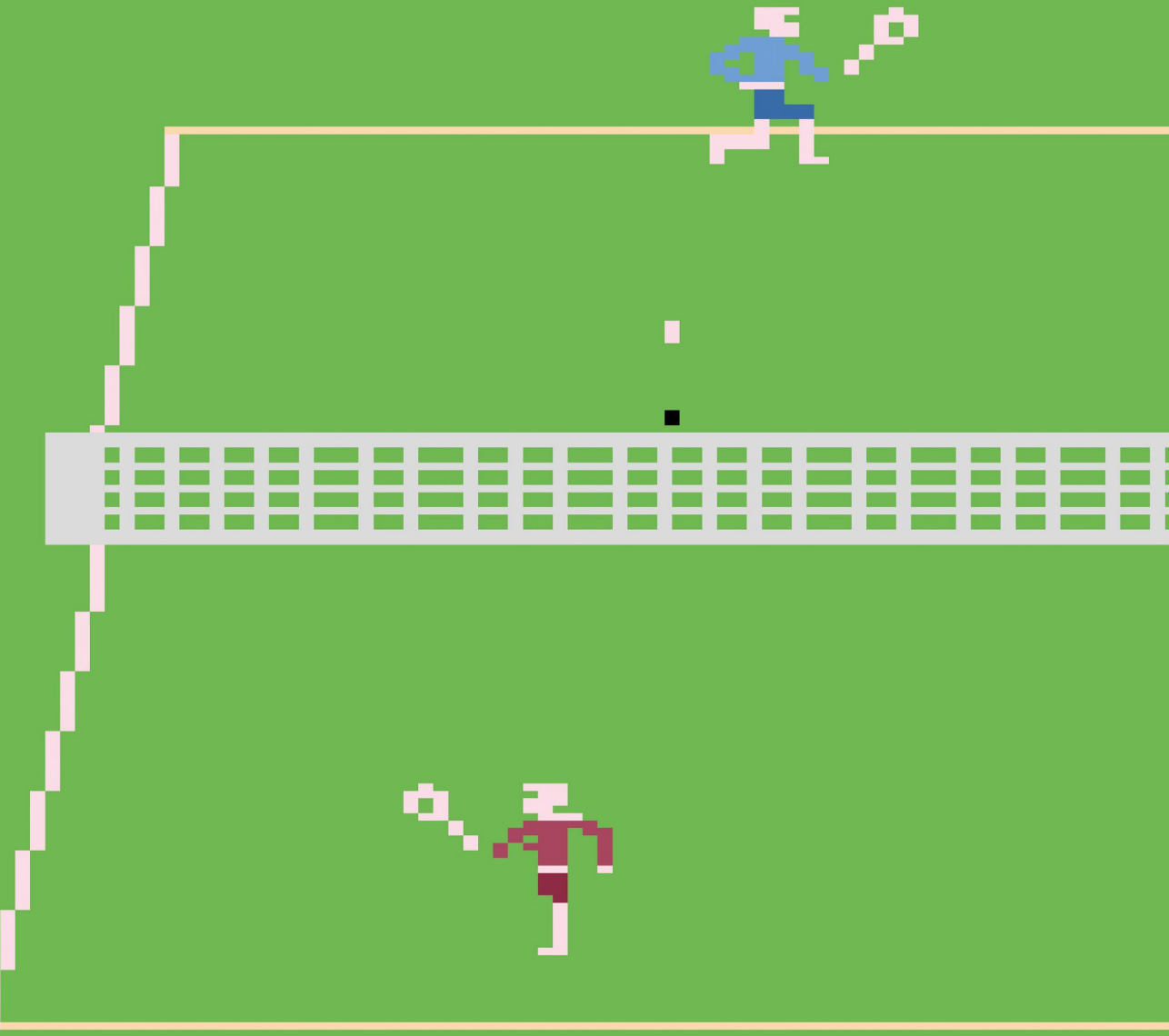

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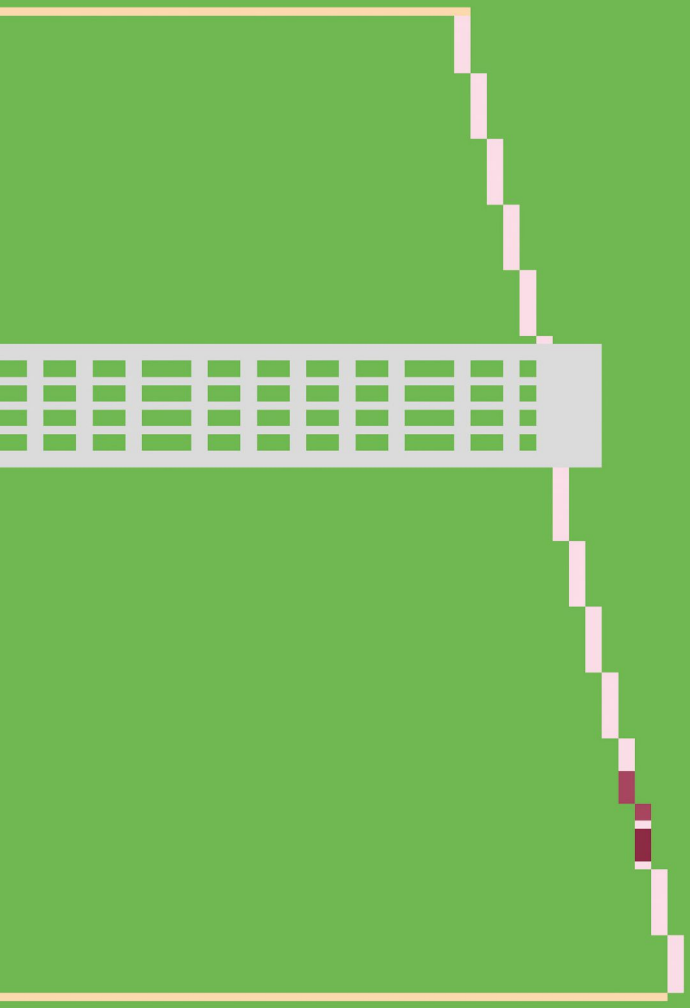


RealSports Tennis

Atari's RealSports series was developed in response to Mattel's aggressive advertising for the rival Intellivision console, which depicted well-known sports commentator George Plimpton comparing sports games between each system. This series of TV and print advertisements made the Intellivision look leagues ahead of the industry leader, and Atari knew it had to step up its game. Although a multitude of different sports were covered, this tennis simulation remains the most impressive and playable. Among the advanced features on offer are multicoloured sprites, a 3D perspective court, selectable CPU difficulty levels, and even the ability to enter your initials on the scoreboard – a first for the Atari 2600! There is also a multitude of different shots on offer, a two-player mode, and some pretty realistic ball physics too. This also represents one of the very few times that Atari genuinely one-upped its former colleagues at Activision, as this title is a big improvement over its own tennis game. In fact, you could convincingly argue that *RealSports Tennis* is the best sports game released for the 2600, full stop. It's certainly a must-have title for sports fans, and the rest of you will probably find it a lot of fun too!

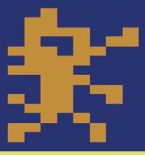
Platform
2600

Released
1983

Genre
Sports

Developer and Publisher
Atari

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654



Pooyan

"*Pooyan* can almost be considered a sequel to the fairy tale *The Three Little Pigs*, but, this time, the wolves have the advantage in numbers! You play as Mother Pig who must save her kidnapped Piglets (Pooyans) from the evil Wolves. She may have learned a thing or two from Sylvester Stallone's Rambo since she came prepared with a bow and arrows as well as bait to fight back. Even the instruction manual states that she is 'full of hate for the Wolves'. Don't mess with Mama!

"The gameplay has you move Mama up and down, shooting at wolves as they drop down the screen on balloons. They come equipped with rocks to throw at you and shields to block your arrows. If a wolf makes it to the bottom, it will come up from behind to try and bite you. A second level has a boss wolf appear as you stop the other wolves from floating up to the top.

"While not as technically impressive as the original arcade version, *Pooyan* on Atari 2600 is still a fun romp that retains its spirit. The sprites hold a certain charm also."

David Giltinan, games journalist

"Konami's *Pooyan* riffs on the classic fairy-tale battle between pigs and wolves – in this case with a mother swine attempting to recover her kidnapped piglets (Pooyan) from the vicious beasts. The text on the back of the box suggests that Mama was 'full of hate for the Wolves', so perhaps *Pooyan* has a harder emotional edge than the cartoonish cover art suggested.

"You'd get none of that from the game itself, however. Ported over from the lusciously colourful arcade original, *Pooyan* loses much of the game's charm and character on the way to the Atari 2600. The simpler graphics can't convey the action or setting as well, and the smooth, detailed coin-op aesthetic became clunky on the console.

"Even so, there's still fun to be had. *Pooyan* sees piglets lower and raise Mama on an elevator as she fires arrows at wolves floating down from a top ledge via balloons. Konami then flips the script, sending the attackers floating upwards from the ground. It's an entertaining premise, albeit one that's much tougher to appreciate at home. Like *Pac-Man*, it's a prime example of newer, better arcade hardware creating challenges for Atari 2600 porters."

Andrew Hayward, games journalist

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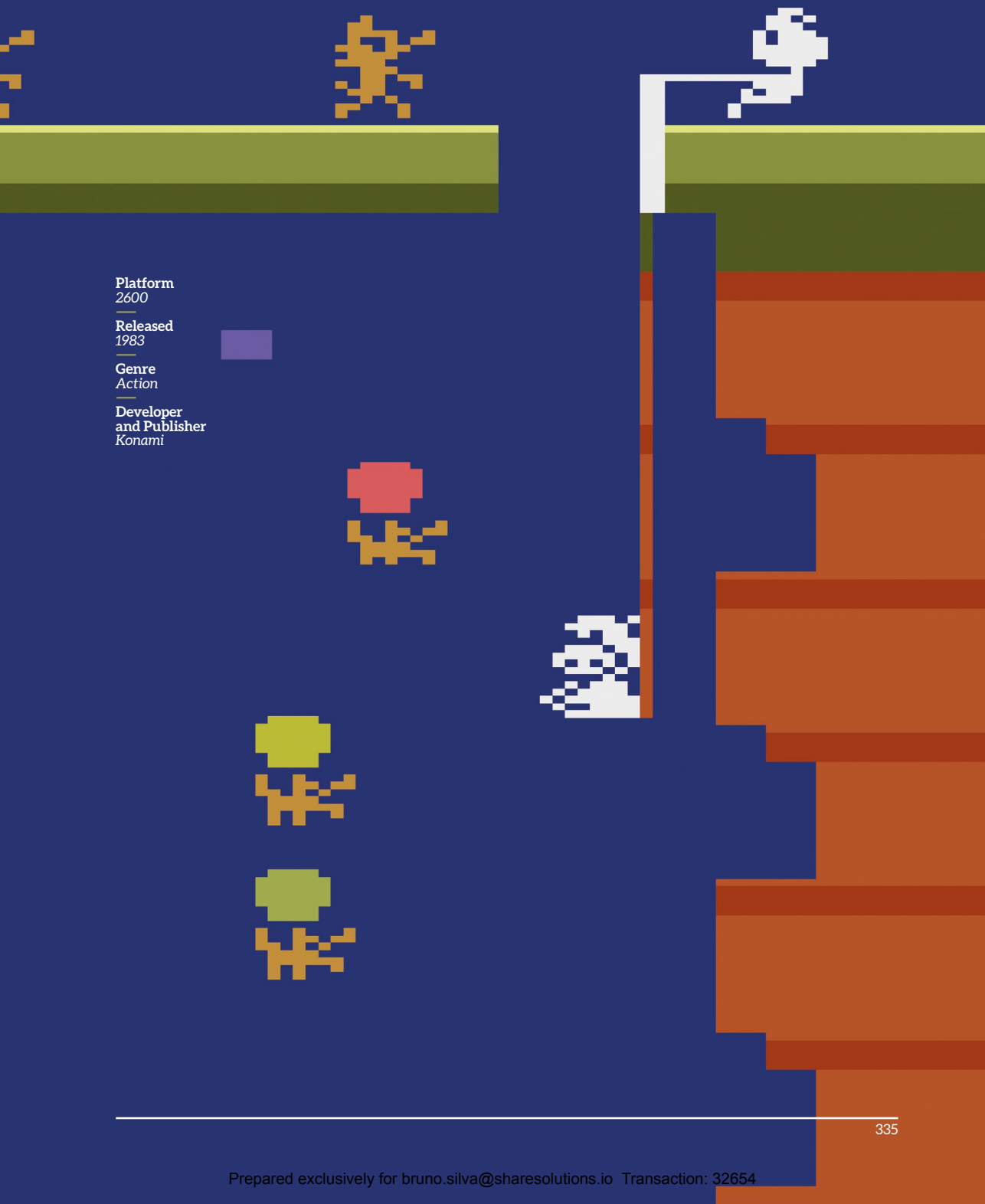


Platform
2600

Released
1983

Genre
Action

Developer and Publisher
Konami

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

An interview with Steve Woita

Like many children in the late '70s, Steve's love for the Atari 2600 began at home as child where he enjoyed playing games with his family. Years later, this love and fascination with the 2600 led to him working for Atari and making games for his beloved VCS. Although his output for the 2600 isn't huge compared with other developers, it's significant as his games include a number of 'firsts', such as Quadrun, *which featured sampled speech – something not attempted on the 2600 before – and* Taz *and* Asterix, *which were the first video games to feature these well-known characters. Steve's journey to Atari is also notable as his previous job was at Apple, where he directly worked on the Apple II and III, operating alongside and learning from Apple legends such as Steve Wozniak and Andy Hertzfeld. Nowadays, when Steve's not working on a game, he's playing games, reading about games, or writing about games.*

What were your first memories of video games?
The Atari VCS/2600 was the first game console in our household, and in most houses that I knew of at the time. It sat on top of our 25-inch wood console TV set in the living room. When company came over, it was always a blast playing games together. My aunt would laugh hysterically every single time she crashed her plane into a barn in *Barnstorming*! Playing the *Blackjack* game was always fun; it really felt like you were playing against a real dealer.

Did you have a favourite 'go-to' 2600 game?
I always liked playing *Seaquest* by Activision, which happened to be programmed and designed by my friend, Steve Cartwright. I also played a lot of Rob Fulop's *Demon Attack* game from Imagic; my dad always loved the sound effects coming from the flying enemies as I was playing the game.

The 2600 was a big deal in North America, wasn't it?
Of all of the consoles that were out at the time, the Atari VCS (Video Computer System) caught on so quickly and was, by far, the most popular game system out there. Some of the reasons why this is such a memorable machine include the way the console looked, the fantastic box it came in, which showed all of the possible games that you could get for it, and the large variety of games that were available that were packaged so nicely. But I really think the major reason is due to the games. Most of the games were easy to figure out and get into. You couldn't hide a bad game behind some super fancy graphics; you had to have gameplay. The games had to be easy to learn and hard to master, and most of them fit that motto. We were trying to develop games for everybody to play.

Combine that with the fact that a lot of kids and adults received the Atari VCS as a gift for Christmas/holiday made it a truly memorable and magical experience that's still talked about to this day.

At what point did you decide you wanted to work in the games industry?
I've always loved games of all types: board, card, etc. I also loved electronic stuff. As a kid, I was always taking things apart to figure out how they worked.

The first time I played an arcade game was up at Russian River in Sonoma County. My parents would take us up to Russian River every year for vacation. The first thing my brother and I would always do is go over to the arcade/go-cart track and race the gas-powered go-carts. Well, one year, they had more than pinball machines in the arcade; there was a Kee Games *Tank* video arcade game there! My brother and I played it for a long time; I was blown away with how much fun it was! I really like the way Kee Games implemented the left and right joysticks to control your tank for turning left or right; pushing both joysticks forwards at the same time moved you forwards. In conjunction with the firing button on the top of the joystick, all of it made sense and was easy to play. From that point on, I was hooked on everything about video games. I needed to know how these games were made.

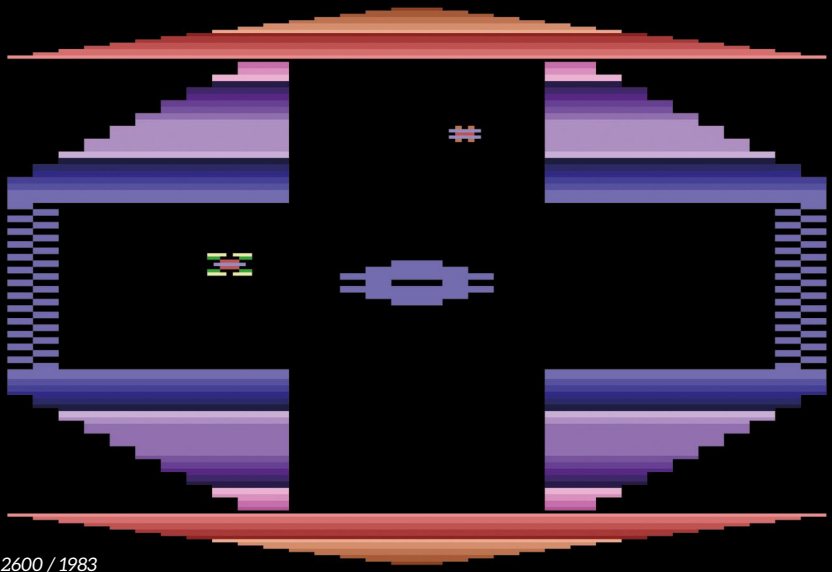
I took Electronics all the way through high school, and I really enjoyed it. We'd learn lots of theory, and then we'd get to make stuff based on that theory. We'd design and build all kinds of electronic kits from the ground up. We'd design circuits, lay out the PCB design, photo-etch the PCBs, which would leave you with just the copper traces you wanted for connections. Then we'd drill all of the holes on the copper pads for the components to be soldered into. We'd also make our own case enclosures out of metal. It was a lot of fun.

One day, when I came to class, I noticed this super cool-looking arcade game machine right behind where I sat: it was a Flim-Flam machine! It was basically like *Pong*, but, not only could you move your paddle up and down, you could move it left and right! This allowed you to completely cover your side of the *Pong*-like tennis court. This game never got played during class, only after school when we'd come in to work on our electronic projects. The coin mech was set to $0.10 per game; the money it made would be put to good use, as you will soon see.

Our high school Electronics teacher was amazing. He installed vending machines throughout the school, along with our Flim-Flam machine, and the Electronics students would keep them maintained. All of the money generated by these machines would be used to subsidise the cost of our electronic kits that we'd purchase. He had an entire equivalent of an electronic parts store in the classroom! You'd open the door behind where I sat, and it was full of well-organised electronic parts. Then there was a pull-down ladder that led to another entire floor of electronic parts for us to buy! I found out in later years that most schools had nothing like this; I was very lucky to have received this great experience. I then ended up being a teacher's assistant for the Electronics class in my senior year of high school.

> *"My aunt would laugh hysterically every single time she crashed her plane into a barn in* Barnstorming! *"*

After high school, I went to engineering school and got my degree in Electronic Engineering. On my way home from college, I'd sometimes stop off at a computer store; I think it was called 'ComputerLand'. I would play with the Apple II that was on display there. I grabbed one of the Apple II brochures, and, and I must say, that brochure – plus goofing around with the Apple II – made me want to work at Apple. The machine was designed so well. I would come to find out later that the internal logic was amazingly designed!



Quadrun / *2600 / 1983*

During my last quarter in college, I asked the college job counsellor if she could try to get Apple Computer to come to our college for possible job interviews; she said she'd try. A lot of companies would visit our college to hire people. Back then, we only had landlines, not mobile phones, and old-school letters in the mail. She said that we've got IBM coming down and you might want to interview with them. I said sure, but I really wanted to work at Apple. The IBM interview went very well, except when the guy asked me, *"How do you feel about working till 12 a.m.?"* I said, *"You must be kidding!"* I also interviewed with National Semiconductor and that went really well – they offered me a job! A few weeks later, there was a rumour that Apple was on campus. I was in the lab working on some DA/AD converter stuff, and I saw this gal and guy come in, and I knew they were from Apple! I think I said hi to them, and we talked for a while. I ended up driving down to Cupertino and interviewing at Apple. It went very well! A few weeks passed, which felt like an eternity. Then I got the phone call with the news that I got the Apple job! I was so happy, but now I had to call National Semiconductor and turn down their offer. This was the hardest phone call for me to do at that time. I felt bad, but I had to go with my gut.

WOW! What was it like working at Apple?
I started working at Apple Computer on February 18th, 1980. My badge number was in the 600s. I interviewed in several departments. I wanted to understand exactly how Steve Wozniak designed this machine, so I felt the best place for me to work was on the line, fixing Apple II motherboards. For example, I would get a board with masking tape on it that said 'no video', and I'd take a schematic that Wozniak came up with and follow the logic to debug it down to the chip level. Most of the Apple II was made of discrete components. It truly was the best way for me to fully understand the logic design of the Apple II. I learned on my own how to program a 6502 with the built-in Apple II mini-assembler.

It always bothered me that text on the Apple II appeared to be fuzzy. I came up with a solution for fixing this colour-noise leak issue by replacing a specific resistor on the motherboard with a different value resistor. To my amazement, it was approved by my engineering hero, Steve Wozniak, and put into subsequent production. I fixed Apple II logic boards (thousands of them) for about a year and half, and then went to Apple R&D.

I worked on the Lisa machine for a bit, and then my friend, Dan Kottke, wanted to go to a new group that was going to work on a machine called the Macintosh. At this point, the Apple III was already out in the marketplace. So I ended up taking Dan's spot, working with the engineer that designed the Apple III to try and help him identify what was wrong with the machine.

After the Apple III stuff, I was assigned to work with a great logic designer as his Engineering Technician on the Apple IIe and both of its custom chips, which were named 'Adam' and 'Eve' (IOU and MMU). My job was to take his designs and wire-wrap and debug them until they both worked. I was also making sure that older hardware peripherals and software from the Apple II were compatible with the new Apple IIe. One thing that was unheard of at that time was to get working silicon on the first try, but Adam worked, and then Eve worked also – all on the first try. It was a blast to get the very first Apple IIe up and running; I'll never forget that moment!

While at Apple, I learned some cool bitmap graphic tricks from the following people at Apple: Bill Budge, Andy Hertzfeld and Keithen Hayenga. Bill Budge asked me if it was possible to hook two Atari-style controllers to the Apple II (for the *Crazy Climber* game). I said, *"Well, let me give it a try."* After a while, I got something going. Then I found out that another guy (who was currently working in same building, not too far away from the lab) had a four-paddle design thing going; it turned out to be Keithen. To make a long story short, we mixed the two designs together and we got the okay from Apple to have it produced outside of Apple. Sirius Software acquired the rights to produce and ship this product, and the company even sent Keithen and myself royalty cheques! I was very ecstatic as it was my first experience with the royalty thing. The device ended up with a weird name: the JOYPORT. It was introduced in 1981 for the Apple II, and allowed you to have four game paddles and two Atari-style controllers hooked up to the Apple II.

How did you then get your job at Atari?
Later on, Keithen told me that he was interviewing at Atari, and then he was made an offer to work there. I also thought it would be cool to work at Atari since I loved the Atari VCS/2600, and having a chance to make games for that machine would be a great experience. I had just finished up my work on the new Apple IIe, and seeing all of the cool games running on it really made me want to design and program games even more!

Asterix */ 2600 / 1984*

Taz */ 2600 / 1984*

I was still employed by Apple, and I figured I'd take my lunch break and go interview at Atari, which was located at 275 Gibraltar Drive in Sunnyvale, CA. As I opened the doors to get in, I heard a very, very loud whip sound! I didn't know what was going on! Then, around the corner, dressed in an Indiana Jones outfit and cracking a whip, was none other than Howard Scott Warshaw! I think his Indiana Jones game was being tested at the time. Man, this sure was a culture contrast to being at Apple! My interviews went really well, and I was offered a job.

I really liked Apple (I always have), so it was hard for me to take this different career path. But creating Atari VCS/2600 games was an extremely rare opportunity. Apple was very supportive of my decision. They said, if it doesn't work out for you at Atari, please feel free to come back. They were all so nice; they got me this giant going-away cake with the old-school Apple rainbow logo on it!

My time at Atari, working on the Atari VCS/2600, was completely a once-in-a-lifetime experience. To this day, I feel very fortunate to have worked there. It really never felt like work to me. I was always so excited to go in every single day and get my work done. It was always such a blast to go out to lunch and dinner with all of my co-worker friends. The people there were completely unique, and I miss them all so much. I really loved that place.

"I had just finished up my work on the new Apple IIe, and seeing all of the cool games running on it really made me want to design and program games even more."

Do you remember seeing your first game released?
One of my lasting memories was when I finished *Taz* for the Atari 2600 VCS. It was the very first video game that I designed and programmed that got shipped to the game stores and shops in the USA.

I remember when I was a teenager and would visit stores to see what was new for the VCS, and was always excited to buy and play the new games. Fast-forward a few years later, and now my first game is out there somewhere in shrink-wrap. Clearly etched in my memory was the first time I saw my *Taz* game in a local department store called Gemco. I remember walking down the aisle towards the Atari 2600 games, and then I saw my game on the wall next to the other Atari 2600 VCS games. I just stood there frozen in total amazement, realising that all of that work was truly worth that moment.

What was the process for making games at Atari?
Releasing a game at Atari was a major amount of work. You'd get an idea and get the go-ahead to work on it, and then, when it's at a certain point, you'd have a playtest/focus group for the game. One of the focus group sites was located in Seattle, Washington. I couldn't believe all of the TVs with *Taz* on them and all of the people playing my crazy game! Once all of the information came back, you'd usually get the green light or be subtly told to work on something else. I got lucky with *Taz*; it tested very, very well. I couldn't believe it; my crazy game is going to happen! At this point, I went on and finished the game. When I thought the game was done, I'd submit it for testing, which entails more than two hundred hours of brutal testing. If a bug was found, it would need to be fixed and then resubmitted for another two hundred hours of testing. I got lucky again: not one bug was found.

Now, at this point, the game is done code-wise and the testing department signs off on the game. This is just the beginning of a ton of signatures I need to get to have this game officially be an Atari product that will be manufactured. One of the last signatures I had to get was from one of our in-house Atari lawyers. I remember going to that building early in the morning and knocking on his door, and there was no answer. I just sat there in front of his door for a long time until he arrived. I think he said, *"Hey, Steve, what's up?"* and I said, *"I need this signed so I can get* Taz *released."* He looked over the paperwork and signed it, and I was so happy as I walked out of his office!

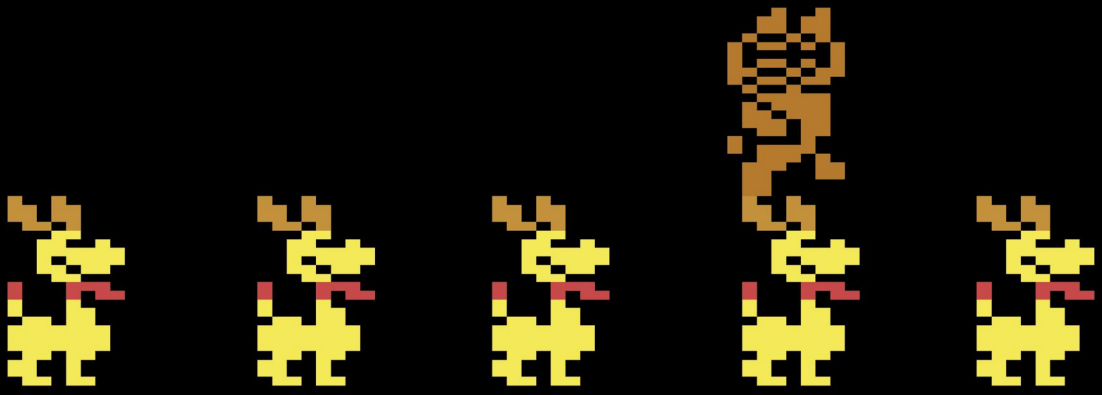
What was the Atari 2600 like to develop for?
The Atari 2600 contains a version of the 6502 called the 6507. The 6507 was essentially the same instruction set as the 6502 except MOS Technology wanted to make a lower-cost version of the chip. To do this, they made the chip smaller by removing some of pins on the chip. The interrupt lines and some of the address lines were removed, so now you could only address 8,191 (8K) instead of the 6502's normal 65,535 locations. The other thing is that there are only 128 Bytes of RAM. That's right, 128 Bytes of RAM, and the 6507 used part of that RAM as its stack!

That 8K of address space is partially addressing the TIA (Television Interface Adapter) registers, leaving 4K Bytes of addressable ROM space for the game, which has to hold the game program, graphics, and sound data. By using a technique called bank switching, you could swap out 4K ROM segments on the fly, so you could now do an 8K ROM game. When I was working on *Garfield*, my plan was to make it a 16K ROM game and swap out 4K ROM segments. Masked ROM prices were falling, so I figured I'd take advantage of that. I never got close to making the game that big, and it more than likely would've been an 8K game when I finished it.

> *"I really loved the Atari 2600 because I was always thinking of how to work with the machine and what I could do with it, without fighting its limitations."*

The Atari 2600 only has five moving objects and a very low-resolution background. Two of the five objects were basically eight-dot-wide player objects (sprites) that the programmer would have to change every scanline or so, with a new pattern of eight dots and the colour of that dot pattern. These two player objects had associated missile objects, and their colour would be the same as its associated player. The missile object can be one, two, four or eight pixels wide and is just turned on or off. The last object is the ball. The ball takes on the colour of the low-resolution playfield background and can be one, two, four or eight pixels wide; this also is just turned on or off.

That all sounds limiting, but there's one more thing: you basically had very little microprocessor time to update these registers on each video scanline: 76 CPU machine cycles, to be exact. You also had to be ahead of the electron beam (CRT/tube stuff) when you updated these registers. The first part of that 76 machine-cycle area is called Horizontal Blank, a tiny area on each scanline just before hitting live video. Depending on the type of game and programming tricks being applied, it's best to get most things updated here before hitting live video.



There are also two channels for sound, and you could control tone, frequency and volume on each channel. I had a lot of fun goofing around with sounds and putting my voice into *Quadrun*.

I really loved the Atari 2600 because I was always thinking of how to work with the machine and what I could do with it, without fighting its limitations. Limitations, in the case of this remarkable game machine, made the programmer/designer focus on gameplay and how to get the most out of every byte and CPU cycle.

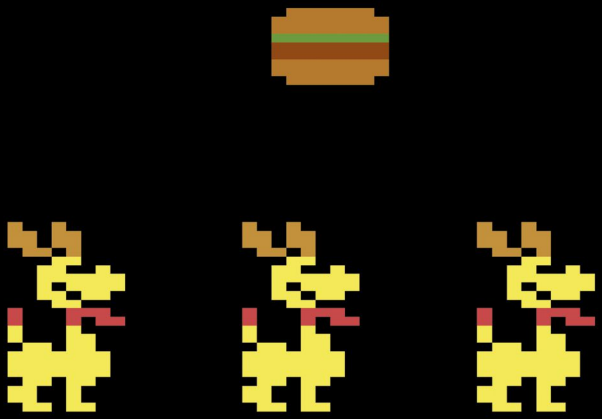
Sampled speech was unheard of on the 2600. How did you manage this in your game,* Quadrun*?
I remember it took a whole day of audio takes to get my voice down to about 700 Bytes! After writing the audio driver to process my voice, I knew that I was going to need as much of the CPU time as possible to process my voice to say, "Quadrun." To get this extra CPU time, I had to shut off the video and process my voice between levels of the game during a blank screen. As levels progressed, I said "Quadrun" faster and faster.

Why did you move on from Atari?
Jack Tramiel bought Atari while I was working on the Atari 2600 version of *Garfield;* I was about three months away from finishing the game. While I was sitting in my office working on the game, I heard the Stormtrooper song from Star Wars playing through our speakers in the hallway. Someone knocked on my office door and said, *"We've been sold to Jack Tramiel."* I guess they had different plans than I had. I'd rather have stayed and finished the game though, but that didn't happen. Maybe it was the royalty deal I had going? My salary? I don't know, but they gave me about six months of severance pay, so that was kinda cool.

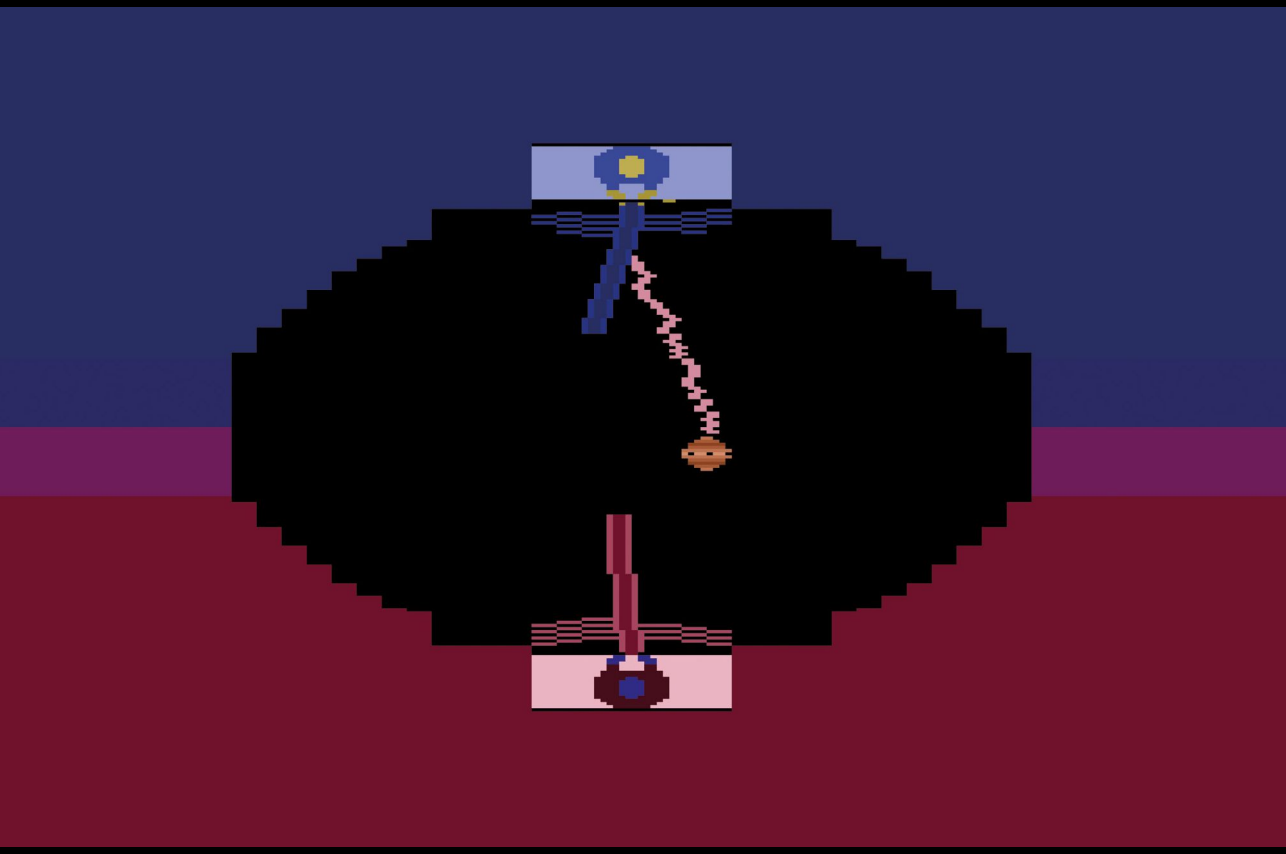
You went on to develop games for the NES, Genesis and Super Nintendo. How did this experience compare with making games on the 2600?
Making games, for the most part, for the Atari 2600 was a solo effort. You really had to be part engineer, game designer, artist, audio person, producer, and overall manager of your game. You really had to do it all. It was a holistic endeavour; you had to oversee it all in order to know what could or couldn't be done in such a constrained development environment.

As time went on in the video game world, newer consoles came out and teams began to form as games grew bigger in scope and asset requirements got larger and larger. Roles that all used to be done by me, and only me, were now made into separate job positions. For example, a lead designer, a producer or two, a team of programmers, and a manager... you get the idea. The solo show was harder to come by. Don't get me wrong, I really love working with people on game projects of any size, but there's something about being the sole judge and jury of what goes into a game that you want to create. It's why I still love the Atari VCS/2600 to this day!

> *"You really had to be part engineer, game designer, artist, audio person, producer, and overall manager of your game."*



Garfield / *2600*



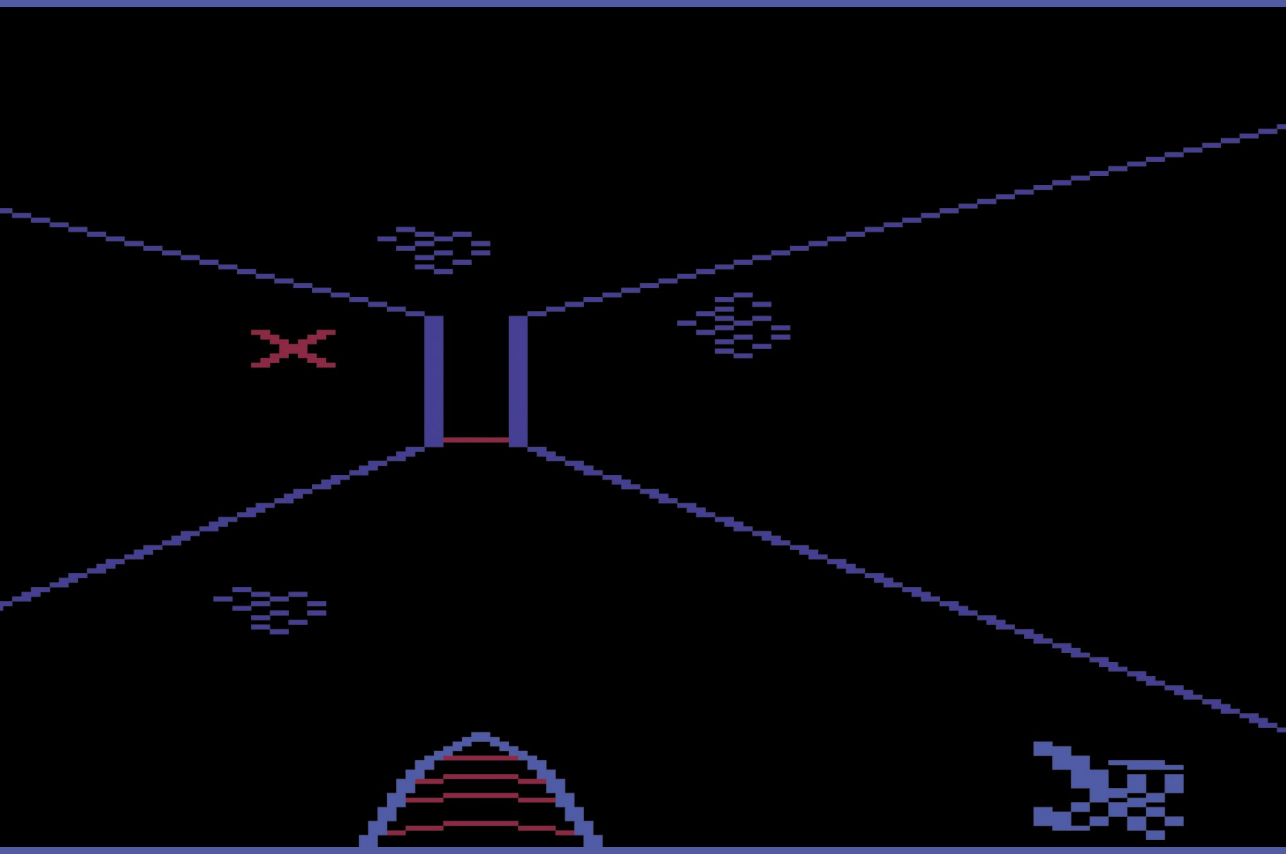
Star Wars: Jedi Arena

"The original idea for the game was that you would use The Force to control a roving metal ball thing (not quite the movie, right?). You would use the paddle and its buttons to exert a magical magnetic push/pull on it, and then unleash an attack somehow or other. It may have been a great idea, or may have been a terrible idea, but, in any event, I could never get to the second base with it.

"In the end, I suggested we turn the game into a form of Jedi *Breakout*. And, since nobody could articulate how to make the original idea work better, that's what I did. The result is generally recognised to be 'Not Exactly the Most Stupendous Star Wars Game Out There', and I take full responsibility. I may have been influenced by being a huge fan of the Atari game *Warlords*, where up to four people can inflict *Breakout*-style mayhem on each other. Now *that* is a very fun game!"

Rex Bradford, designer and programmer

Platform *2600* / **Released** *1983* / **Genre** *Action* / **Developer and Publisher** *Parker Brothers*



Star Wars: The Arcade Game

"*Star Wars: The Arcade Game* was done for Parker Brothers, and under an extreme time crunch. Parker Brothers was primarily a board game company, but wanted to expand into the newly lucrative video game market. They had a deal with Lucasfilm for Star Wars properties, and wanted a 2600 conversion of the popular arcade cabinet developed under the licence. The contract had only five months left to run when programming started, and I finally ran out of time during the 'gate' section of the game sequence. This cartridge was one of the most difficult to let go to the ROM people; if I'd had a couple more weeks, perhaps I could have reduced the flicker more.

"Because of the time constraints, I was working seven days a week. Luckily, the long days were made better as we had an actual *Star Wars* arcade cabinet in the office for reference, which was great fun. I eventually purchased that arcade machine at the auction of Imagic's assets."

Bob Smith, programmer

Platform *2600* / **Released** *1984* / **Genre** *Shoot 'em up* / **Developer and Publisher** *Parker Brothers*

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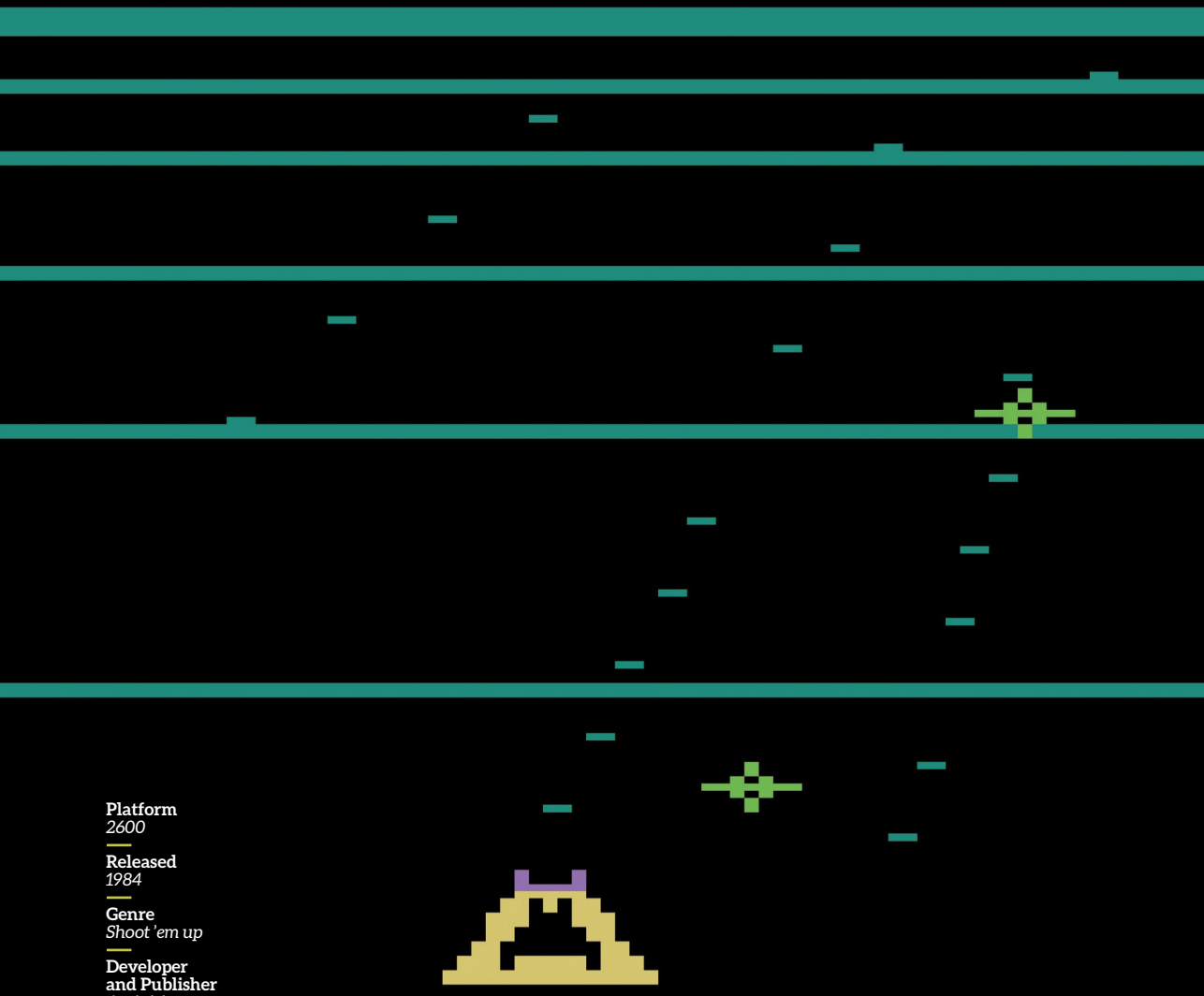
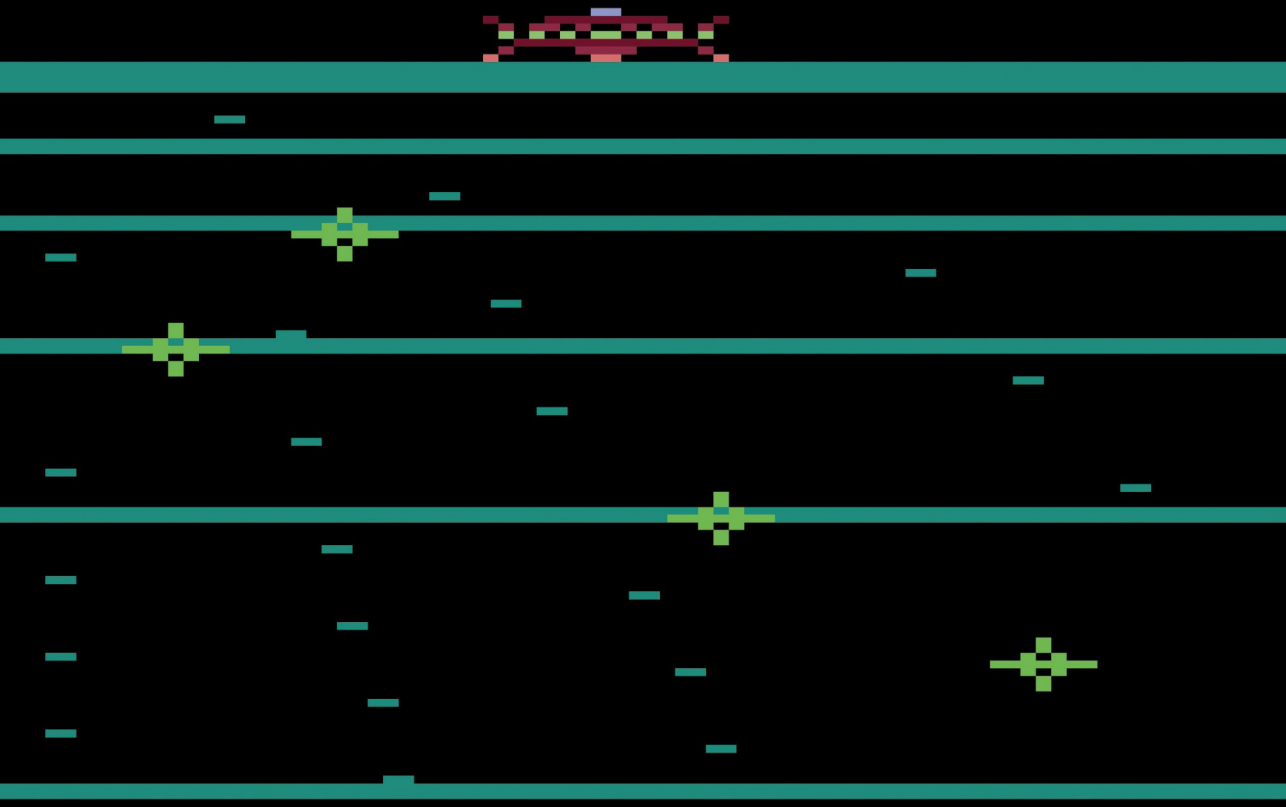


Platform
2600

Released
1984

Genre
Shoot 'em up

Developer and Publisher
Activision



Beamrider

"Activision was the first major third-party developer for the Atari 2600 and became known for its highly polished titles. Among the studio's most frenetic was *Beamrider*, a William Gibson-influenced cyberspace romp of a shoot 'em up. It may not rank among the Activision's best titles like *Pitfall!* and *Keystone Kapers*, but it's still fun to play today.

"In the game, a Restrictor Shield surrounds Earth. Your goal is to destroy each sector's barrage of aliens, which traverse the Shield's beams in order to attack you. Each time you complete a sector, a bonus sentinel ship flies across the screen; if you can, destroy it for extra points before warping to the next sector. Later sectors often add new alien spacecraft, falling meteors and, occasionally, a yellow Rejuvenator that gives you an extra life. Just don't shoot it, as you'll not only miss the bonus life, but have to avoid its deadly remains.

"Visually, the game presents a pseudo-three-dimensional playfield. It's smoothly animated, which was quite a trick to pull off on the 2600, but the graphics and sound effects are merely adequate otherwise. Beware the red flash after you kill each alien – if that bothers you the way it does me, there's a hacked version available on the web from AtariAge forum user RevEng that eliminates it while leaving everything else about the game intact."

Jamie Lendino, guest reviewer

Taz

"It turns out, this was the very first video game that Taz has appeared in. In fact, it's the first time the word 'Taz' was on any product anywhere. After doing some more research, it also appears that *Taz* was the very first released video game that a Looney Tunes character has appeared in.

"I came up with the idea of shortening the original name from 'Tasmanian Devil' to '*Tazz*'. I thought a one-word title for the character, and thus the game, would look and sound very cool. I also liked ending words with a 'z'. I originally titled the game '*Tazz*' with two Z. A Warner Bros. executive flew down to Atari and met with me. Thankfully, he said in the meeting that he liked the game a lot and had only one suggestion: that I drop one of the Zs. I was hoping that they would let me keep the name short, and they did! From that day on, the character has been forever referred to as *Taz*.

"Jerome Domurat was the amazing artist who did the title screen for 2600 *Taz*. He had such limited resolution to work within and only two colours! *Taz* was the first Atari game to feature credits on the box. I really thought it should be known who worked on the games, just like any other form of entertainment. I must say, I had to fight very hard to get the credits on the back of the box, but it was great to see future Atari games from our group get the credits they deserved, on the box."

Steve Woita, designer and programmer

Platform *2600* / **Released** *1984* / **Genre** *Action* / **Developer and Publisher** *Atari*

Platform *2600* / **Released** *1984* / **Genre** *Action* / **Developer and Publisher** *Atari*

Asterix

"Atari 2600 *Asterix* was the very first video game that Asterix and Obelix ever appeared in. Obelix shows up in the second half of the game. It was also the first Atari 2600 game made exclusively for Europe. Originally, I wanted *Taz* to also be a game for Europe, but I was convinced by my co-workers that Taz wasn't well known. We just got the rights to the Asterix and Obelix characters, and we (Atari) wanted to do two separate game cartridges: the first would be an *Asterix* game designed and programmed by me, and the second an *Obelix* game designed and programmed by Suki Lee.

"I had no idea what the Asterix and Obelix characters were about. So I started reading some of the comic books, and I really liked them! While reading them, I was cataloguing what items I should use in the game and it was clear that I would swap the TNT in *Taz* for the deadly lyres of Cacofonix as the bad object to avoid. Both characters hated the off-key tunes from the deadly lyres of Cacofonix.

"I can't say enough about Jerome Domurat who was the amazing character artist on the game. He did the title screen and all of the objects in record time! We miss you, Jerome! I really loved the cover of the box art we got back from Albert Uderzo, which perfectly illustrated Asterix in a typical gameplay scenario!"

Steve Woita, designer and programmer

General Computer Corp.

The story of General Computer Corporation has to rank as one of the most interesting of the early '80s; a true tale of unlikely triumph in the face of adversity, startling innovation and trailblazing commercial success. Formed in 1981 by MIT students Doug Macrae and Kevin Curran, the firm began life creating modified versions of current arcade hits. This was borne out of the fact that Macrae had inherited a pinball machine from his brother, and – alongside three* Missile Command *cabinets and several dozen other machines – they operated them on the MIT campus.

However, despite initial success, Macrae and Curran noticed something worrying. *"When we first got them, our* Missile Command *games on the MIT campus were pulling in roughly $600 a week,"* Macrae told Benj Edwards in 2011. *"If you do the maths, on that, that's one quarter every three minutes for 17 hours a day. The problem became, if a game lasted longer than three minutes, the quarter count would go down, or, if it wasn't being played 17 hours a day because people didn't like it as much, and weren't standing in line to play it, the quarters went down."* Macrae and Curran hit upon a novel solution that they believed would help the entire coin-op industry.

The gradual loss of interest that the partners had observed in Missile Command is something that was very much industry-wide; arcade operators found that they constantly needed to buy new machines because each game had a limited shelf life before it was seen as old and outdated. Curran and Macrae's idea was to produce enhancement boards which could be fitted to existing games and change the gameplay in new and interesting ways, giving a tired old title a new lease of life.

By now, the pair had moved off the MIT campus and rented a residential property which would serve as a base, kickstarting the business with the funds raised from their modest coin-op operation and cash borrowed from Macrae's mother. The team was expanded to six people and work began on pulling apart *Missile Command*, the first of several games the company planned to enhance with its special boards.

"We started disassembling the code to Missile Command *on this emulator, figuring out exactly what all the code did,"* Macrae told Steven L. Kent in 2001. *"Then we designed a board that would mount on top of the* Missile Command *game and would cleverly overlay code that we wrote onto the original Atari code. We were very concerned about copyright infringement because, if we just modified their code and sold new ROMs, we thought we would be infringing on the Atari copyrights and end up getting sued within minutes."*

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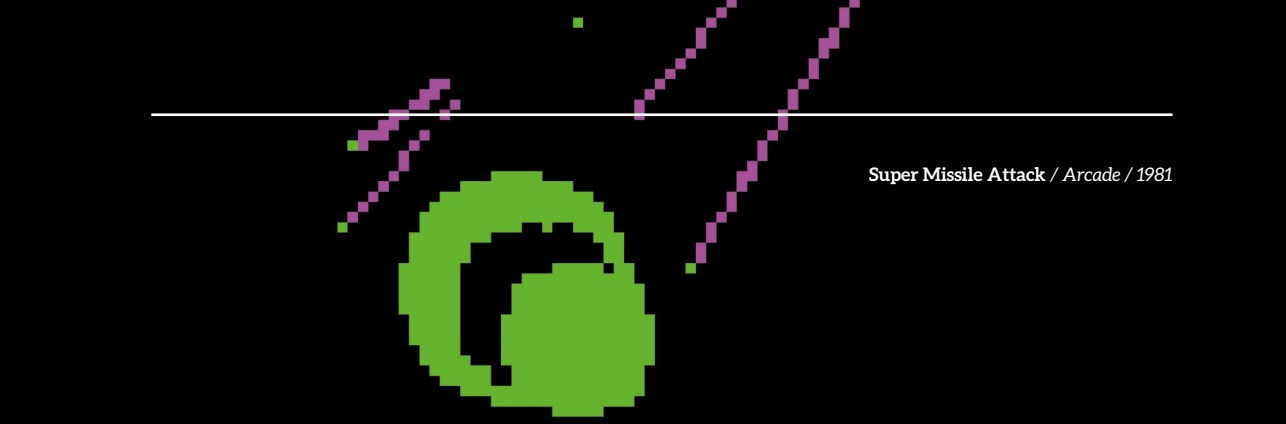


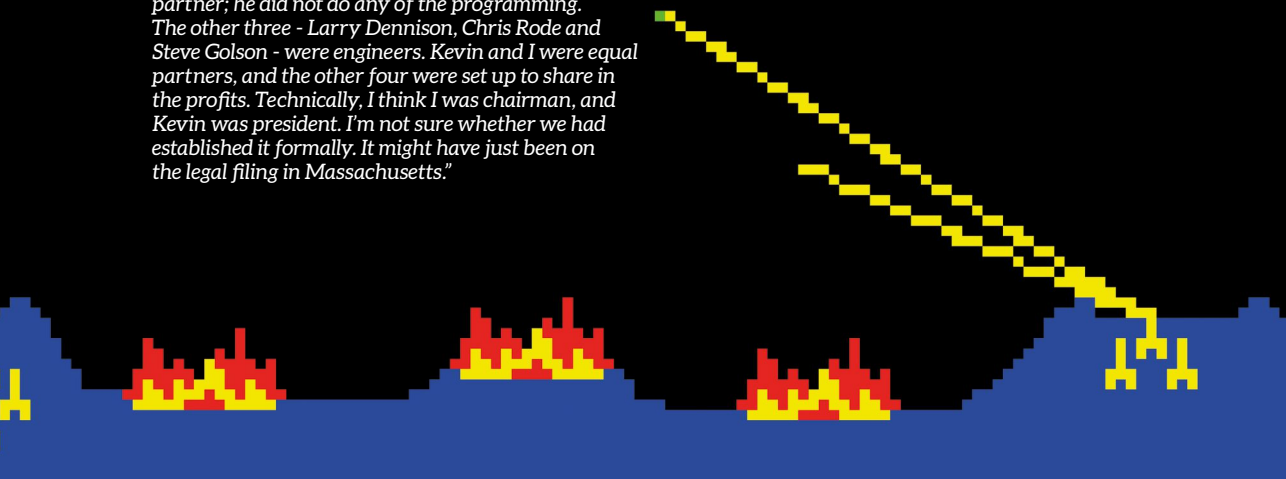
Super Missile Attack / *Arcade / 1981*

The board effectively sped up the gameplay of *Missile Command*, making it more difficult for the veteran players who had grown tired of the original's lack of challenge. New enemies were also included, as well as a new colour scheme to make it stand out from the original. *Super Missile Attack* was tested on the MIT campus and successfully drew crowds, so the most obvious next step was to offer the board to the wider industry, and advertisements were duly taken out in *Play Meter* and *RePlay* magazines, the arcade industry trade publications. *"We were taking phone calls in the bedrooms, we were producing them in the basement, we were designing in the living room and shipping out of the dining room of this house in Brookline,"* Macrae told Steven L. Kent. The cost per board was around $30, and they were being sold for $295. Around 1,000 boards were sold in the summer of 1981, generating around $250,000 in revenue. By now, Macrae and Curran – who, lest we forget, were still at college – had christened their blossoming company General Computer Corporation.

"Kevin and I were the two founders of the company and owners of it," Macrae told Benj Edwards in 2011. *"John Tylko was brought on primarily as a business partner; he did not do any of the programming. The other three - Larry Dennison, Chris Rode and Steve Golson - were engineers. Kevin and I were equal partners, and the other four were set up to share in the profits. Technically, I think I was chairman, and Kevin was president. I'm not sure whether we had established it formally. It might have just been on the legal filing in Massachusetts."*

Super Missile Attack had proven to the pair that it was possible to turn existing games into reinvigorated hits, and the demand for their boards proved that there was a sizeable market waiting for these kits. *Missile Command* was popular, but, for their next project, Macrae and Curran decided to focus on what was unquestionably the biggest game of the era: Namco's *Pac-Man*. *"We realised that* Pac-Man *had the same kind of issues* Missile Command *did,"* Macrae told Benj Edwards. *"People could learn the patterns and play it forever, and that, once you played it for a while, it was pretty much the same game. It got a little bit faster, but there was only one maze, and nothing really changed."*

> *"The board effectively sped up the gameplay of* Missile Command, *making it more difficult for the veteran players who had grown tired of the original's lack of challenge."*



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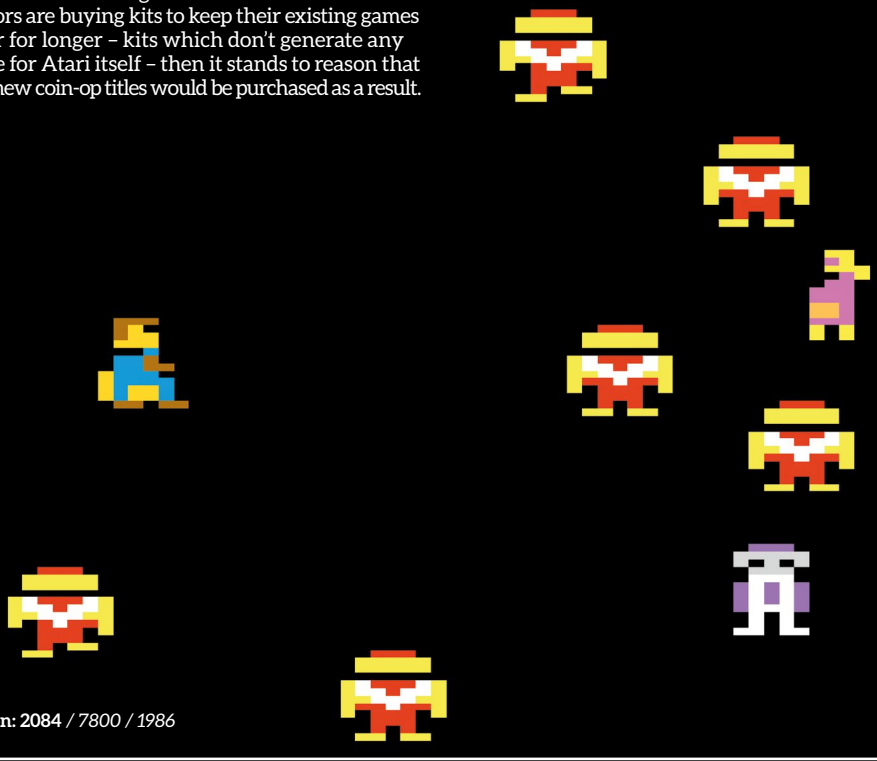
Just as development was getting started on the enhancement kit for *Pac-Man*, a spanner was thrown in the works: *Super Missile Attack* had come to Atari's attention and the company had taken legal action on the grounds of copyright infringement – the one thing that Macrae and Curran had feared would happen, but had been so careful to avoid. The company was sued for $15 million, a sum it simply could not afford to pay. However, the General Computer team was confident that it had no case to answer. *"We had nothing to lose,"* said Steve Golson, a former General Computer Corporation engineer, in an interview with Benj Edwards. *"We actually had carefully thought about what they were claiming, which was that we had infringed their copyright and trademark, and unfair trade practices. We had previously thought about how to design our kit as such that we do not violate their copyright and trademark. It wasn't like we had just gone into this planning on infringing or knowing that we infringed."*

As it turned out, Atari's issue with what General Computer was doing didn't really relate to copyright, even though that was the pretence for the legal case. The firm was predictably more worried about the ramifications that these kits would have on its long-term business. If arcade operators are buying kits to keep their existing games fresher for longer – kits which don't generate any income for Atari itself – then it stands to reason that fewer new coin-op titles would be purchased as a result.

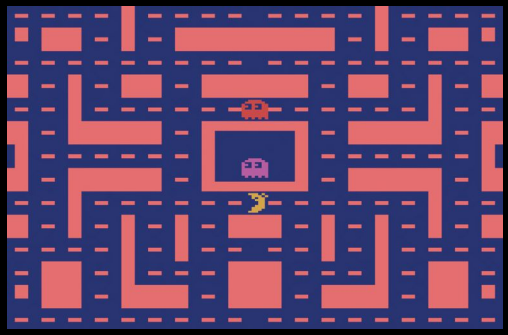
"The company was sued for $15 million, a sum it simply could not afford to pay. However, the General Computer team was confident that it had no case to answer."

In court, General Computer demonstrated that the kit was not based on copying Atari's code, but was, instead, modifying it in new ways. According to Macrae, the issue, instead, became more about 'trademark dilution' and 'misrepresentation of origin'. As the case rumbled on, Atari's general council, Skip Paul, took Macrae and Curran to one side and asked them what they were really after – if they wanted to make games, then they could do that for Atari, and the case would be dropped, provided they agreed to stop making enhancement kits. Paul even offered them $50,000 a month for the next two years, a total of $1.2 million.

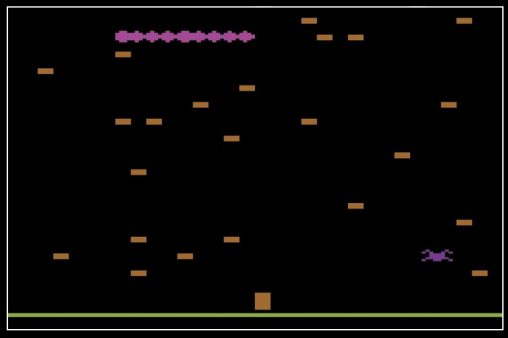


Robotron: 2084 */ 7800 / 1986*

"Kevin and I, as we found out later, were naive students," Macrae said to Steven L. Kent. *"We kind of misunderstood what they meant and thought they really were paying us money to develop video games, since that's what the contract stated. Years later, over beers, we were all laughing at the fact that the intent was to pay us $50,000 a month for two years to go away."* However, General Computer did not go away, and it didn't sit idle waiting for those two years to expire. Work had already been carried out to create an enhancement board for *Pac-Man*, dubbed *Crazy Otto*. The terms of Atari's agreement stated that General Computer was not allowed to make another enhancement kit without the express permission of the original copyright holder. The company clearly assumed that no other firm would ever agree to such a kit being made, just as it had been so distressed to learn that its business was being undercut by such kits. Atari thought wrong.



Ms. Pac-Man / *2600 / 1983*



Centipede / *2600 / 1983*

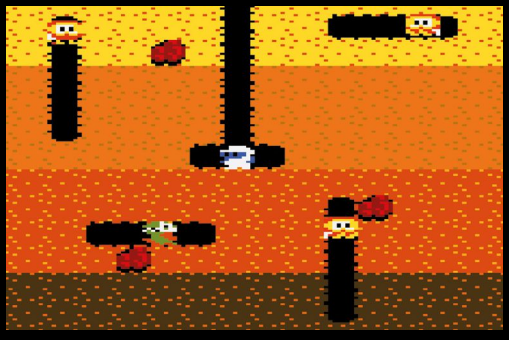
Pole Position / *2600 / 1983*

Curran made contact with Bally/Midway, the company that had the North American distribution rights for *Pac-Man*. Their secret Atari agreement required GCC to have Bally/Midway's blessing before they could sell the *Crazy Otto* kit – but all Bally/Midway knew was that Atari had dropped its legal case against General Computer, and now, suddenly, here is GCC threatening to bring out a kit for *Pac-Man*. However, what GCC wasn't aware of was that, following *Pac-Man*, Bally/Midway had nothing else lined up for the coin-op space, and that it was actively looking for its next big hit. Bally/Midway's David Marofske, therefore, suggested that, instead of being an enhancement kit, *Crazy Otto* could instead be transformed into a fully fledged sequel to the original game. *Ms. Pac-Man* was born, and it would go on to become one of the most successful coin-op games of all time. *"They produced 117,000 units,"* Macrae told Benj Edwards. *"General Computer made roughly $10 million on the* Ms. Pac-Man *arcade at the time."* And, while *Pac-Man* remains the highest grossing coin-op of all time, estimates put *Ms. Pac-Man* fourth on the list, behind *Pac-Man*, *Space Invaders* and *Street Fighter II/ Champion Edition*.

> *"Between 1982 and 1984, General Computer's in-house engineering team bloomed to 70 people, making it even larger than Atari's own internal VCS team."*

While this was going on, General Computer was still naively labouring under the expectation that Atari was paying it $50,000 a month to create games. It designed two arcade titles called *Quantum* and *Food Fight*, which were in production by early 1983. Atari – impressed with General Computer's skill and speed – decided to put the company to work on creating cartridges for its home console. *Ms. Pac-Man*, *Pole Position* and Centipede were three high-selling VCS titles developed by General Computer, but the company's impact would be felt more keenly with the ill-fated 5200 SuperSystem.

Between 1982 and 1984, General Computer's in-house engineering team bloomed to 70 people, making it even larger than Atari's own internal VCS team. Therefore, the company was perfectly positioned to work on software for the 5200, the VCS successor that had been in development for quite some time. It also represented, for Atari, a means of solving a rather awkward situation. Its own internal engineering team was unhappy with the state of the 5200, more specifically, its controllers, which boasted an analogue stick that did not return to a neutral 'centre' position automatically. Atari boss Ray Kassar ignored the complaints and ploughed on with the release regardless, but he needed a development partner that could turn around a wide range of software in as quick a time as possible. He turned to General Computer.



Dig Dug / *7800 / 1986*

Desert Falcon / *7800 / 1987*

In all, General Computer was responsible for more than half of the titles eventually released for the 5200, but the system was not the success that Atari had hoped for, and only sold around a million units. The fact that it did not retain backwards compatibility with the existing VCS (or 2600 as it was henceforth known) library was another black mark against it. Despite being involved in developing software for the system, General Computer could see that, in purely technical terms, it was something of a turkey. *"They screwed it up in so many ways,"* said Golson in a 2004 presentation. The company felt it could create a true successor to the 2600, and duly pitched the idea to Atari. *"We're the smart guys on the East Coast, and we're just going to save their butts,"* Golson added.

Thanks to the funds it had earned from its arcade ventures and its deal with Atari, General Computer was able to start developing new hardware, but, from the beginning, it was understood that any new system would need to retain compatibility with existing 2600 software. General Computer had bold visions for this new system, but the video game industry was about to experience its first crash, and the resultant fallout would mean putting this new machine on ice. Atari CEO Ray Kassar was shown the door, and Atari's owner, Warner Communications, brought in Jim Morgan to restore some balance. Costs were slashed, production of the 5200 was cancelled, and teams within the business were consolidated, but General Computer's 'next generation' system survived the cull. Its original code name of 3600 was ditched in favour of the 7800 (which is what you get when you add 5200 and 2600); 'ProSystem' was added to make it sound even more grandiose.

With a total of 14 games – all of which were developed by General Computer itself – announced for launch in 1984, the 7800's very existence was thrown into doubt when Warner put the struggling Atari up for sale. With the effects of the video game crash of the previous year still being felt across the wider industry, the notion of launching a new console seemed foolhardy, and the 7800 – which was all set for release after a moderately successful test run in California and New York in June '84 – was temporarily shelved as a deal between former Commodore boss Jack Tramiel and Warner was bashed out for the purchase of Atari's consumer division.

> *"GCC will forever be associated with arcade hits like* Ms. Pac-Man *and consoles such as the Atari 2600, 5200 and 7800."*

Tramiel's vision was to create a powerful new home computer, which would become the Atari ST, but his purchase of Atari led to a messy arrangement that saw General Computer placed in a tight spot. As it happened, Warner still effectively 'owned' the 7800, yet it felt that Tramiel's Atari should foot the bill for General Computer's work on the console and the games it had created. It wasn't until May 1985 that Tramiel relented and paid off General Computer.

By this point, the company's incredible run of good luck in the video game arena had begun to run dry. *"The whole game era was kind of short-lived,"* said Mike Horowitz, a former software engineer at General Computer Corporation, in an interview with Benj Edwards in 2011. *"In four years, it was pretty much all over. Atari got sold, and we lost our funding, and we started doing other things. It was just like a little kind of blip."*

"The success all happened unbelievably quickly," said Macrae in the same 2011 interview. *"Not only did* Ms. Pac-Man *get put into production, and 117,000 made very, very quickly, but, at the same time, we were diving into designing games for Atari, and those were also taking off. Not in the same quantity in the arcade, but we were doing very well in the home market. In addition to* Ms. Pac-Man*, during the next few years, we shipped 76 other games, mainly for Atari's 2600, 5200, and eventually the 7800, which we designed, and got paid on each one of those. I don't think it was until 1984, 1985, that we kind of came up for breath, when the market slowed down, and we had a chance to look around."*

Unlike a great many other companies operating in the video game industry at that time, General Computer didn't collapse or fade away; it evolved into GCC Technologies and would create the HyperDrive, the first internal hard drive for the Apple Macintosh home computer. It then moved into the realm of computer printers, and a GCC spin-off created a revolutionary early set-top box called VideoGuide. But, for gamers and Atari fans, the initials GCC will forever be associated with arcade hits like *Ms. Pac-Man* and consoles such as the Atari 2600, 5200 and 7800.

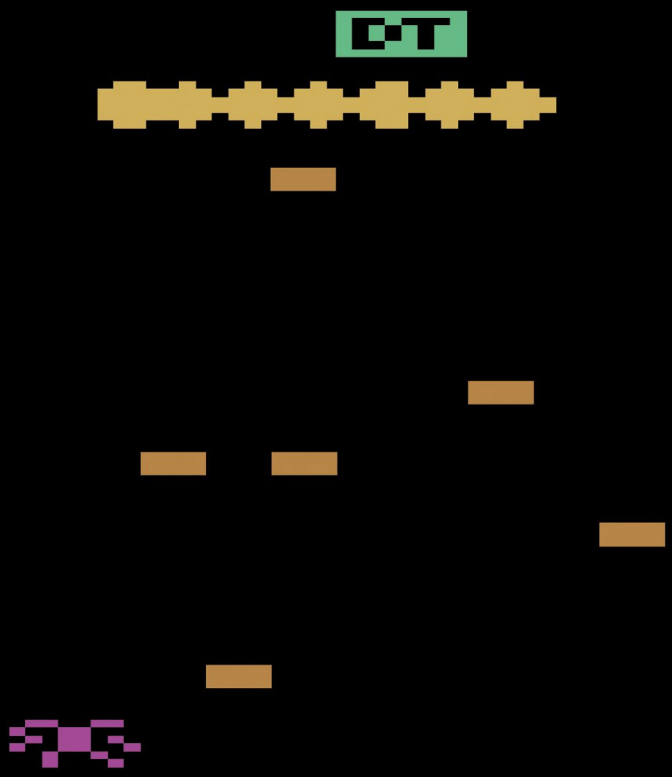
Millipede

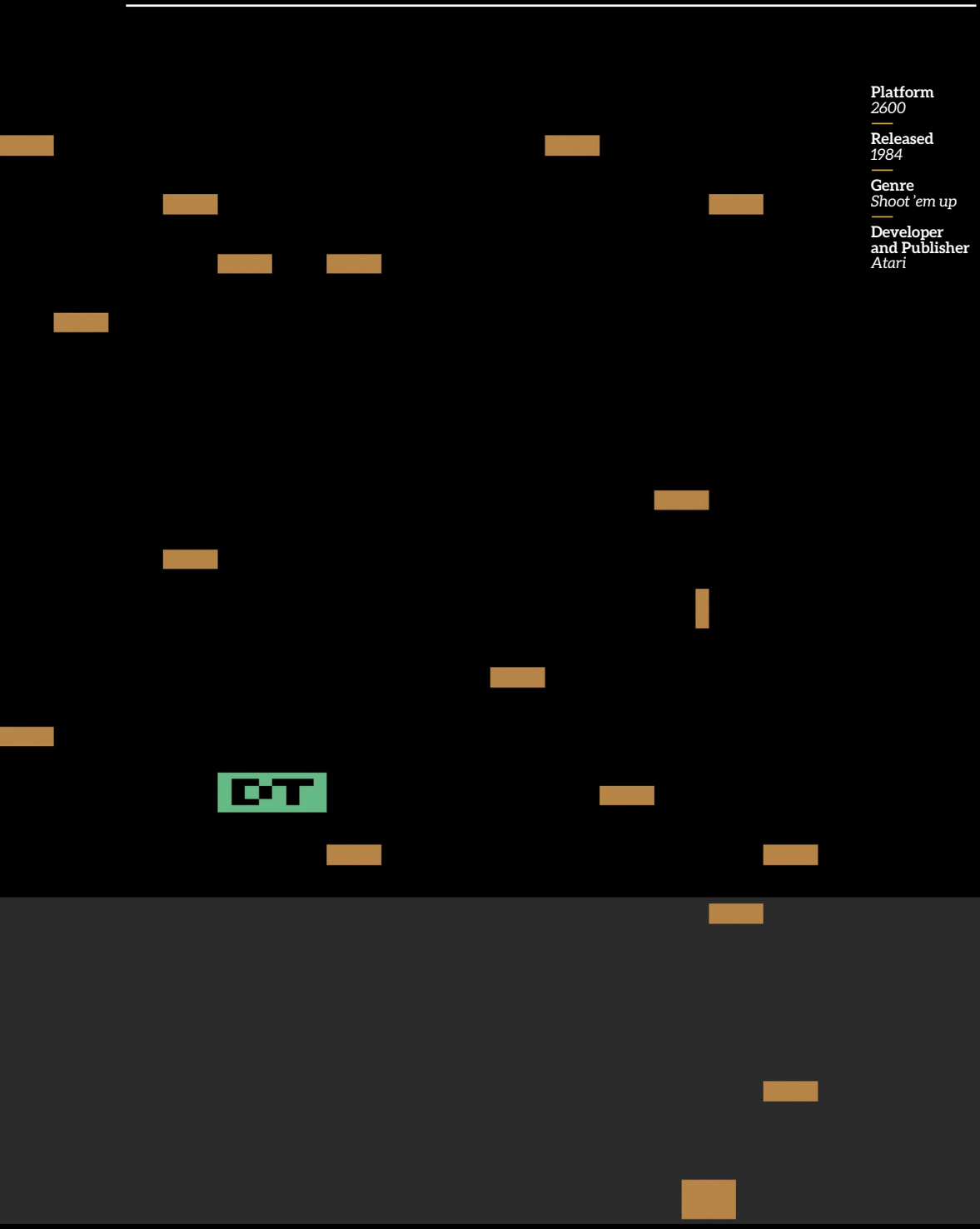
"As an Atari staff game programmer, I was assigned to port the arcade game *Millipede*. From the very beginning, I was aware that GCC wanted to do the port also – they had developed VCS *Centipede* (brilliantly done, I might add) and *Millipede* was just the sequel. With the success of *Centipede*, *Ms. Pac-Man* and others, GCC was a powerhouse outside developer that seemed to be beating us at our own game. My managers at Atari wanted to give me a chance to make a better game than GCC, but, since GCC was developing *Millipede* anyway (without specific contractual arrangements), it was left as a competition. May the better game win!

"This drove me to one of the most intense periods of work in my life. It was three months of round-the-clock programming, stopping only for eating and sleeping. I had reverse-engineered *Centipede* (without help from GCC), and come up with some neat innovations to get more processing power. I worked out a scheme to process sound events during the on-screen 'kernel', rather than during the v-blank time as had always been done before. This bought me extra processing time. These innovations (and a few others) had never been used by any other VCS game to my knowledge, and I got more processing power as a result.

"I'd been working and slaving to shave a few cycles here, and a few there, to get more horsepower. Eventually, it was declared that my version became the 'winner.'"

Dave Staugas, programmer





Platform
2600

Released
1984

Genre
Shoot 'em up

Developer and Publisher
Atari

Atari 7800 game cartridges

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"I recall spending a weekend at the office so I could get on the hardware and learn how to get the best from the 7800."

Peter Gaston, game designer and programmer

Platform
2600

Released
1984

Genre
Action

Developer and Publisher
Activision

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Pitfall II: Lost Caverns

"*Pitfall II* did not immediately follow on the heels of *Pitfall!* By the time I started thinking about a sequel to *Pitfall!*, the Atari 2600 was getting long in the tooth. That simple hardware had lasted many years past anyone's expectations. Newer and better game hardware was on the market, so any game on the Atari 2600 had to compete with more capable systems.

"I loved the Atari 2600, so I set out to improve upon it in the hope of keeping it alive. One couldn't change the game console – that was already in Grandma's house and couldn't be touched. But we could affect the game cartridge. Every time a new game cartridge was plugged into the Atari, it was, by definition, a different system.

"I designed a special circuit that expanded the capability of 2600 games – not by changing the hardware, but by making the game program more efficient. We had that circuit placed into a special chip in the cartridge, and I wrote *Pitfall II* to use that chip. The circuit provided enhanced data fetching, a better random number generator, and three-part music. In *Pitfall II*, I used all of that capability to make a larger, better game-playing experience.

"The video game as an entertainment medium was in its infancy in those days. So we were innovating every day, and many such innovations came out of our work at Activision. *Pitfall II*, for example, was the first adventure game with 'waypoints' – a way to preserve game progress on a console with no memory storage. It was also, to my knowledge, the first game to convey emotion through music. There was an upbeat theme song that played during the game, and a sad, minor-key version that played as Harry was sent back to his last waypoint."

David Crane, designer and programmer

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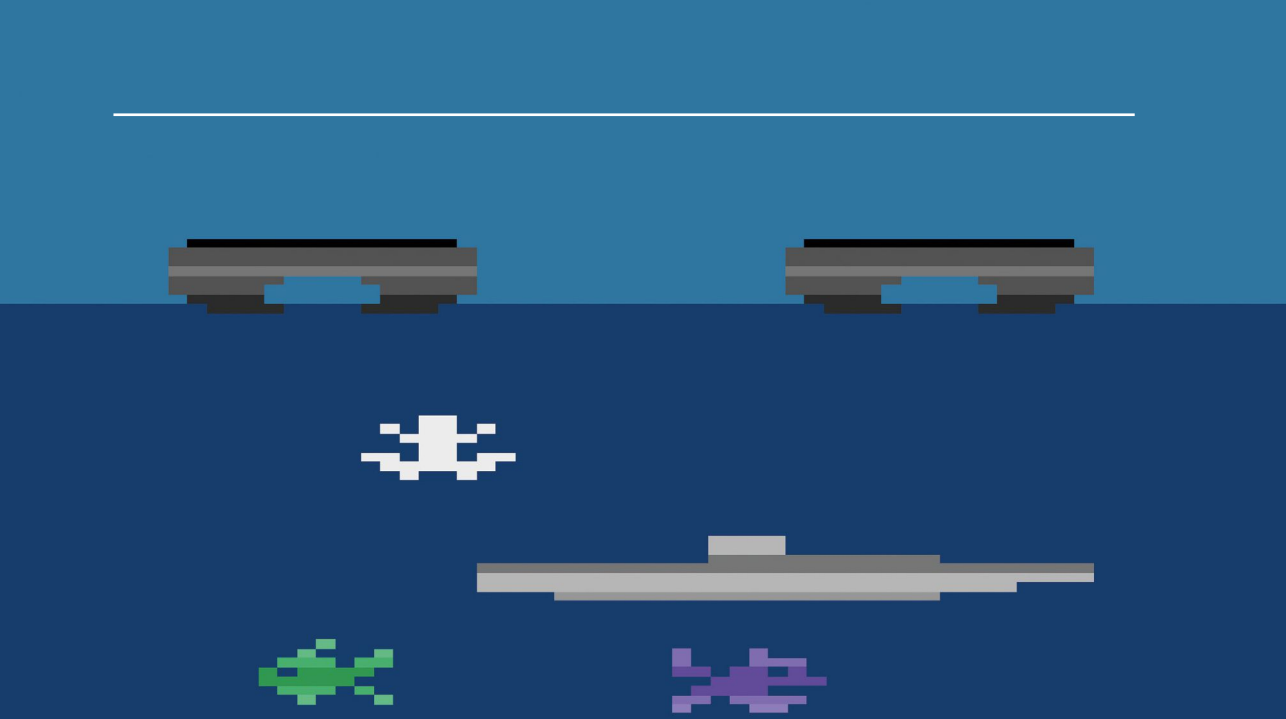

Frogger II: ThreeeDeep!

"The hit coin-op game that became an early 1980s phenomenon, *Frogger* hopped onto a slew of home consoles thanks to a deal with Parker Bros. The 2600 conversion faithfully captured the gameplay of the original, if not quite the aesthetic and audio, and it became one of the console's top sellers. Naturally, that called for a sequel, and the oddly named *Frogger II: Threeedeep!* expanded the original game's premise while keeping its core gameplay intact.

"In *Threeedeep!* there are three screens you must contend with instead of one: underwater, over water, and in the air. Each screen has several berths you need to park each frog in. You can do them in any order, but you're always racing against the clock. Once you populate all of the berths, you can move on to the next level of difficulty. In the first stage, you'll need to swim against a strong current. You can hop safely onto lily pads, fish, and even Joe the diving turtle to help you reach the top of the screen, where you'll find several log berths to fill with frogs. Just steer clear of Larry the Eel. On the surface, you must park a frog in the tugboat without hitting the boat. You can jump onto logs and lily pads, while ducks, hippos and whales will help you out, as long as you don't fall into the water. Hop onto Mama Duck, and she'll fly you to the more difficult air level where you can ride birds and zeppelins in order to (hopefully) reach the cloud berths at the top.

"Considerable flicker mars the experience in *Threeedeep!* – you wouldn't see this much in an Activision game – and it gets frustrating to have to start underwater each time you lose a life. Otherwise, Threeedeep! puts up a solid challenge, if one that's not quite as well balanced as the simpler original."

Jamie Lendino, guest reviewer

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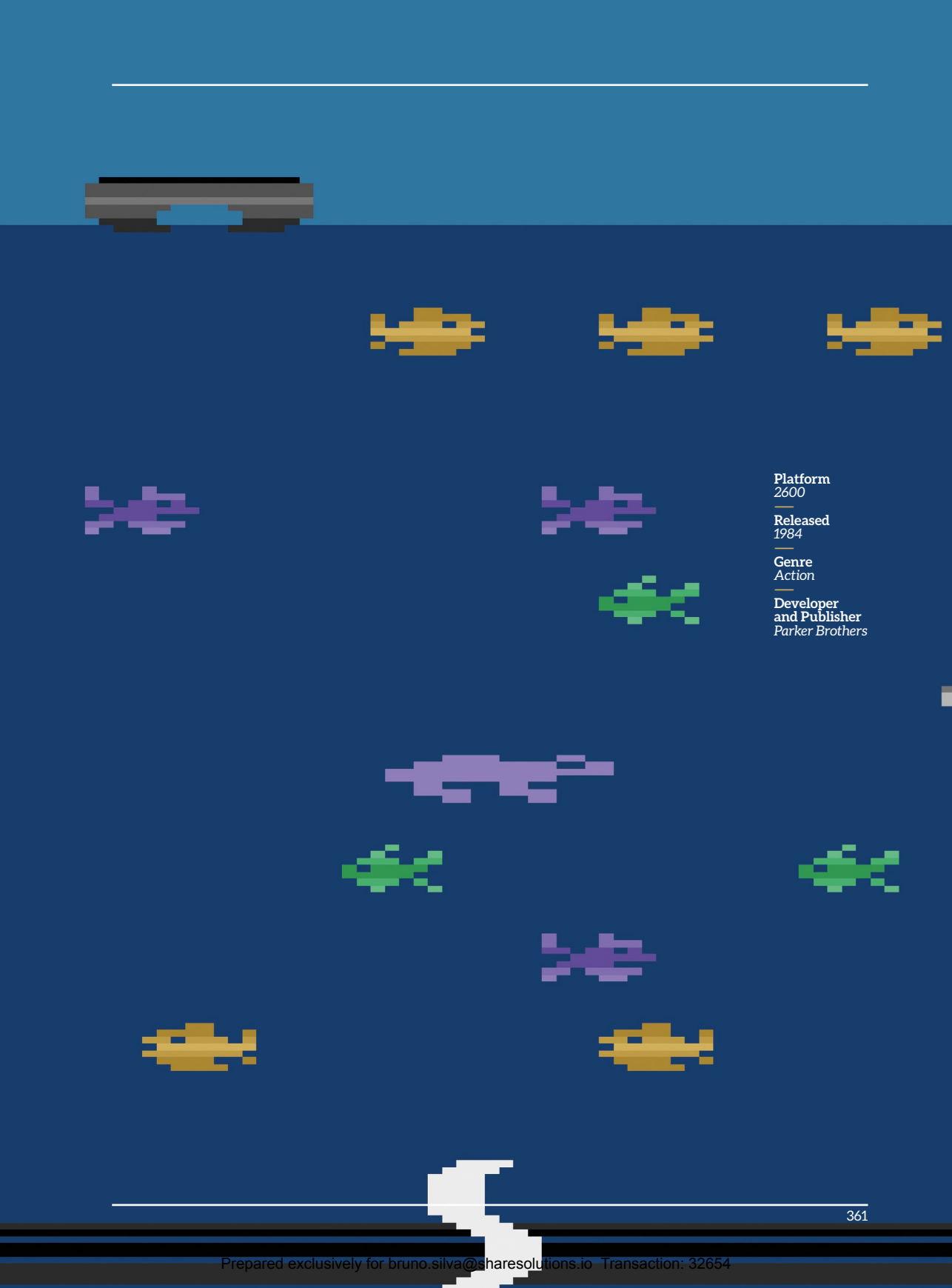

Platform
2600

Released
1984

Genre
Action

Developer and Publisher
Parker Brothers

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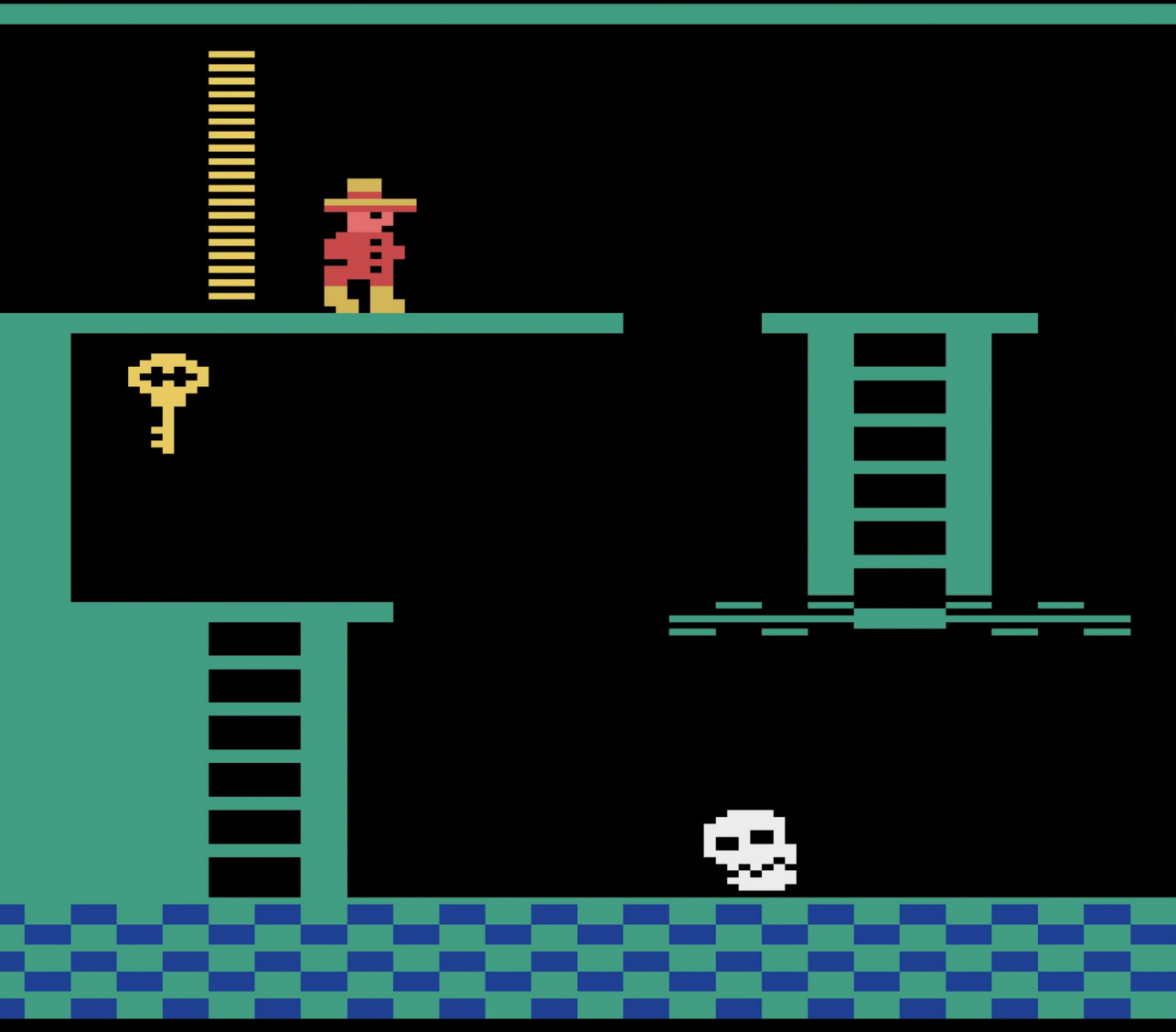
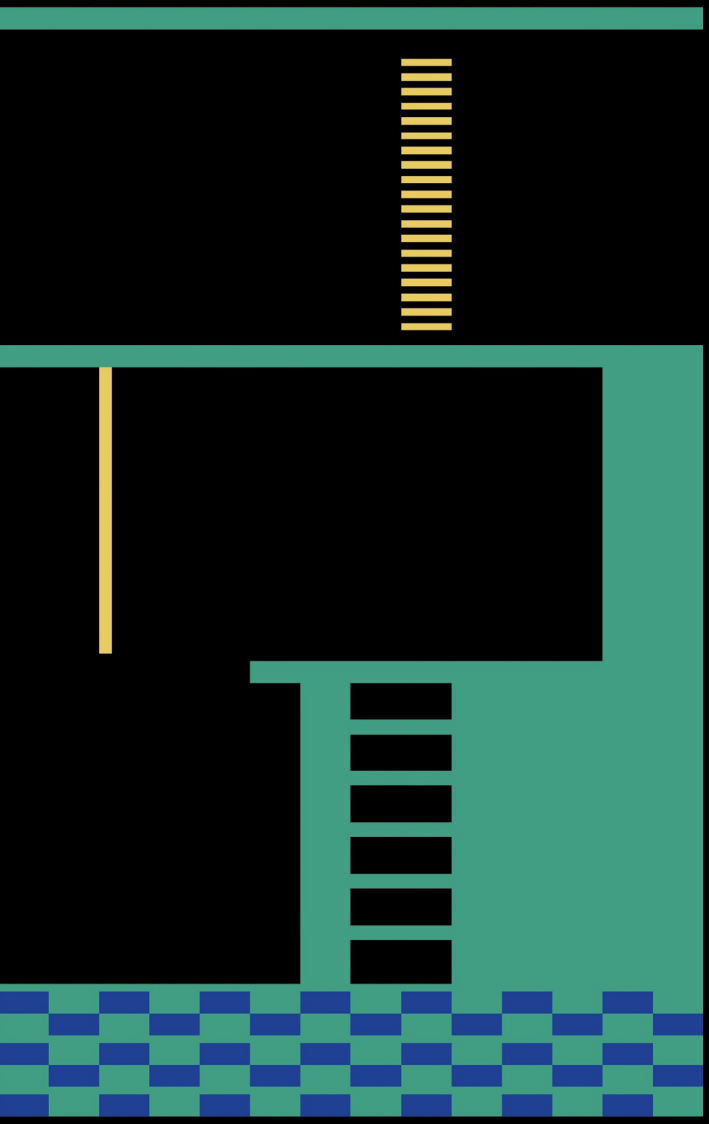




Montezuma's Revenge

"Consistently showing up in enthusiasts' lists of their favourite 2600 games, *Montezuma's Revenge* provides players with a challenging treasure-hunting adventure. Having witnessed the success of Activision's treasure-hunting platformer *Pitfall!*, Parker Brothers was keen on acquiring the rights to creator Robert Jaeger's impressive game.

"While releases of *Montezuma's Revenge* on other platforms feature a larger fortress and, generally, have more to offer in the way of sound and graphics, the 2600 version's abbreviated game world contained in its 8K ROM is rendered well and doesn't feel all that lacking. Manoeuvring your character, Panama Joe, through the multi-levelled Aztec fortress is no easy feat, especially for inexperienced players. Learning the timing necessary to navigate past obstacles can often feel like an exercise in frustration – more so at higher difficulty levels – but the dedicated player will be rewarded with the fun of deeper exploration, treasure rooms and higher scores.

"Physical copies of *Montezuma's Revenge* for the 2600 can be somewhat difficult to find these days as it was released the year after the home video game crash of 1983 (so production numbers were likely smaller). If you like to own the original cartridges, though, this is one of the harder-to-find games in the 2600 library that's arguably worth the expense. Given the quality and complexity of the source material, *Montezuma's Revenge* is a game that could easily have been undercooked and disappointing on the 2600; the programmers should be commended for producing a thorough conversion that has above-average replay value."

Rob Wanenchak, guest reviewer

Platform
2600

Released
1984

Genre
Platformer

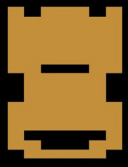
Developer
James Wickstead Design Associates

Publisher
Parker Brothers

Spy Hunter

"When Bally Midway's Golden Age classic *Spy Hunter* was released in October of 1983, it quickly became a worldwide arcade smash hit. Its action was centred on vehicular combat and put players at the wheel of a turbocharged car code-named the G-6155 Interceptor. The objective of the game was simple enough: speed along an endless, vertically scrolling road while avoiding hazards and taking out as many enemy cars as possible, either by ramming them or by using the car's hood-mounted machine guns.

"Adding to the player's arsenal is a selection of special-use items that are picked up when the player drives, *Knight Rider*-style, into the back of the friendly 18-wheeler truck that appears at regular intervals throughout the game. Almost as soon as you drive into the truck, it slows down and deposits the Interceptor back on the road, armed with either a smoke screen, oil slick, or helicopter-destroying surface-to-air missile.



"Later on in the game, there are boathouses that the player can drive through to turn the Interceptor into a speedboat, which can then zoom down the river that runs alongside the road. Needless to say, these waterways are just as dangerous as the road and feature deadly logs that cause the speedboat to explode, as well as enemy craft that can be rammed out of the water. The action certainly gets very challenging at this point, although, like many arcade games of old, there's no end to it – the game just keeps on going until all of the player's lives are exhausted.

"The Atari 2600 version of the game was released around a year after the original *Spy Hunter* coin-op hit arcades, and it's as good a rendition as you could hope for. While the graphics and sound are understandably weak, the game nevertheless features very similar gameplay to the coin-op, including the friendly truck, all the special weapons, and the latter-stage waterborne action.

"Interestingly, the game came with a 'Dual Control Module' – a plastic widget that houses two joysticks, enabling the player to control the game with the first, and select weapons using the second. While it's a nice idea, the Dual Control Module is actually rather flimsy and not especially ergonomic, making it tricky to use. Still, despite that, Atari 2600 *Spy Hunter* is a fun, if rather challenging game that still provides plenty of thrills and spills."

Julian Rignall, games journalist

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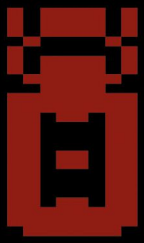
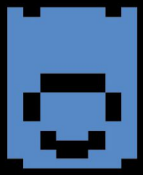




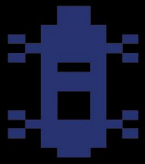
Platform
2600

Released
1984

Genre
Racing

Developer and Publisher
SEGA

Originally by
Bally Midway



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Platform
2600

Released
1984

Genre
Action

Developer and Publisher
Activision

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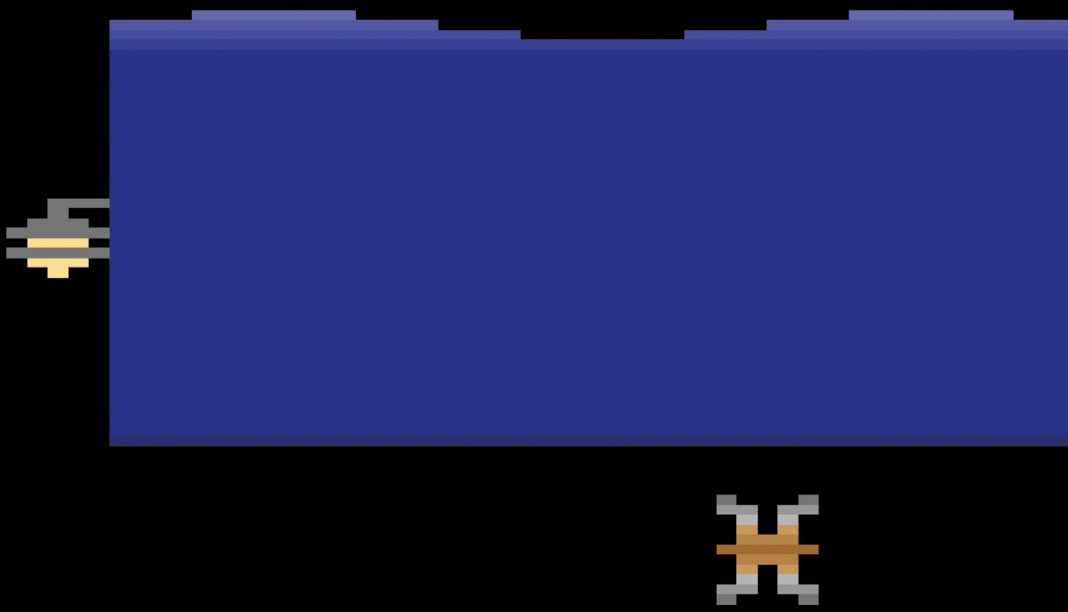

H.E.R.O.

"The idea for *H.E.R.O.* was mine, although Activision's marketing department named the game and the character. The idea came while I was visiting Howe Caverns in New York state. The cave has an underground river and seemed like an interesting environment for a game. I liked superheroes as a kid, so I started with that. I figured he could rescue a miner. I made him fly, gave him laser-powered eyes and dynamite, and then I just added fun things that might be in a cave. I then made easier and harder levels for players to progress through, and added more features and tweaks. My co-workers would try the game and give me feedback and additional ideas to try. I spent a lot of time tweaking the play controls and level progression to make it fun. I spent less time on graphics and more on play; I'd watch my colleagues play the game and make adjustments based on what I saw. My colleagues had positive reactions and ideas, and it inspired me.

"It reached number seven in the bestseller charts for the Atari 2600. That was very enjoyable for me since my previous game design attempt was a failure! But it came out during the video game crash, so it may not have done as well as it could have. It was rated as high as *Pitfall!* in user testing, but came out at the wrong time. A sequel was never entertained because, by then, Activision no longer wanted us to develop games. It was like everyone thought video games were a fad that died, like Hula Hoops, which is amusing when you think about that today!"

John Van Ryzin, designer and programmer

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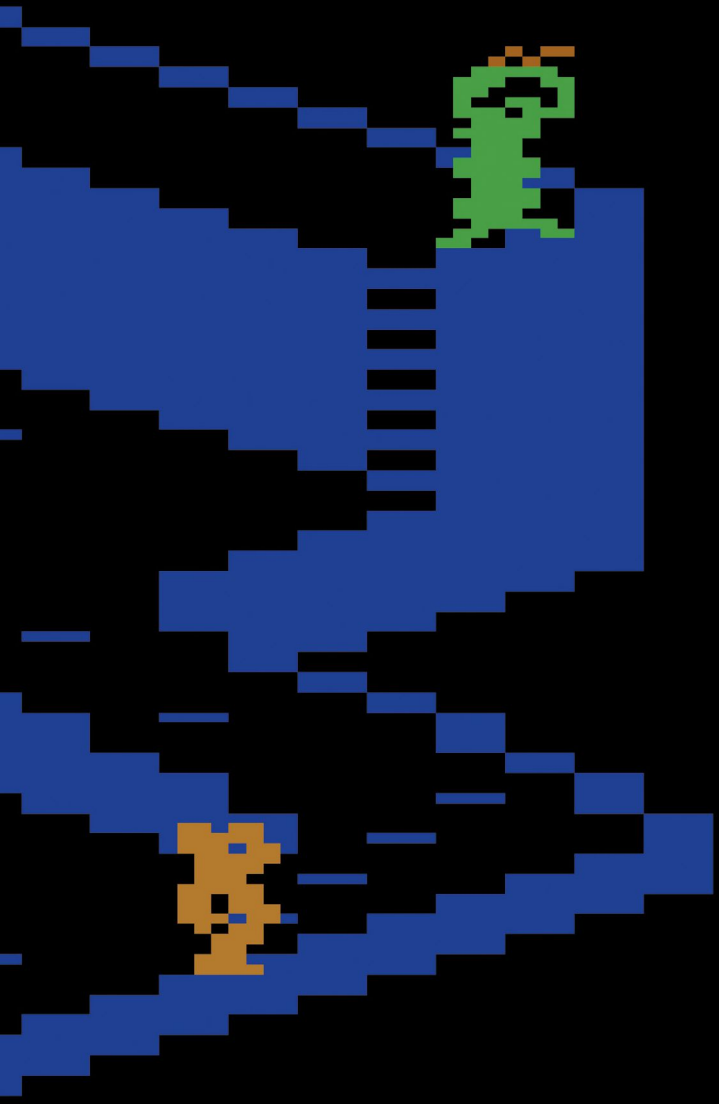


Crystal Castles

"Porting a faux-3D arcade game to the 2600 and having it look anywhere near convincing had to have been a Herculean task. But the programmers behind *Crystal Castles* (Peter C. Niday, Michael Kosaka and Robert Vieira) not only got the job done, they included nearly everything crucial to the gem-collecting arcade game in only 16K of ROM space. One could perhaps complain about a few missing features, like tunnels, or wish that true trackball support had been implemented to more closely resemble the original arcade experience, but, ultimately, the few shortcomings pale in comparison to all that was included.

"While the action is less frenetic and Bentley Bear's movement is less constrained by the levels than in the original arcade version, *Crystal Castles* on the 2600 is balanced in a way perfectly suited to playing at home. Gone is the coin-swallowing difficulty; in its place is the right combination of challenge and entertainment to keep the player coming back for more, whether it's a few quick games or a marathon session. The brief musical interludes are crisp and in tune – you'll want to keep hearing the quick fanfare of Tchaikovsky's *Marche* as you grab the last gem on each of seven uniquely shaped levels.

"Certainly, efforts to bring popular arcade games into consumers' homes saw varied degrees of failure and success. And, if not the pinnacle of 2600 arcade ports, *Crystal Castles* is at least very near the top of the heap."

Rob Wanenchak, guest reviewer

Platform
2600

Released
1984

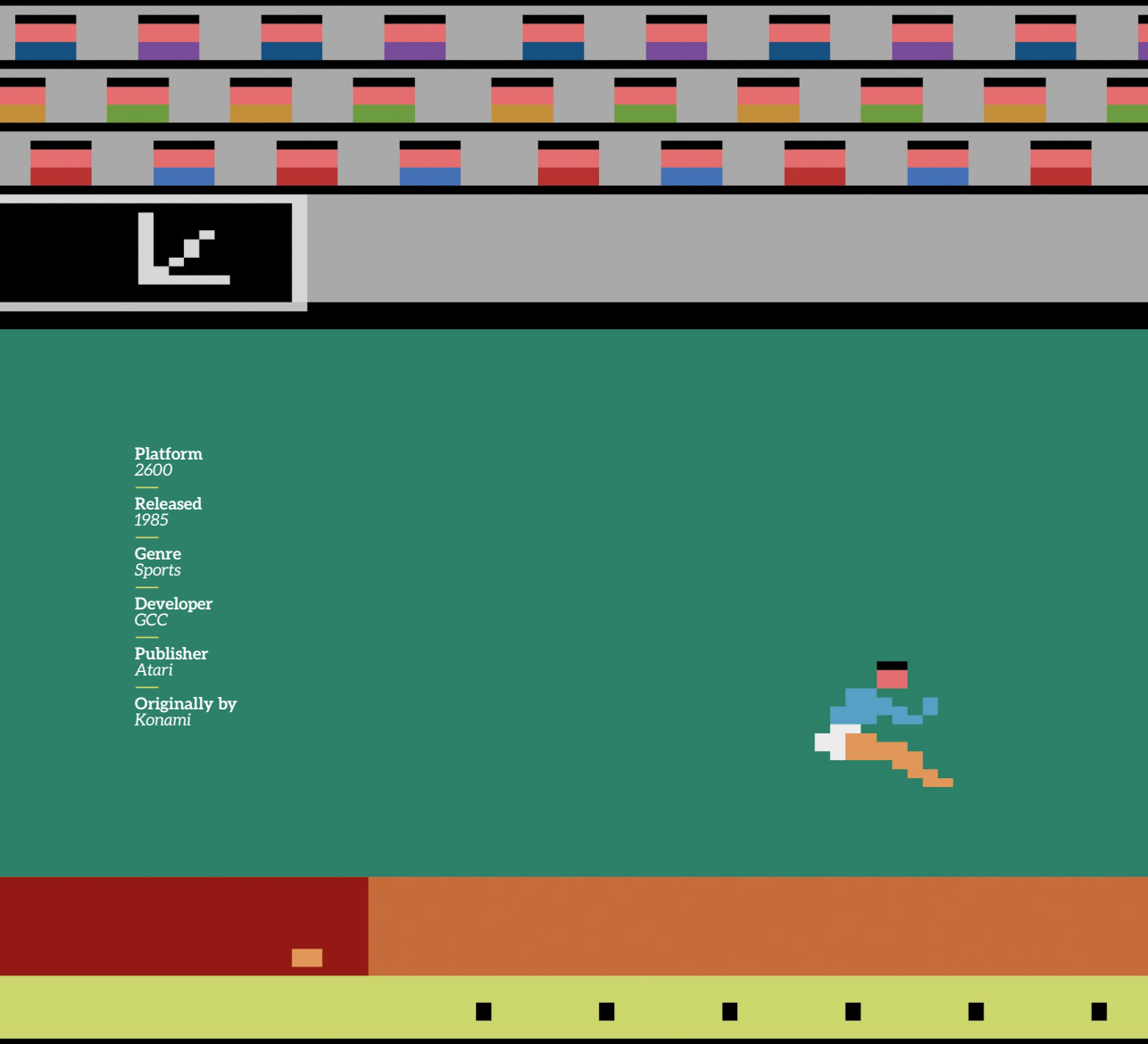
Genre
Arcade

Developer and Publisher
Atari

Track & Field

Pretty much anyone who calls themselves a retro gamer will be familiar with Konami's original *Track & Field* coin-op. It was the first Olympics-based button-basher to hit the arcades and spawned numerous clones, including the likes of Epyx's *Summer Games* and Activision's *Decathlon*. Atari picked up the home rights and originally planned to release it as a sponsored tie-in with the 1984 Summer Olympics in Los Angeles, not far from the company's home! However, due to Warner's sale of Atari, *Track & Field* was released a year later in 1985, and the planned 7800 version was scrapped all together.

It even bundled the game with its own special controller to make the button mashing less painful. Sadly, though, the sports pad was never used in any other games. This Atari 2600 version is surprisingly authentic to the arcade original, containing all six events, difficulty settings, one- and two-player modes, and even a final medal presentation! The events on offer are the 100 metres, long jump, javelin, hurdles, hammer throw and high jump, with each requiring a slightly different skill. One thing that sets *Track & Field* apart from other multi-event sports simulations is that you can only progress through the game by setting the required time/score. In multi-player mode, however, you can just compete against each other instead. Overall, this has to be one of the most faithful arcade ports on the Atari VCS.



Platform
2600

Released
1985

Genre
Sports

Developer
GCC

Publisher
Atari

Originally by
Konami

An interview with Steve Golson

Steve Golson was one of General Computer Corporation's (GCC) first employees and played an integral role in its innovative (and controversial) unofficial enhancement kits for arcade games Missile Command *and* Pac-Man. *A certified chip designer, Steve also played a key role in the design of the Atari 7800 – most notably the Maria graphics chip. We spoke with Steve and discussed the highs and lows of his fascinating time in the games industry.*

How did you first get your job at GCC, and what was your role at the company?
We were all students together at Massachusetts Institute of Technology (MIT) in the same dorm: Doug Macrae, Kevin Curran, myself and a bunch of other people who were also early folks at GCC. When Kevin and Doug first started as a partnership, putting pinball games in our dormitory, it was just the two of them. I started helping them, sort of informally. If they weren't around, I'd give people change or look after the machines or whatnot – it was just a casual thing.

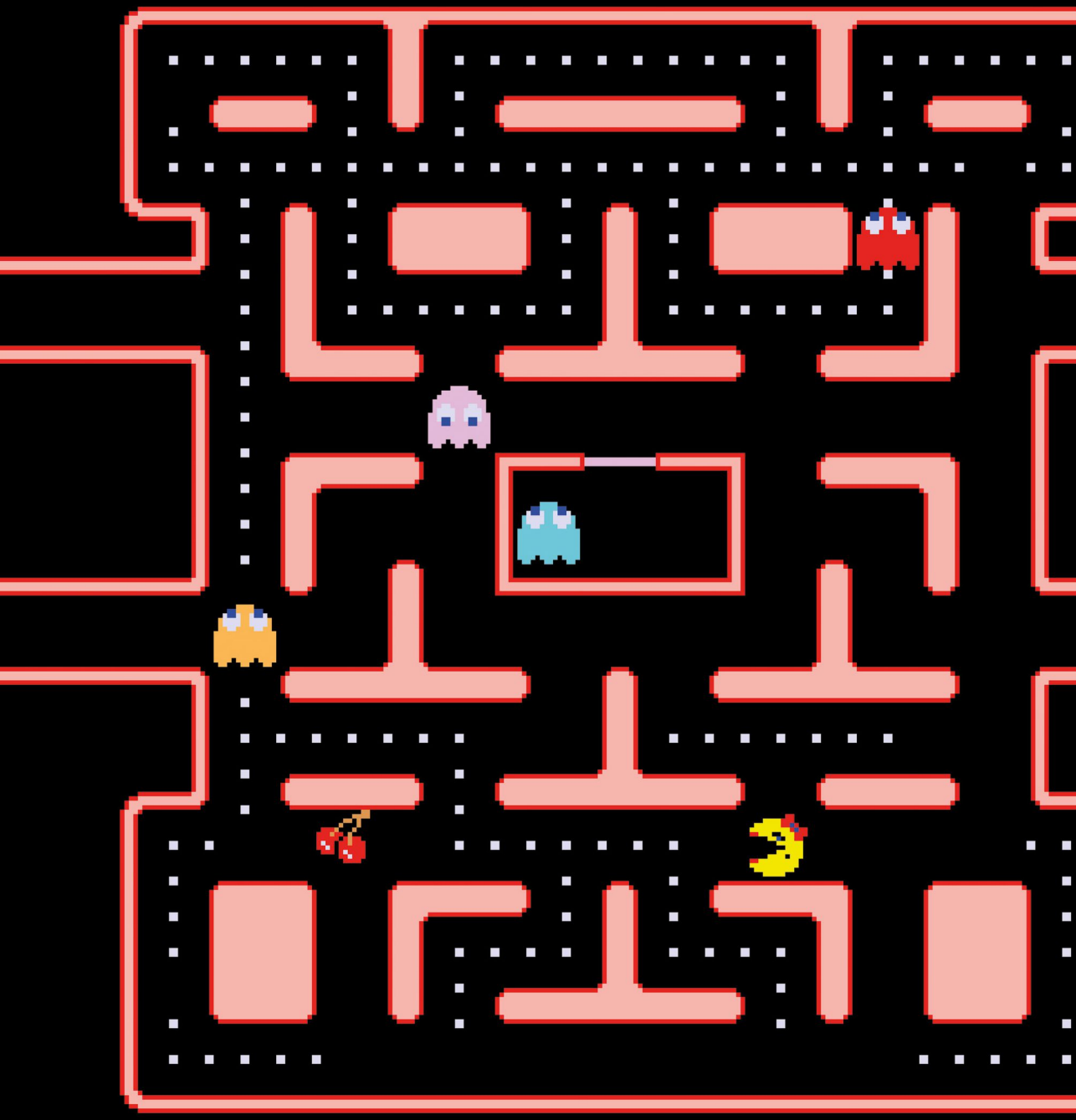
When GCC formally started up a couple of years later, we were still students but had moved out of the dorm and were renting a house in Brookline. Kevin, Doug, John [Tylko] and Larry [Dennison] were all there. It was the spring of '81 that Doug and Kevin decided to start up this company, and the rest of us were sort of just hanging around. It took a while before we actually started getting paid; there was no money to start with. Our first project was called *Super Missile Attack*, which was an unofficial enhancement kit for Atari's *Missile Command* that made changes to the gameplay, such as increased difficulty and adding a UFO to the enemies. Doug and Kevin put up the money for it and borrowed some money from Doug's mum, and the rest of us sort of just said, "*Yes this sounds like fun*," and off we went. We netted about $250,000 through sales of the *Super Missile Attack* kit to arcade owners, before the Atari lawsuit stopped us.

Our next project was an enhancement kit for *Pac-Man* called *Crazy Otto*. Originally, we were going to sell it as a kit, without any input from Midway, directly to arcade owners like we did with *Super Missile Attack*. We made the kit, changed the name of the game, changed the characters and everything about the game: new mazes, colours, sound, everything. However, we ended up showing it to Midway as a kit, thinking that they might buy it from us to sell to their existing base of *Pac-Man* arcade owners. But they immediately jumped on it and said, "*Wow! Let's make this a new game.*" And, that's how *Ms. Pac-Man* was born. It was a very good moment – Midway was very much behind us in whatever negotiations they had to do with Namco to make it happen. And, frankly, I think Namco didn't care – as long as they continued to get their royalties as if it was a *Pac-Man* cabinet.

Were you a software or hardware engineer?
I was much more the hardware. Doug had a software background, Kevin had a little bit of software and also hardware background, and they both definitely had the business sense. But my studies were in Earth Science; I was ready to work in the oil and gas industry. But I had taken a little bit of computer hardware classes and digital electronics classes, so I knew enough on the hardware side to help out on that, much more than the software.

What kinds of work did GCC do for Atari?
GCC was very well known within Atari for doing arcade conversions. Atari would get the licences for games like *Dig Dug*, *Kangaroo*, *Xevious*, and we'd put them on their home units under the Atari brand. We did a phenomenal amount of that work for Atari in '82, '83 and '84.

> *"And, frankly, I think Namco didn't care – as long as they continued to get their royalties as if it was a* Pac-Man *cabinet."*



Ms. Pac-Man / *Arcade* / *1981*

Can you tell us how the 7800 project came about?
It was 1983. I was the only hardware guy who was not occupied at the time, and I got sent out to do a one-month class on how to do chip design at this company called VLSI Technology Incorporated, which promoted this style of chip design that made it accessible to anybody. Once back, we all got excited saying, *"Now we can design custom chips, what could we do? What sort of a product could we create?"* A bunch of us sat around thinking what we could dream up, and we came up with this project we code-named 'Spring', which was a combination home computer and video game console. It used a lot of custom chips that we would have to design, and, because I'd been on the one-month course, I ran an in-house design class to teach the other GCC hardware engineers how to design the chips. We dived into working on this project, which we all believed was going to be wonderful and the next big-hit console.

Also in '83, the opportunity came along to start work on what became known as the Atari 7800 ProSystem, which was Atari's next-generation home unit. The 2600 was very successful, but the 5200 wasn't. It had tremendous graphics, but wasn't backwards-compatible with the 2600. That was a huge complaint. I think Atari wrongly thought people would happily throw away their old stuff and they wouldn't care. Technically it was wonderful, but there were so many flaws with it, it just wasn't very successful at all.

Prepared exclusively for

So we thought, let's do something that's 2600-compatible. We were in this interesting situation where, actually, our development contract wasn't with Atari, but was with Warner – some weird business reason why they wanted it that way. So we could go to Warner and say we wanted to develop this, and then hand it off to Atari and bypass all the horrible Atari politics and say here's a product for you to develop. Essentially, that happened. They had their own internal stuff going on at Atari, but we showed up with this idea and said, this is what we're going to do, and it was obvious that it was a good idea. It had 2600 compatibility and had amazing graphics for its day, and off we went. That was '83 and '84. We called it the 3600 initially, but it got renumbered once the marketing people got involved.

The Spring project kept going in the background, but really it got starved of people, and eventually the 7800 project became such a high priority that Spring just got stopped.

"In '83, the opportunity came along to start work on what became known as the Atari 7800 ProSystem, which was Atari's next-generation home unit."

Why did Atari commission GCC to create the 7800. Why did they not do it themselves?
From my point of view, one of the genius things that Kevin and Doug did was they insulated all of us engineers from the craziness and the dysfunction of Atari and Warner. We had this incredibly flat corporate structure: there was Kevin and Doug at the top, then there was everybody who worked for them. Basically, if we created something, if we designed something, then Kevin and Doug would present it to the Warner and Atari people and say, *"Here's this product, go make it."* Invariably, the Warner people were so impressed that they would force the Atari people into saying yes. Our attitude was that, if we design this thing, it will be so wonderful that they have to build it.

Was the 7800 a leap, graphically, from the 2600?
Software engineers were doing amazing tricks to make 2600 graphics look cool, but it was just so incredibly limited, and, by the early '80s, it was long in the tooth. The Maria chip was at the heart of the 7800, which used various tricks learnt from how arcade games displayed multiple sprites, and supported an impressive palette of 256 colours.

Where did the name 'Maria' come from?
The Atari 2600 was code-named Stella, and the graphics chip was called 'Television Interface Adapter', or TIA. We wanted the 7800 to be compatible with the 2600, so we decided to just stick a TIA on the 7800 board. I believe it was Art Ng, who really wasn't much of a drinker but had a dry wit, who pointed out that there's a liqueur called Tia Maria. Our new chip was going to sit next to the TIA, so he suggested the name Maria.

Did GCC produce all the 7800 launch games?
Our plan was to right away start working on game development so that, when the console is done and goes into production, we'll immediately have a dozen games ready to go for it. As we got further into development and the Atari and especially the Warner people got excited about the product, it was, *"Ah, okay, this is a huge, huge, big deal, and we should be devoting a lot of resources to it."* So, 1983 and early 1984, we had all kinds of folks working on the hardware design, chip design and the cartridges. By the time May of '84 came around and the product was announced, we had 14 games completed for it, and, you know, it was ready to be this huge, big thing for Christmas of '84.

What ever happened to* Track and Field*? It was announced as a launch title but was never released.
To be honest, I don't remember, but I'm pretty sure I have the ROM upstairs. Maybe, one day, I'll get it working again.

You also developed some peripherals for the 7800?
We did. I think the coolest was the high-score cart. You'd plug the game cart into the high-score cart and then into your 7800. It would use the memory in there to store the high score so you could take it to your friend's house, and say, *"Hey I got this great score on* Asteroids." You could plug it in, and say, *"Look, here's my high score."*

Did you plan to invite third-party publishers to develop for the 7800, such as Activision?
There were no plans to support third parties or anybody outside of Atari. It was bad enough for GCC that we would have to allow other Atari engineers to work on it. In fact, you know, that was one of the big, technical, interesting things that we brought into it, which was this authentication/encryption technique, so that we could restrict who was allowed to write cartridges for it. Nintendo had a scheme for restricting who could write cartridges for the NES, so the idea for doing that was not at all new, but we came up with a scheme that was very inexpensive and incredibly successful. So it was more the other way around; it wasn't that we wanted to allow other people to write for it, rather how could we prevent other people from writing cartridges for it? And we knew that, okay, Atari engineers are going to start wanting to develop games for this. If this is the next big Atari console, at some point, we'll have to teach them how to use it and hand off our manuals and programming guides and whatnot, and we knew that, as soon as we did that, they would become public, because Atari was such a sieve. And so we tried to prevent that as long as we could. We kept everything in-house and kept everything secret as much as we could.

It's well documented that, just as the 7800 was due to be released, Atari was sold, which resulted in a delay in the launch. You guys must have been hugely disappointed when that happened?
In May of '84, Atari announced its new product, the Atari 7800 ProSystem. It was pretty late that they decided on the name, I think it was in the spring of '84, and, up until then, we kept calling it 3600, and I think there may have been even some mock-ups and example marketing stuff that said 3600. It was billed as the next huge thing from Atari. And then, out of the blue… Atari gets sold. We were pretty like, *"Jeez, what's going to happen to this product?"*

We thought it was going to be a hit for Christmas of '84, at the price point that we had it planned for, and lots of excitement in the marketplace. But Atari had lost so much money, and Warner just wanted to be done with it. Atari got sold to Jack Tramiel, who was willing to bring out the 7800, but at a much lower price point, which from GCC's point of view was, *"Well that means that we don't get anything, right?"* and Jack said, *"Yeah, that's right, you don't get anything."* We couldn't agree, so it didn't get released.

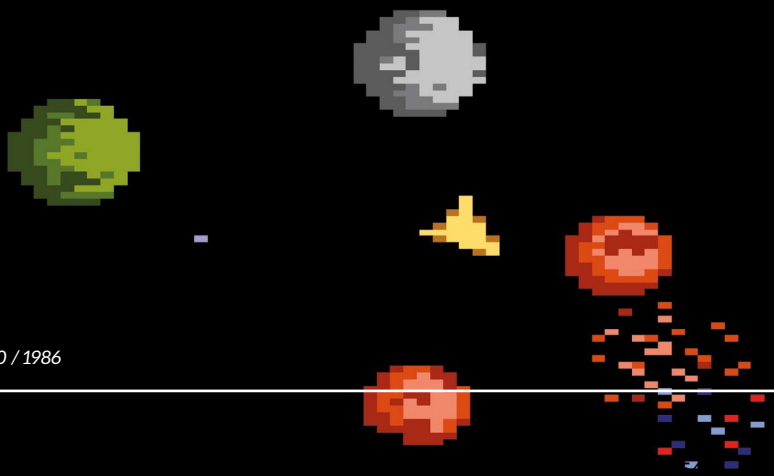
Looking back, who knows what the video game market would have done if the 7800 had been released. If it was a huge success, well, good for Atari; probably, Nintendo never happens in the US because Atari hangs on to the market. There were 100,000 of them sitting in a warehouse. I mean, they had already started building these things by the time Jack buys Atari and sort of shuts it all down. It was literally ready to go into production.

In 1986, the 7800 eventually went into production and actually goes on sale, and it does really well, and it's competitive against the NES and more modern game consoles that are three years newer. It made us feel good that our hardware and software was ahead of its time and was very competitive, even three years later. By this time, we'd completely separated ourselves from the 7800.

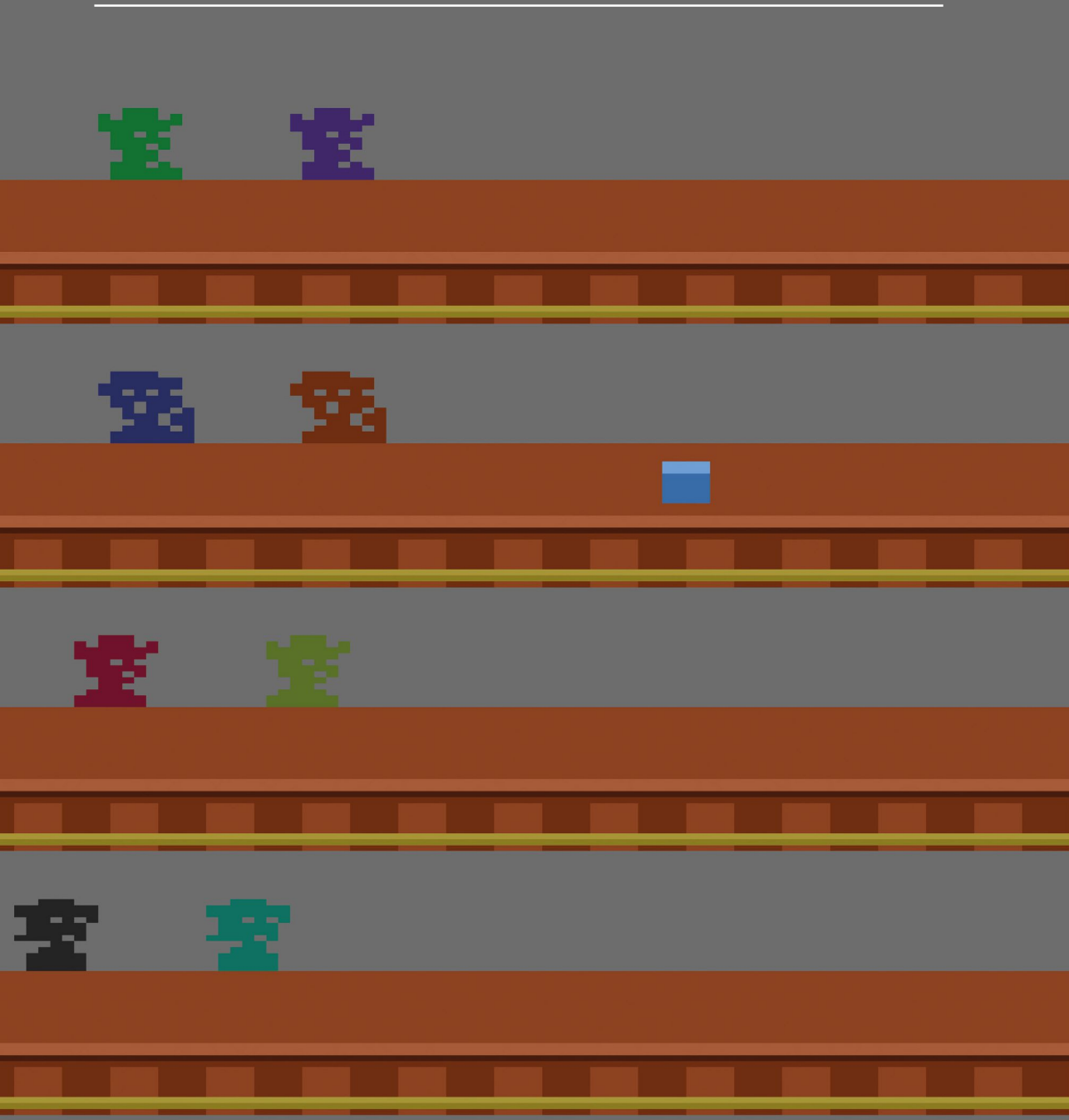
Could you summarise what your lasting memories of the 7800 are, and maybe what part of the console you're most proud of?
I think, personally, the thing I'm most proud of is there was one key concept that I came up with as part of the hardware design. It was what we called the jog circuit, and it was deep inside the line RAM, and it was the same thing that we were going to do for Spring. The Spring line RAM and the Maria line RAM both used this jog circuit, which was part of how it did its graphics. The initial idea for the jog circuit came from Larry Dennison, and it required eight of these little jogs inside the memory block, and that slowed things down; it made it difficult to run it as fast as we wanted. One day, I'm taking a shower, and it suddenly comes to me: a way to arrange things so that you didn't need eight jog circuits, you could do it with just one, which really helped speed up the memory access time on the line RAM. And, you know, I don't know how that came to me, but it did. I remember walking in that morning and pulling aside Chris Rode and Tom Westberg, who were the two guys who were working on the Maria, and I sort of sketched out and I said, *"Look, you only need one jog circuit,"* and their jaws dropped and were like, *"Why didn't we think of that!?"*

But, more generally, it's the whole development process and sense of collaboration there was among all the people at GCC. We were so invested in the 7800, and everyone is working extremely hard to get this thing out the door. We are all very excited, we know it's going to be an amazing product, we see the prototypes running, we see the games running, and we are so thrilled about this. I've just never had that feeling since then with other projects I've been on, or other companies. And, partly, that may be because it was games, and just the idea of working on games is such a cool thing. As I say, it was fun back then, and it's fun now. I mean, how can you go wrong working on games?

> *"I've just never had that feeling since then with other projects I've been on, or other companies."*



Asteroids / *7800 / 1986*



Platform *2600* / **Released** *1984* / **Genre** *Arcade* / **Developer** *Beck-Tech* / **Publisher** *SEGA* / **Originally by** *Bally Midway*

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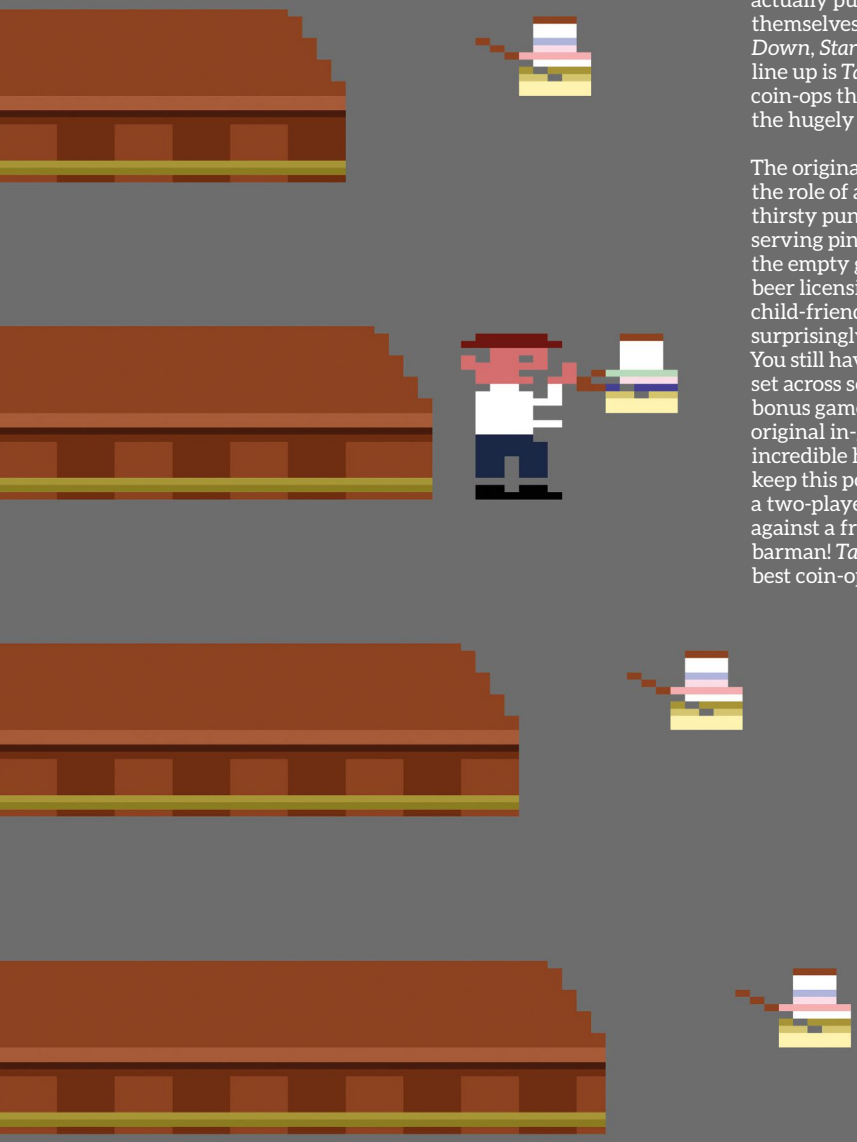

Tapper

There was a number of Nintendo games that were licensed out to appear on the Atari consoles, but it's less known that their great rival, SEGA, went one better by actually publishing titles for the Atari 2600 themselves! Joining titles such as *Up 'n' Down*, *Star Trek* and *Spy Hunter* in that line up is *Tapper*, one of the many classic coin-ops that also played a starring role in the hugely popular *Wreck-It Ralph* films.

The original arcade game saw you take the role of a bartender trying to keep his thirsty punters happy by constantly serving pints of Budweiser while collecting the empty glasses. This home port loses the beer licensing, replacing it with the more child-friendly Mountain Dew, but, rather surprisingly, loses nothing in the translation. You still have the same fast-paced gameplay set across several different stages, the fun bonus games, terrific graphics and even the original in-game music! It's actually pretty incredible how close SEGA managed to keep this port, and they even included a two-player mode so you can compete against a friend to discover who's the best barman! *Tapper* is up there with the very best coin-op conversion on the system.

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Platform *2600* / **Released** *1985* / **Genre** *Action* / **Developer and Publisher** *Activision*

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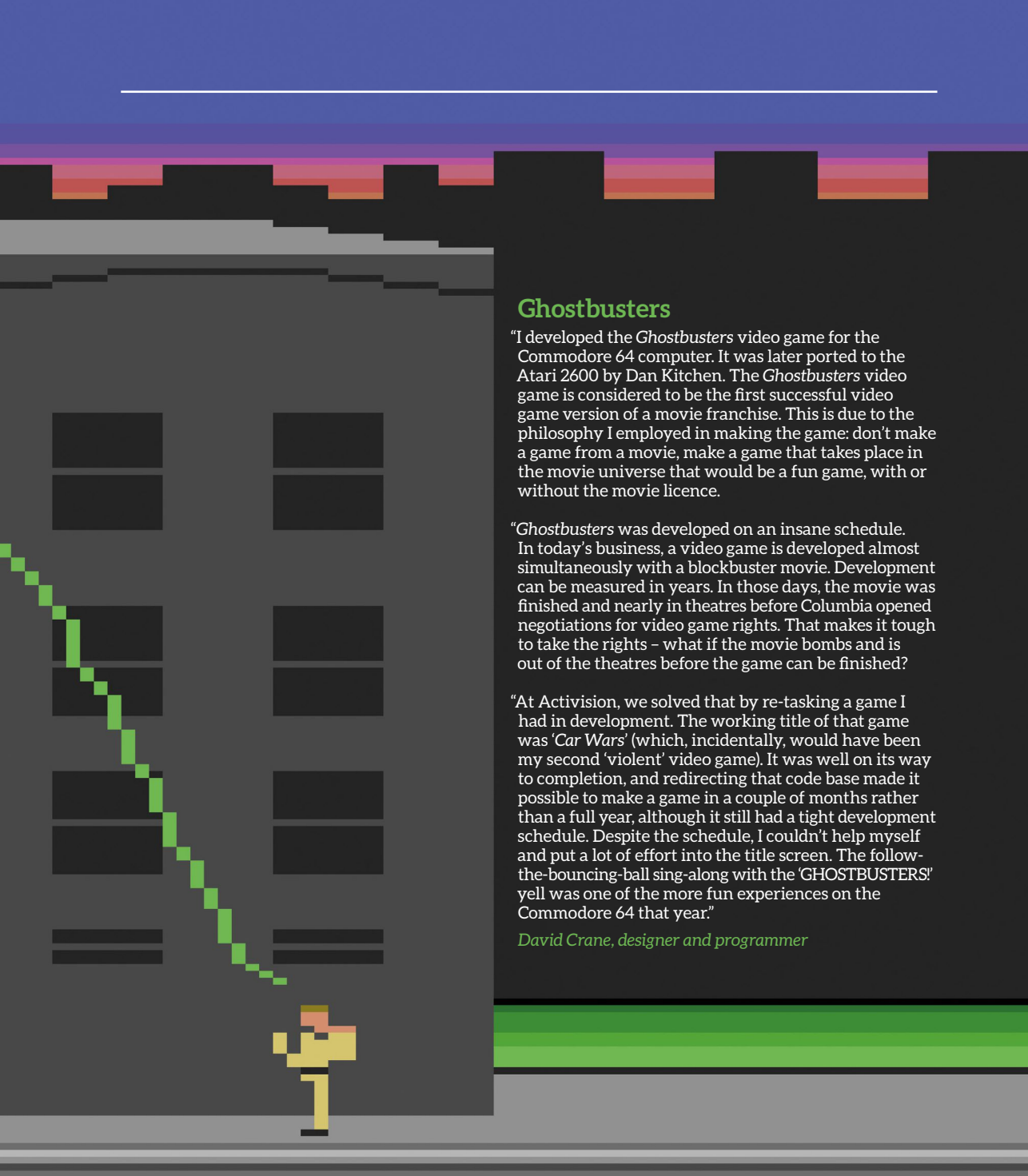

Ghostbusters

"I developed the *Ghostbusters* video game for the Commodore 64 computer. It was later ported to the Atari 2600 by Dan Kitchen. The *Ghostbusters* video game is considered to be the first successful video game version of a movie franchise. This is due to the philosophy I employed in making the game: don't make a game from a movie, make a game that takes place in the movie universe that would be a fun game, with or without the movie licence.

"*Ghostbusters* was developed on an insane schedule. In today's business, a video game is developed almost simultaneously with a blockbuster movie. Development can be measured in years. In those days, the movie was finished and nearly in theatres before Columbia opened negotiations for video game rights. That makes it tough to take the rights – what if the movie bombs and is out of the theatres before the game can be finished?

"At Activision, we solved that by re-tasking a game I had in development. The working title of that game was '*Car Wars*' (which, incidentally, would have been my second 'violent' video game). It was well on its way to completion, and redirecting that code base made it possible to make a game in a couple of months rather than a full year, although it still had a tight development schedule. Despite the schedule, I couldn't help myself and put a lot of effort into the title screen. The follow-the-bouncing-ball sing-along with the 'GHOSTBUSTERS!' yell was one of the more fun experiences on the Commodore 64 that year."

David Crane, designer and programmer

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Jr. Pac-Man

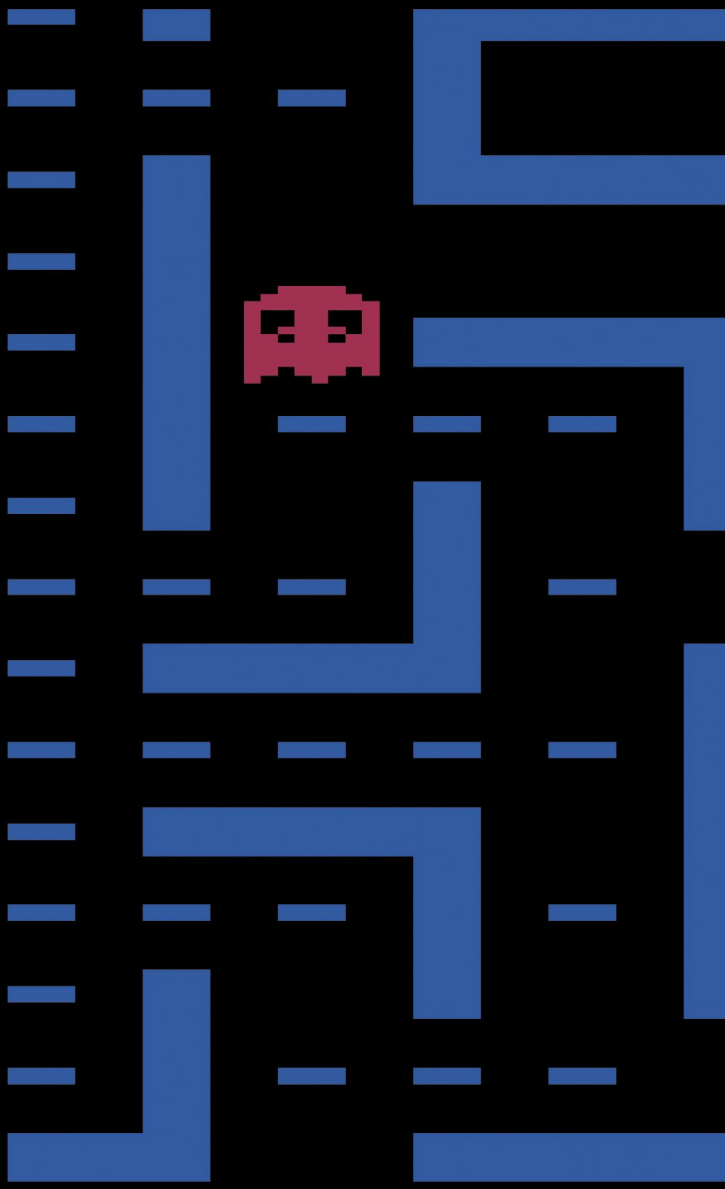
"The Pac is back! Only this time we get to play as his apparent offspring in *Jr. Pac-Man*. Like father, like son, am I right?

"*Pac-Man* games generally get a bad reputation when talking about the Atari ports. Franchise purists will gripe about the dashes replacing dots, or flickering ghosts, but the games themselves still play pretty well. *Jr. Pac-Man* in particular runs smoothly on the Atari 2600, all things considered.

"Unlike other Pac-Man games, *Jr. Pac-Man* has vertically scrolling mazes as opposed to keeping them on one screen. This rather significant change makes it harder to keep track of the ghosts who chase you. On the flip side, it presents an intriguing challenge that the previous titles don't offer. To keep with the whole 'junior' theme, you also collect bonus points for grabbing balloons and kites instead of the usual food items.

"If you're looking for that classic arcade experience at home, *Jr. Pac-Man* certainly scratches that itch. It's far from being one of the more popular titles in the franchise, but this Atari 2600 version retains the fast pace these games are known for."

David Giltinan, games journalist



Platform
2600

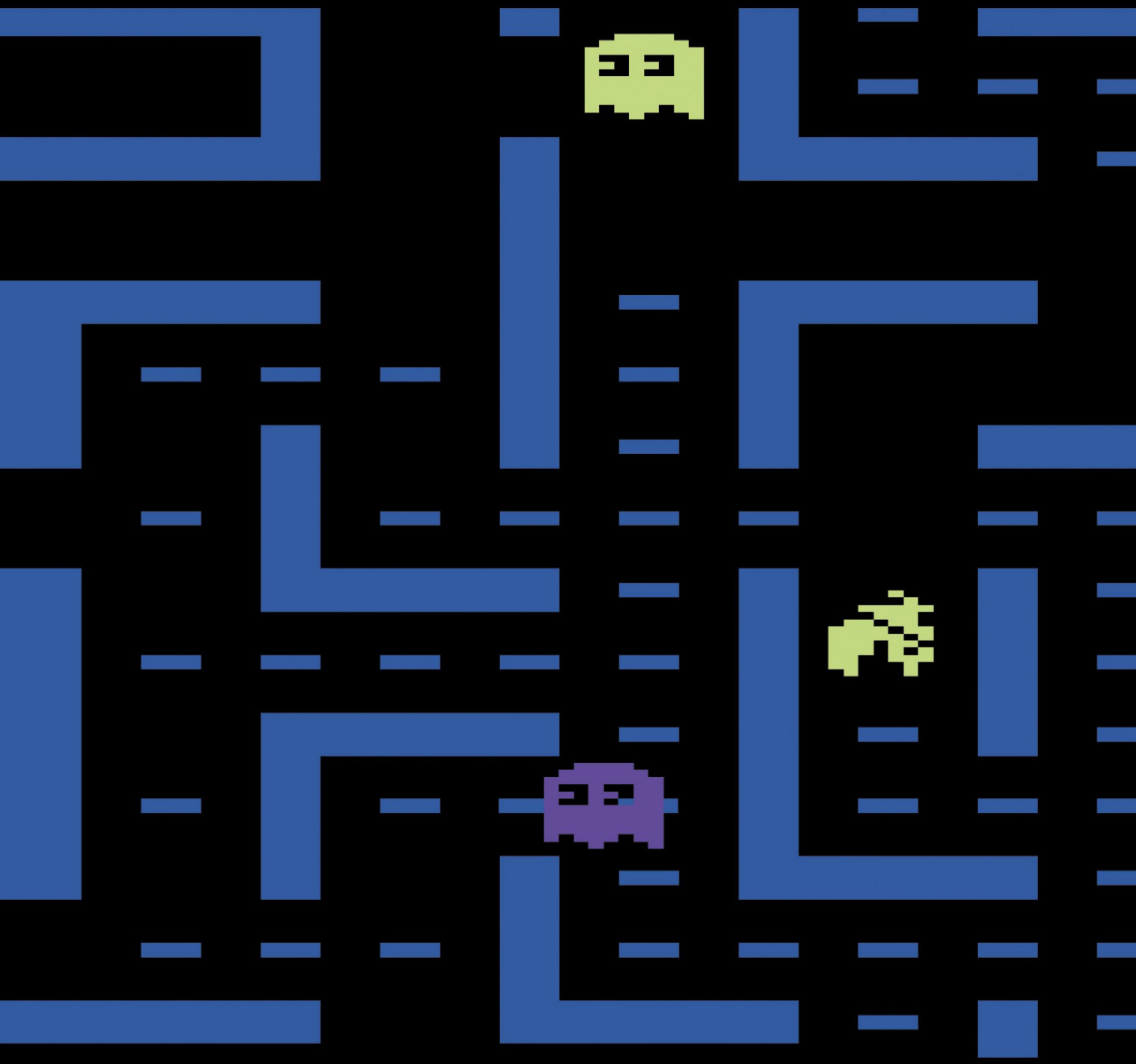
Released
1986

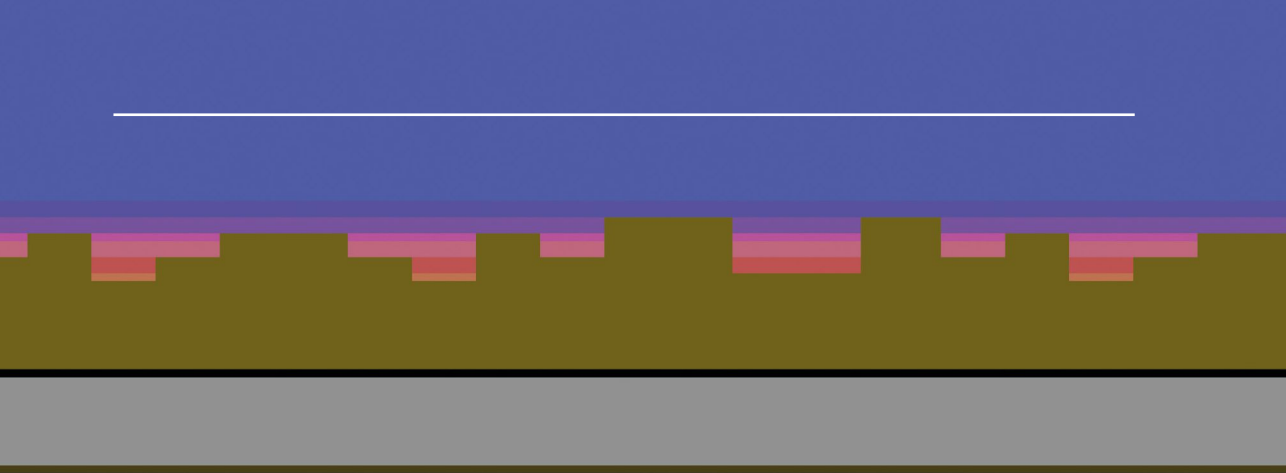
Genre
Arcade

Developer
GCC

Publisher
Atari

Originally by
Bally Midway





An interview with Dan Kitchen

When talking about the most important people to design games for the Atari 2600 and 7800, two of the first names that should be mentioned are Dan and Garry Kitchen. These hardworking brothers started off at leading third-party publisher, Activision, before going on to form their own company in the form of Absolute Entertainment, alongside former colleagues including, David 'Pitfall!' Crane. The siblings are also among a select few programmers and designers to create games for both the Atari 2600 VCS and 7800 ProSystem, giving them a unique insight into both platforms. Steve Kitchen, their older brother, also worked with them at both companies.

Among the many hit games they developed over the years are the 2600 ports of* Donkey Kong, Kung-Fu Master, Double Dragon, Keystone Kapers, Ghostbusters, F-14 Tomcat, Pressure Cooker, Space Jockey, Crackpots *and* Space Shuttle. *There are very few people in the Atari scene as prolific as these brothers, and they still play a huge part in the community today, most recently with the resurrection of the long-lost* Keystone Kannonball *prototype, which is finally being finished and released for all Atari 2600 owners to enjoy!

Dan was very keen to tell us all about his storied career, and his journey with his two brothers through the industry, which he still looks back on so fondly.

First of all, can you tell us how you and your brothers got started in video games?
My brothers and I owe our love of technology to our father, George Kitchen. He used to build radios and television kits and would always get us involved in the process. My brother Steve lead the way by building a digital computer in our basement in the 1960s using discrete components, complete with a panel of input switches and a teletype that would print out answers to questions. In the 1970s, he partnered with industrial design firm Wickstead Design Associates, and started pitching electronic games to major toy companies, such as Parker Brothers, Mattel and Milton Bradley. Garry and I soon joined, and we developed a number of prototypes that later became inspirations for some of our video games. At this company, Garry invented *BankShot*, a handheld electronic billiard game for Parker Brothers, and together we worked on *WildFire*, a handheld electronic pinball game, also for Parker Brothers. It was here that Garry back-engineered the Atari 2600 and wrote his first game, *Space Jockey*, for U.S. Games.

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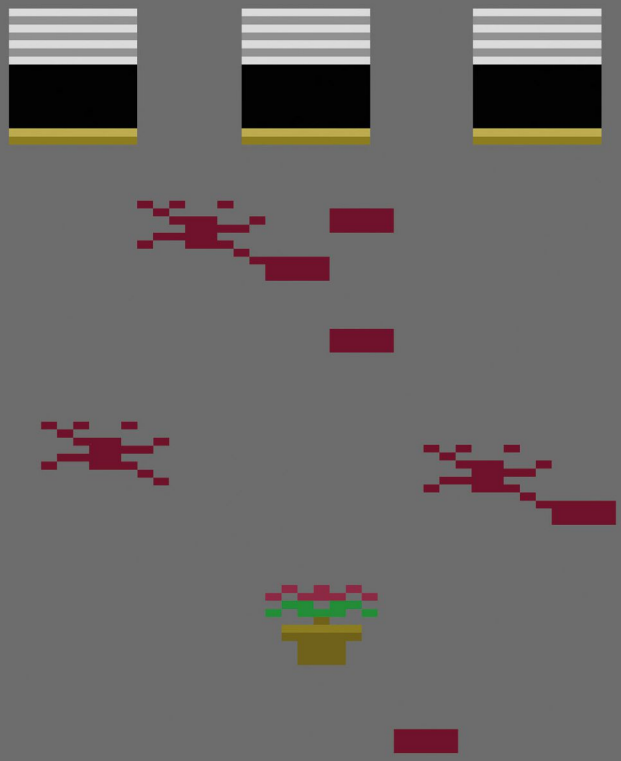
How did you both get hired by Activision?
After leaving Wickstead Design Associates, Garry and I started a software company named Imaginative Systems Software in the basement of his New Jersey home. Soon after starting, we partnered with two programmers, John Van Ryzin and Kevin Kalkut, who had also worked at Wickstead. At ISS, I wrote two text adventures for Hayden Publishing Company – *Crystal Caverns* and *Crime Stopper* – while Garry contracted with Coleco to design the Atari 2600 version of *Donkey Kong*.

During these early days of Activision, they included their game catalogue with every Activision game. On the back page of every catalogue were photos of the four founders (Dave Crane, Bob Whitehead, Al Miller and Larry Kaplan). We loved Activision's games and wanted to work for them, so, one day, Garry took out a catalogue and drew images of our faces over the faces of the four Activision founders, solidifying our goal to someday join Activision.

That year (1982) we attended the CES in Las Vegas. Due to Garry's excellent job creating *Space Jockey*, we were able to get meetings with both Activision and Atari. After meeting with both the companies, each wanted to fly us to California a few weeks later for interviews. First, we flew to Cupertino to meet with Atari, and then returned to California a week later to meet with Activision in Santa Clara. The meetings with Atari were interesting, to say the least. We learned that the product development team simply created whatever the marketing department directed them to do, and we were literally told by a VP there that we were 'nothing special' and that he could hire towel designers to do what we do. The next week, we visited Activision, were star-struck meeting the four founders, and were hired by Activision a few weeks later to open their Eastern Design Centre.



> *"Due to Garry's excellent job creating* Space Jockey, *we were able to get meetings with both Activision and Atari."*

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What was it like being part of the world's very first third-party publisher?
It was a wonderful experience. My years at Activision were the best of my career. We were given the freedom to create our own games and were treated like rock stars.

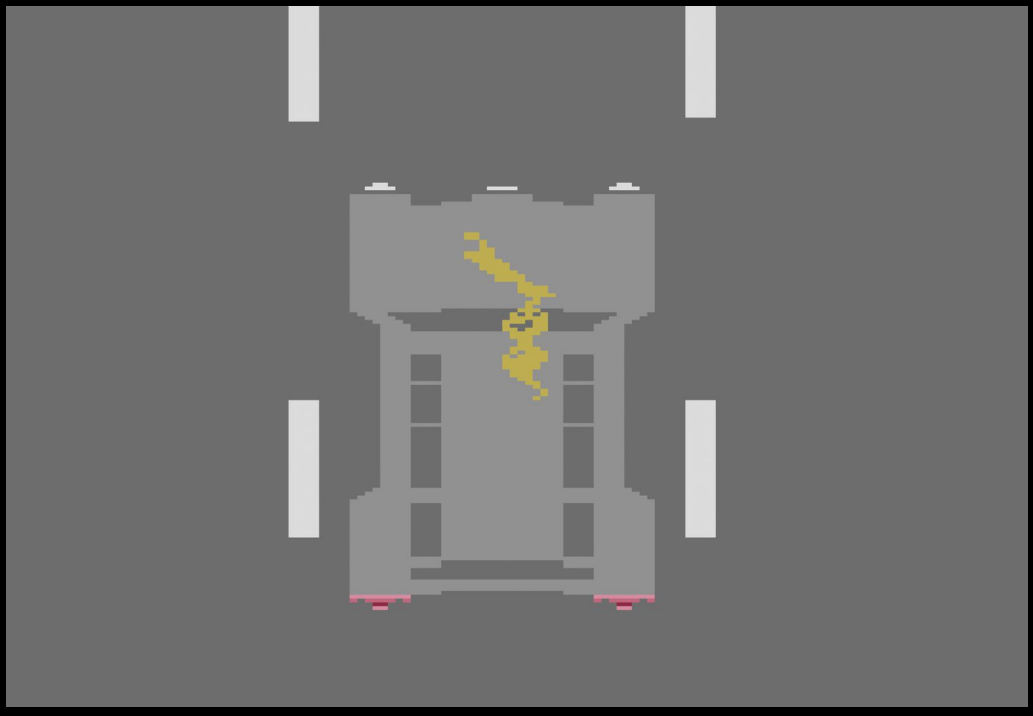
What was the culture like at Activision? Did they encourage you to do your own thing?
Back in the 1980s, the designer was king at Activision. We were free to design what we wanted, with marketing's blessing and support.

You were responsible for the Atari 2600 port of* Ghostbusters. *What were the challenges of bringing such a successful game to the system?
The first challenge I had while creating the Atari 2600 version of *Ghostbusters* was the development schedule. I had about ten weeks, from start to finish, to complete the game and worked nearly around the clock. Next, I wanted to fit as much of the C64 version as I could into the 2600 port, so, to enable some of the C64's features, I had to use the 2600's select and difficulty switches.

You then left to form Absolute Entertainment?
Garry and I left Activision in 1986. By that time, the Activision we'd joined years before was no longer around. In fact, to save their overhead, Activision preferred we leave and become contractors! So we left Activision with a few of the programmers we were working with and formed Imagineering, a game development studio that did work for a variety of game publishers, including Activision, Atari and Acclaim.

We eventually started developing our own games and selling them through a distribution deal with Activision. Our publishing label was called Absolute Entertainment, and thus Absolute was born.

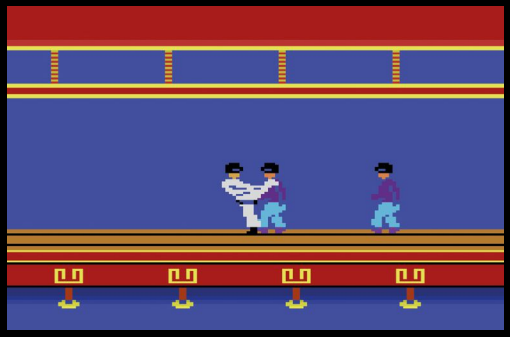
Absolute developed some of the most technically advanced games released for the Atari 2600, such as* Double Dragon. *What changed between 1981 and 1988 that made games like this possible?
The only thing that changed was the price of ROMs. Larger ROMs became much cheaper, so we were able to have larger games with more room to add additional screens and features.



Ghostbusters */ 2600 / 1985*

Absolute also created third-party games for the Atari 7800. Can you tell me what you thought of the 7800 and how it compared with its rivals?
The 7800 was definitely a step up from the 2600 due to its improved graphic capability, but it wasn't as powerful as the SEGA Master System, which was released in the same year, or the NES, for that matter, which was released years before.

Can you tell me any interesting stories about your days working on Atari 2600 and 7800 games?
When we opened Activision's Eastern Design Centre in New Jersey, we were Activision's first satellite office, apart from the main office in Santa Clara, California. Three months after we opened the office, Activision's President, Jim Levy, and VP of Development, Tom Lopez, visited the office to see what we'd been working on. We knew when they were coming, so we decided to quickly create a few 'fake' games that looked really bad and present these to them as our current projects. I'll never forget the look on their faces when my brother Garry flicked the switch on the first 'game'. When he did, all of us around him pretended we really liked the display.



Kung-Fu Master */ 2600 / 1987*

Double Dragon */ 2600 / 1989*

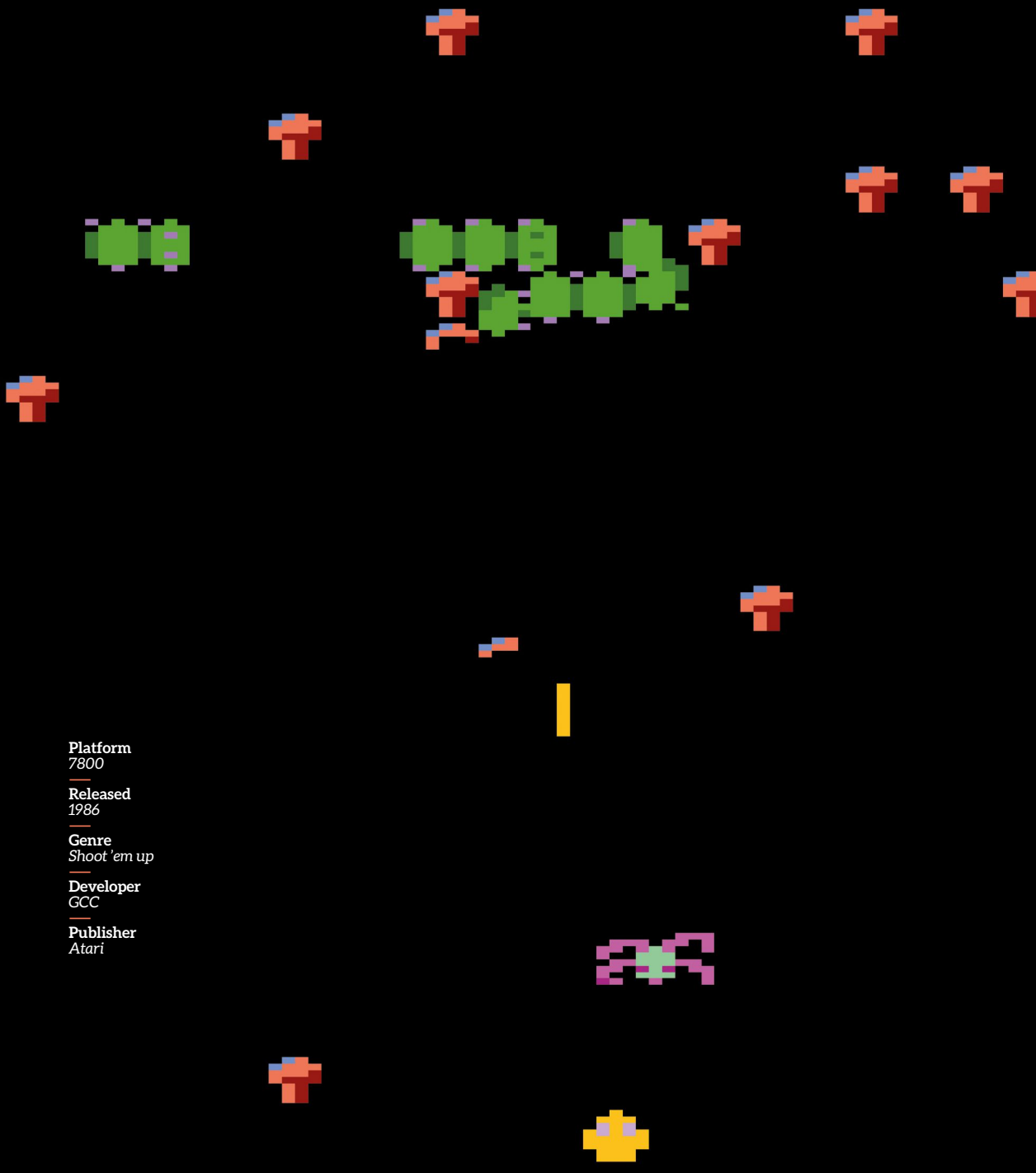
After about two minutes of trying to keep a straight face, Garry cracked up laughing and you could see the relief on Jim's face when he realised that the games he had just seen on the development system screen weren't the ones we'd been working on. We laughed about that for years afterwards.

> *"Larger ROMs became much cheaper, so we were able to have larger games and had more room to add more screen and features than our original games."*

You famously worked on a sequel to* Keystone Kapers *that was sadly never released. Can you tell us the story behind this sequel and why it never saw the light of day?
In June of 1983, while working as a game designer at Activision, I started designing a sequel game to my brother Garry's smash hit, *Keystone Kapers*, which I called *Keystone Kannonball*. The initial gameplay was to chase Harry Hooligan throughout the train, and catch him before he reached the caboose and either escaped or time ran out. With each level, the train would increase in length and different obstacles would appear on the train cars. This was what I was confident I could fit in a 4K ROM.

You recently released the prototype ROM. What made you decide to do this after so many years?
In October of 1983, due to the nationwide video game crash, Activision pulled us off the 2600 and asked us to focus on games for other systems, like the Commodore 64. I made a prototype cartridge of what I had so far and brought it home. Fast-forward to a humid summer afternoon in June 2018, at my offsite storage facility in New Jersey. At the bottom of a cardboard box, I found the *Keystone Kannonball* cartridge I'd made 35 years earlier, which I thought was lost for all time. Within a few weeks of finding the cartridge, I donated the prototype to the National Videogame Museum and decided to rewrite the game from scratch and release it as *Dan Kitchen's Gold Rush™*.

Finally, which one of your many 2600 and 7800 games are you most proud of and why?
Of all the 2600 and 7800 games I designed, I'm most proud of *Crackpots* for the 2600. It was my first game for the console, and, to me, it encapsulates the fun, creative atmosphere that existed at Activision in its early days.



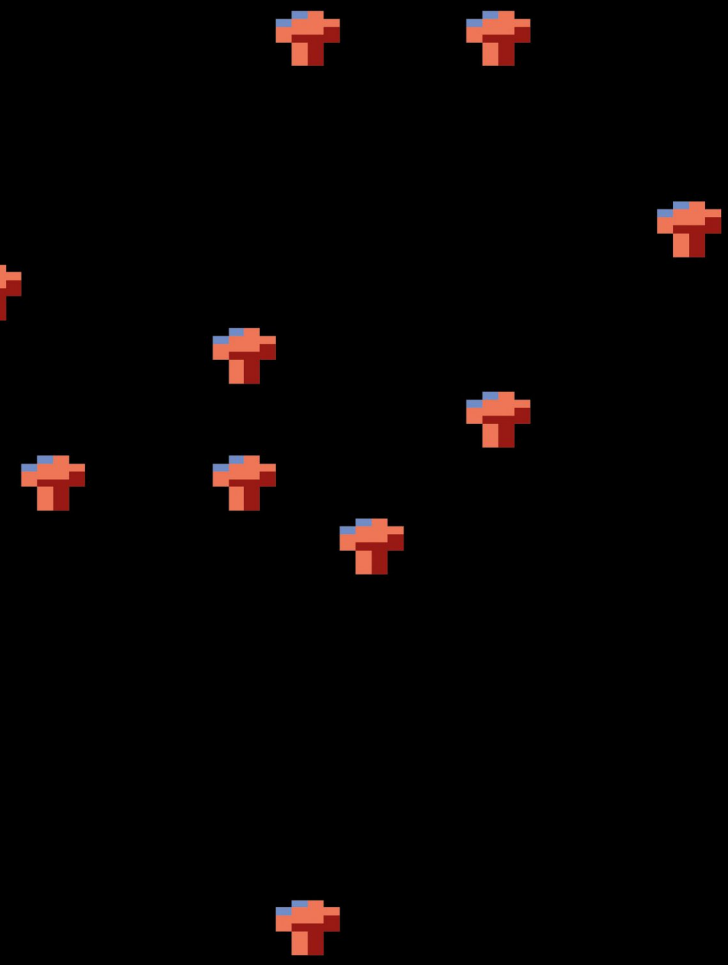
Platform
7800

Released
1986

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari



Centipede

"*Centipede* was developed from July 1980 until its release in May 1981. It began with an idea from a brainstorming notebook kept by Atari: 'A multi-segmented insect crawls onto the screen and is shot, segment by segment'. We started with a hardware board that had been used before and had been proven to be stable and durable. The raster graphics were developed, gameplay followed, scoring was added, sounds came after that, and then there were several iterations of making gameplay more challenging with new characters and graphics. All the standard video game features had to be added, such as test mode, attract mode, coin mechanism functions, cocktail table version, and so on. There was a marketing focus group with feedback, then an arcade on-site test for a few weeks, and finally *Centipede* went to the production line where it was built and shipped out, beginning in May 1981.

"Since the game started with the idea of the 'multi-segmented insect', the centipede was the first character drawn, and it was always called *Centipede*. I think I've always been partial to the character of the spider because it's bratty and unpredictable. I was afraid of spiders, and I liked the idea of a digital battle with one on the screen of my game. I wanted it to look shimmering and appealing in a darkened arcade, and I wanted the gameplay to be compelling, like a battle with instantly familiar characters. I hoped that everyone would like using the easy-to-control trackball. I hoped, since I liked the game, others would, too."

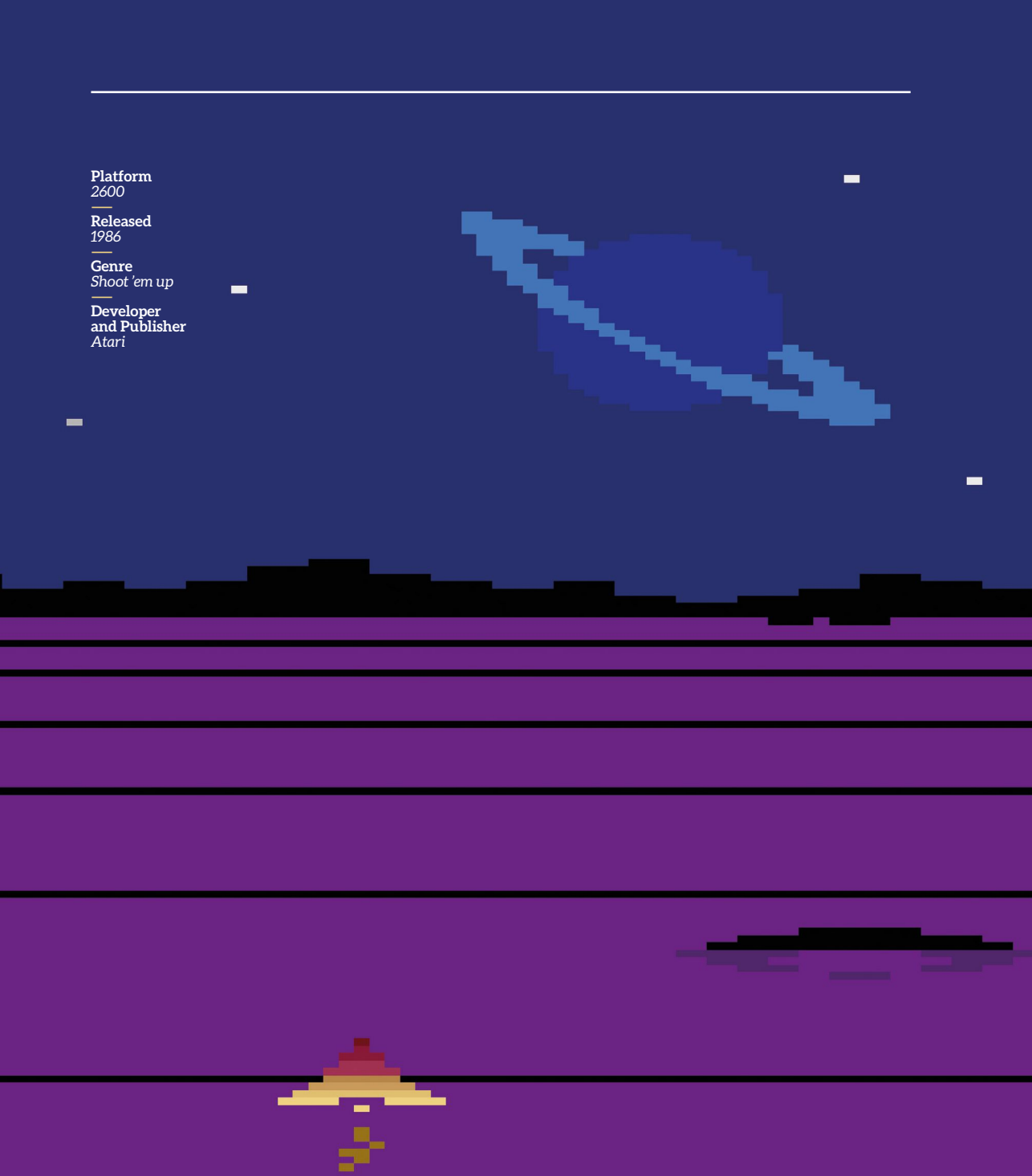
Dona Bailey, co-designer and programmer of arcade original

Platform
2600

Released
1986

Genre
Shoot 'em up

Developer and Publisher
Atari



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Solaris

"Doug Neubauer's *Star Raiders* is famous for being the killer app of the then-new Atari 400 and 800 home computers that were launched in late 1979. Somewhat less celebrated, but no less impressive, is Neubauer's attempt at a 2600-only sequel. In *Solaris*, the Zylons have returned, and you must destroy them using your StarCruiser's photon torpedoes and targeting computer once again. This time, you have to find the lost planet *Solaris* (the only blinking planet in the galaxy) and rescue Atari Federation members before the Zylons find them first and destroy everything.

"During the game, now in the third-person perspective instead of first, you must use your ship's Galactic Scanner to hunt down aliens in the 48 sectors of each of 16 quadrants. Corridors, Wormholes, Star Clusters, Blockaders and even alien home planets await you. In addition, you must defend Federation planets against the Zylons. An alarm rings when an attack is happening, and you'll have just 40 seconds to save the planet before it's obliterated and turned into a Red Zone, where up is down and down is up.

"*Solaris* retains the strategic elements and fast in-space combat of the original while adding planet flyover stages and a rescue component – all on a system that's much less powerful than the 400 and 800. There's also zero flicker, which is truly an achievement. *Solaris* is just plain fun to play and one of the best games ever made for the 2600."

Jamie Lendino, guest reviewer

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Ms. Pac-Man

It was kind of inevitable that *Ms. Pac-Man* would become one of the first games on the Atari 7800. Not just because of Atari acquiring the home rights to the game, but also because of GCC's involvement in the arcade original. As we all know, GCC was responsible for designing the 7800 hardware, but, before their grandest creation, they also created *Ms. Pac-Man*. The title actually started off as a game called *Crazy Otto*, a mod-kit for the original *Pac-Man* that added new mazes and sped things up, among other minor adjustments. Scared that it would end up getting sued, as it already had by Atari for another arcade mod in the form of *Super Missile Attack*, GCC sensibly sold the game to Bally/Midway to be adapted into a true *Pac-Man* sequel, which was eventually adopted by Namco. As you'd no doubt expect, this all means that the 7800 port is remarkably close to the arcade original, and was, for a long time, regarded by many as the best coin-op conversion on a home console. It also helped kickstart the 7800 homebrew and hacking scene too, as people messed with the code to create alternative *Pac-Man*-style games.

Platform
7800

Released
1986

Genre
Arcade

Developer
GCC

Publisher
Atari

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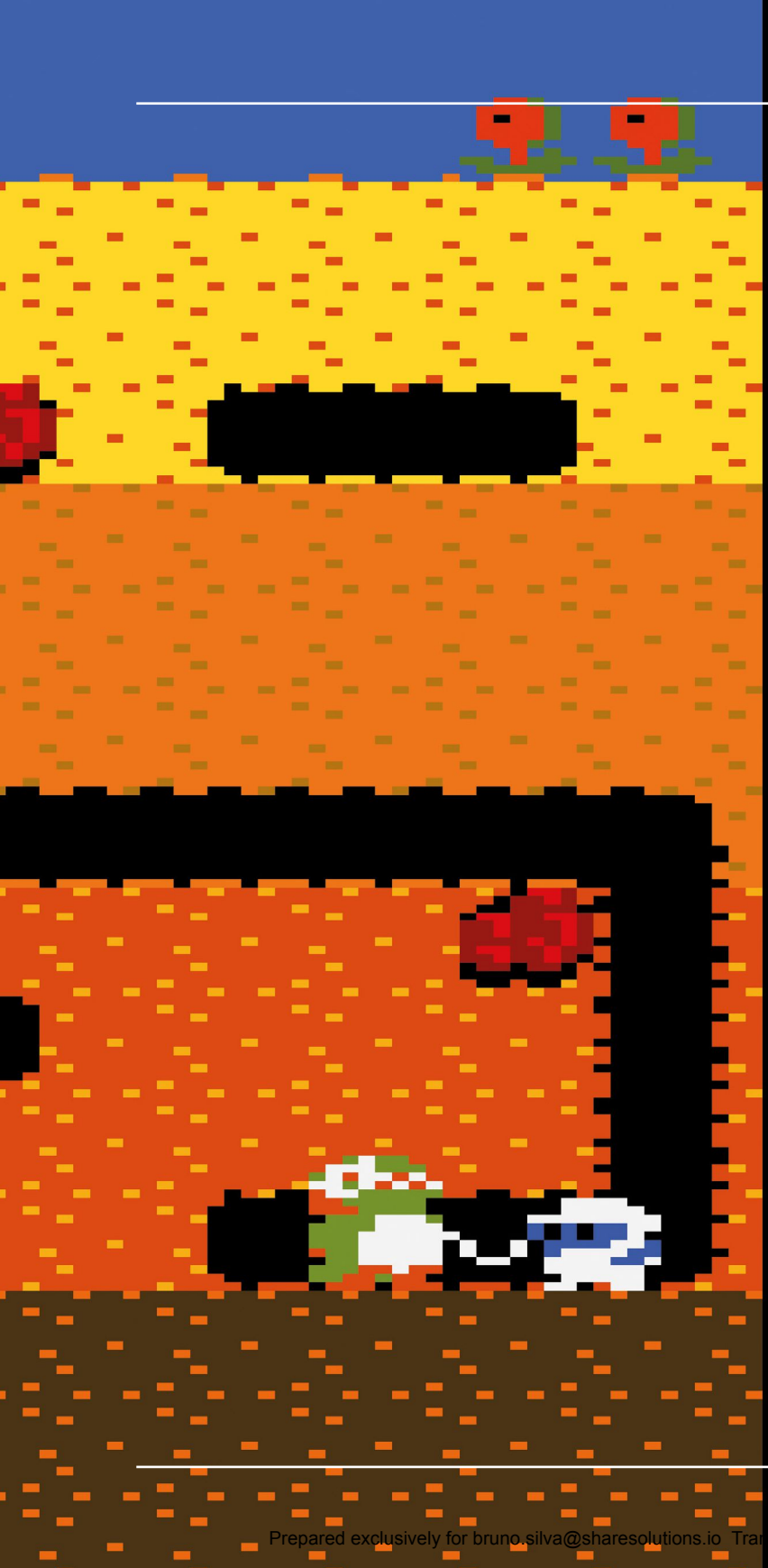

Dig Dug

One of the games that made it out for the original 1984 launch, *Dig Dug* is a conversion of the hugely popular Namco arcade game of the same name that was actually brought to the West by Atari itself. This deal also gave it home rights to the game too, and thus it became one of the very few titles announced for the 7800 ProSystem. *Dig Dug* is a perfect example of the huge originality you saw in the so-called 'Golden Age' of arcade games. You play a little guy with an air pump who has to dig around in the dirt, tracking down enemies and killing them. There are two different ways you can despatch the enemies: using your pump to inflate them until they explode, or dropping a boulder on their heads to squash them. There are two different types of enemies too: the alien-looking Pookas and dragon-like Fygars, with the latter having the ability to breathe fire. If you fail to kill the enemies quickly enough, they get faster and more aggressive, coming straight after you! This Atari 7800 port is extremely close to the arcade original, making it a game you'll really want to have in your collection.

Platform
7800

Released
1986

Genre
Arcade

Developer
GCC

Publisher
Atari

Originally by
Namco

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Joust

"'Prepare to Joust Buzzard Bait!' *Joust* is an Atari 7800 game from 1984 and was originally published in the arcades by Williams in 1982. In a game where you fly on an Ostrich with a lance, it gives a whole a new meaning to giving a player 'the bird'! It features four difficulty modes - Beginner, Intermediate, Advanced and Expert - and supports one or two players (yay!). Flappy happy times!

"It's really simple: press a button to flap your wings and go up, and the controls feature inertial response, as you float down trying to land on other birds' heads to release an egg, which bounds all over the place, and which you can capture for points (more points if the eggs are in mid-air). As you go through the levels, platforms disappear, and you have to avoid landing in the lava at the bottom of the screen, all the while trying to land on the heads of other enemies flying around.

"Watch out for the Vultures and three-coloured enemies; you get Survival points at the end of each round. Every five levels, you get an egg-collect round for yummy points, and, if you dawdle, Pterodactyls will zip across the screen to ram/kill you. Savour the Ostrich's strutting legs and grrr-eat audio crank in this game!

"*Joust* has beautiful, simple gameplay worthy of Nintendo, but the graphics are basic two-frame animations. It only has one button to flap and you only move left/right… how can that be fun? 'Thy game is over'"

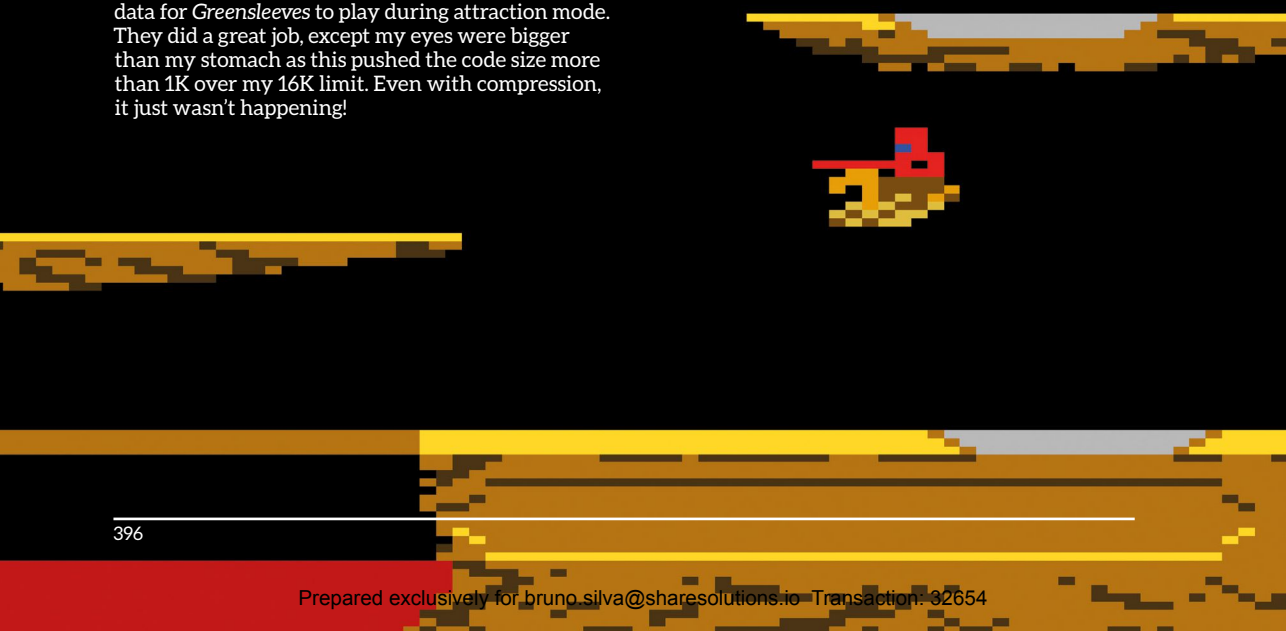
Tony Takoushi, games journalist

"*Joust* 7800 was built right after the 5200 version. Given the expanded graphic capabilities of the 7800 platform, this was a complete rewrite. Before, there was flickering when there were more than four birds in a row – not anymore! And the pterodactyl looked and performed well.

"While the hardware was being finalised there was only one development station. I recall spending a weekend at the office so I could get on the hardware and learn how to get the best from the 7800. All the guys at GCC were clever coders, especially around tricks to keep the code size small. At one point, near completion, I asked the music group to give me the data for *Greensleeves* to play during attraction mode. They did a great job, except my eyes were bigger than my stomach as this pushed the code size more than 1K over my 16K limit. Even with compression, it just wasn't happening!

"I did put an Easter Egg into the game. At the time, I was living at the address 23B, and, if you pushed the joystick 23 times to the left, and B down (or something like that), my signature would scroll across the screen and you'd get 99 lives. You can see the screenshot of this online – needless to say, the numbers were in hex!"

Peter Gaston, programmer



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Platform
7800

Released
1986

Genre
Action

Developer
GCC

Publisher
Atari

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Galaga

"After Namco enjoyed its first significant arcade hit with 1979's *Galaxian*, it was almost inevitable that the Japanese gaming company would return to the fixed shooter sub-genre. *Space Invaders* offers the most famed example of a fixed shooter, where the player craft is locked to a single axis of movement, allowing it to sweep back and forth across the screen. *Galaxian* was lauded for the improvements it built on top of *Space Invaders*' admired foundation.

"But, when Namco released *Galaxian* sequel *Galaga* to arcades in 1982, it took things to another level, introducing a variety of enemy types and behaviours, relatively complex scoring depth, and various ways in which the player could manipulate the gameplay systems. The notion that shooters could bury away advanced gameplay techniques was here to stay.

"And it just so happens that the Atari 7800 port of *Galaga* is superb. It runs a shade slower than some of the other ports, but feels well rounded and delicately balanced. Visually, it's clearly a game of its time, but the gameplay on offer was a good way ahead of other 2D shooters. It's tough and delightful in equal measure. *Galaga* is, quite simply, one of the finest games ever released for the 7800."

Will Freeman, games journalist

Platform
7800

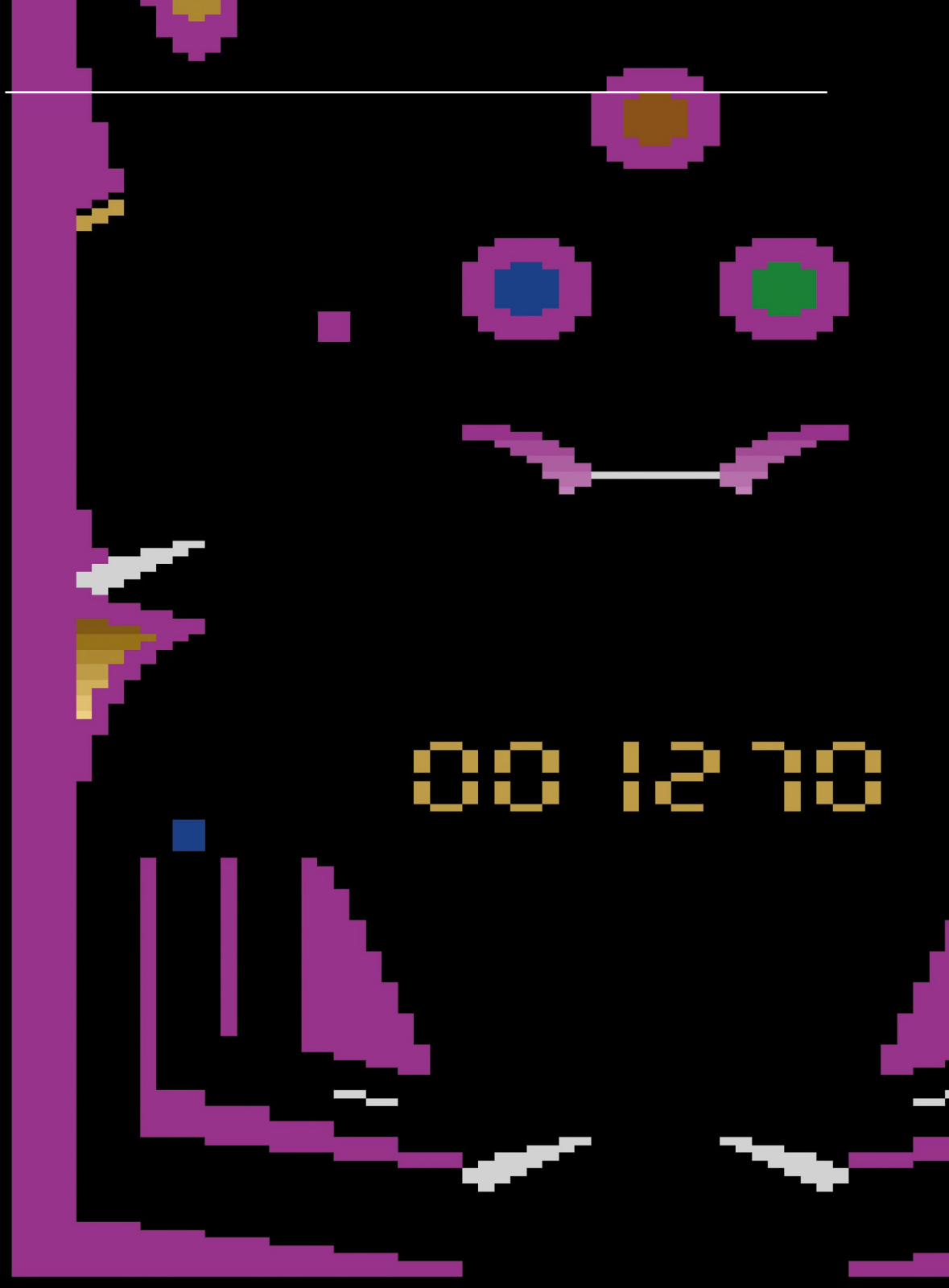
Released
1986

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

Originally by
Namco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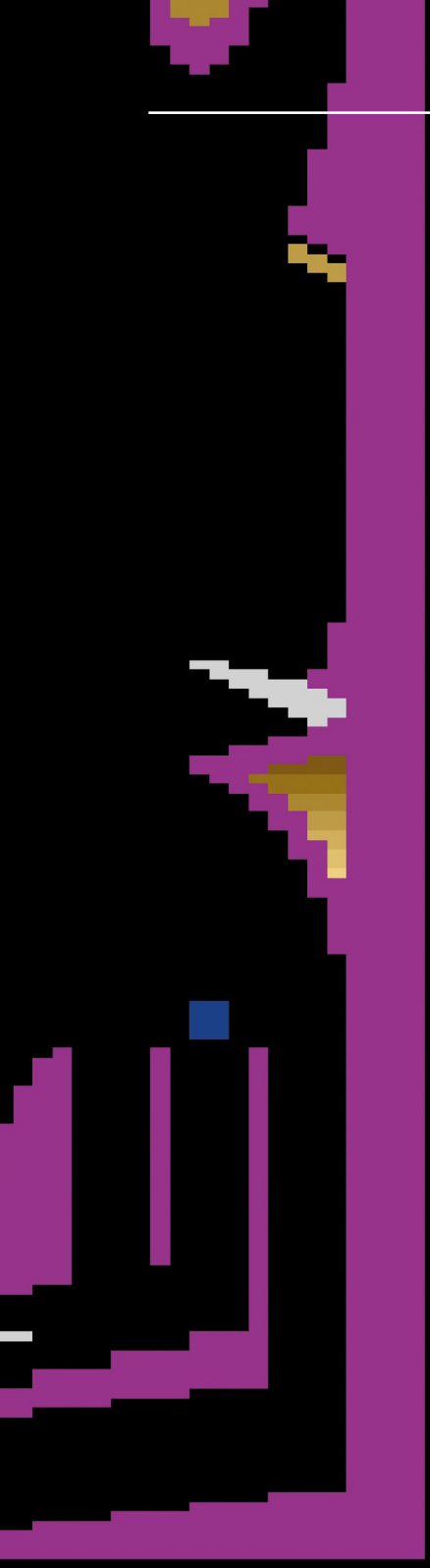

Midnight Magic

"*Midnight Magic* started as a game about nothing, with nothing useful to help create it. My efforts came from the desire of one of our earliest programmers to learn what was inside the Atari 2600, and we learned there were three chips: a 6507 processor with 12 bits of address bus, a timer/memory chip with 128 bytes of RAM, and the TIA chip, which would allow one to paint a scanline on the fly, by strobing the necessary output ports with the right values at the right time.

"When I say it was a game about nothing, it was. It was an experiment in how much detail one could squeeze onto a scanline, and the game evolved, scanline by scanline, until it was decided that it would be a pinball simulation, which was mostly static and full of fine details. Nothing was available to help create it since it was a closed and undocumented system, and Atari itself used simulation software to write its games. We used Apple IIs, with one to four ribbon cables running from the back and into the 2600's cartridge socket, where 4K of simulated ROM could be bank-switched into the 2600's 4K ROM window at a time. When we visited Atari, we would fire up our systems, and programmers from all over the building would know we were there, based on the RF radiation that was distorting the screens in their own offices. Oddly enough, without any support from Atari to create this game, we licensed it to them."

Glenn Axworthy, designer and programmer

Platform
2600

Released
1986

Genre
Simulation

Developer
Brøderbund

Publisher
Atari

Atari 2600 Jr. console */ 1986*

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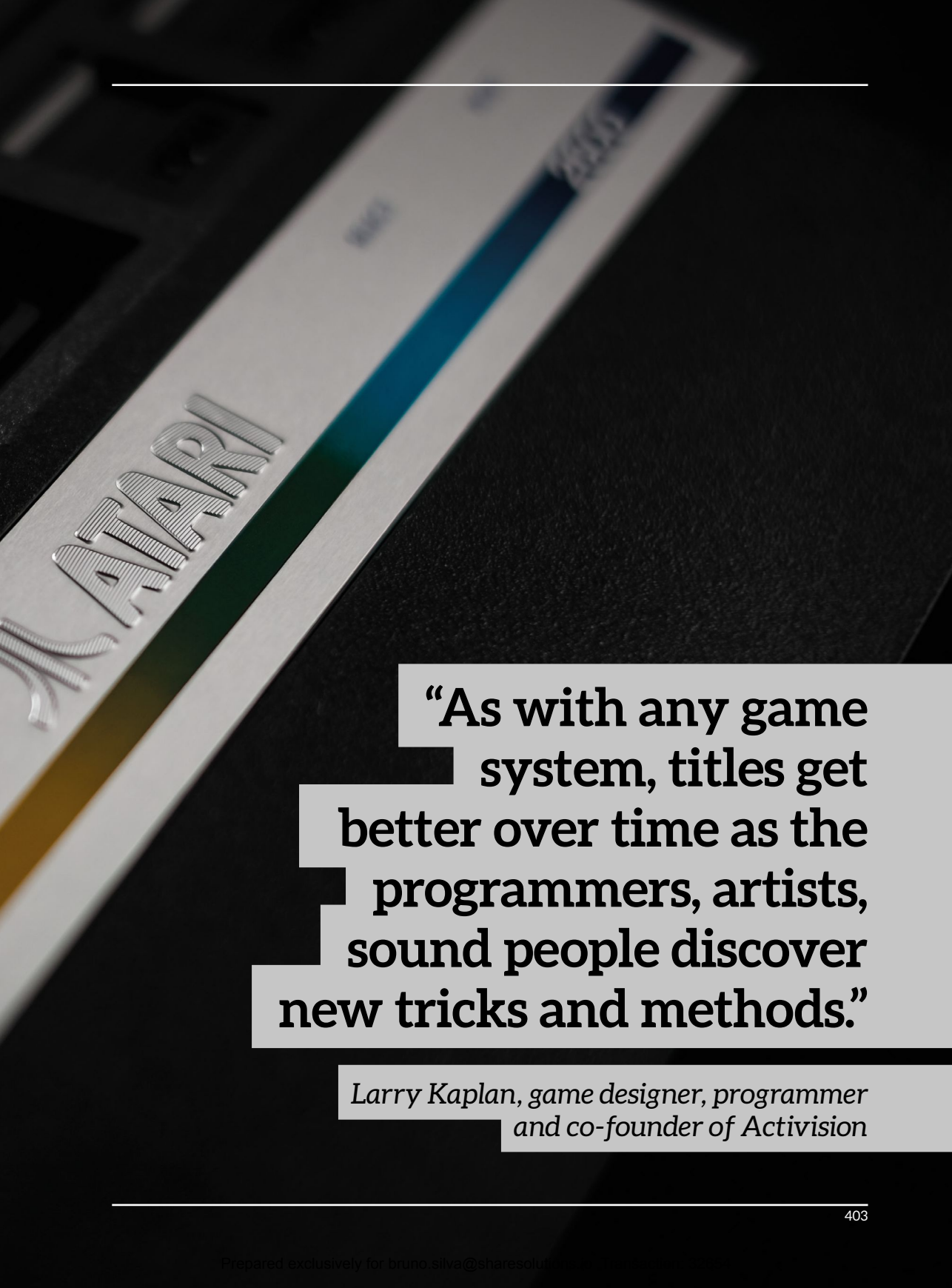

> **"As with any game system, titles get better over time as the programmers, artists, sound people discover new tricks and methods."**

Larry Kaplan, game designer, programmer and co-founder of Activision

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ATARI PREPARE

Platform
7800

Released
1986

Genre
Racing

Developer
GCC

Publisher
Atari

Originally by
Namco

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Pole Position II

"Mention this game to many gamers today, and they'll think it's to do with a long metal pole and athletic females. Well, actually, no! *Pole Position II* is an Atari game that was licensed from Namco. It features four tracks where you have to do a qualifying lap, then race (you get Pole Position if you come first in qualifying).

"You have a limited time to get around the track, and contact with another car usually means you go up in a big explosion, with two tyres whizzing off in different directions. Only two gears keep it simple (Lo/Hi), and a max speed of 255mph keeps your palms nice and sweaty as you dodge between oncoming racers and more curves than a rattlesnake!

"Dangers include puddles that go 'thwip' as you trundle through them and slow you down, as well as the dreaded Atari billboards at the side of the track. A hallmark of this game was the scrolling banner at the top of the screen with 'Prepare to Race/Qualify', and a car-passing bonus added at game over with a cheery jingle. Atari really nailed this one, with the arcade colours, graphics and speed – for its day, it was pretty good."

Tony Takoushi, games journalist

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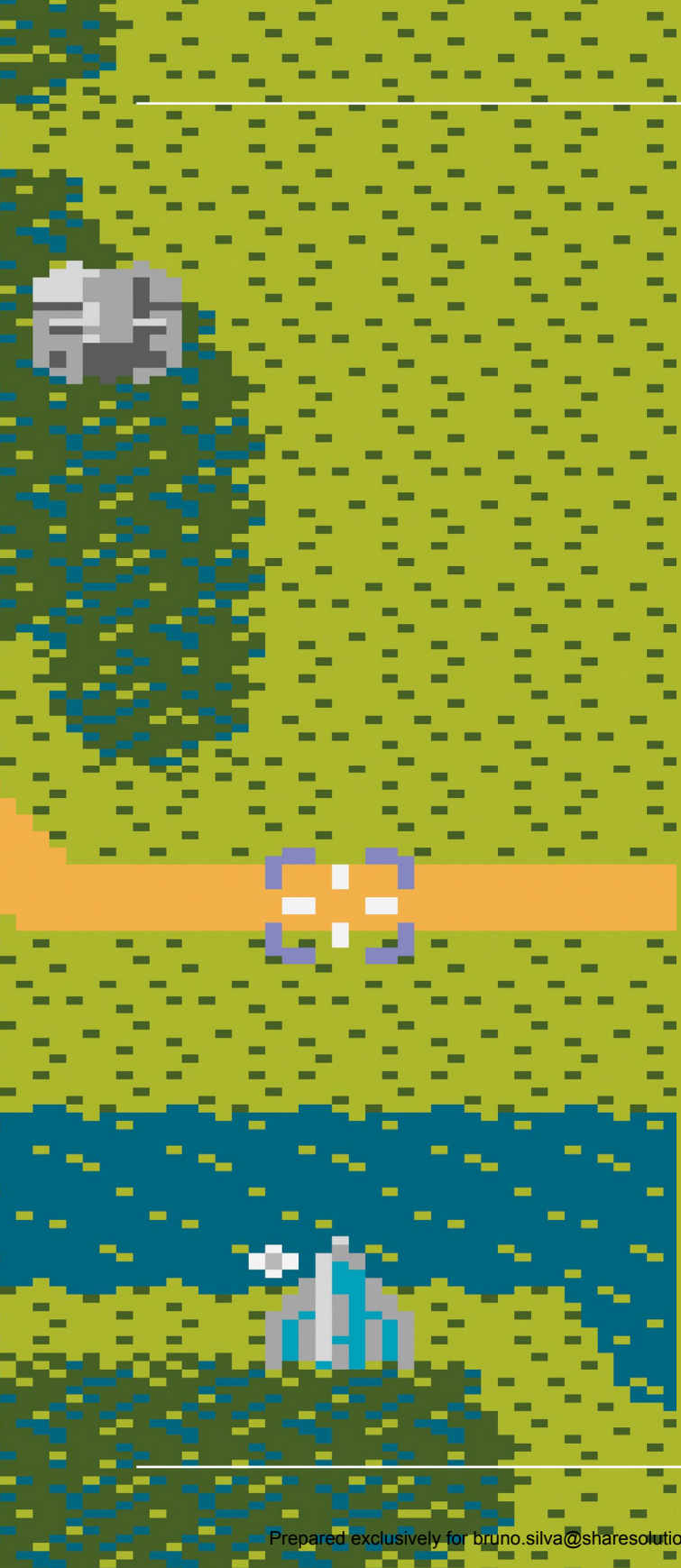

Xevious

"While *Xevious* might not court the iconic status of household names like *Space Invaders* and *Asteroids*, it's certainly one of the most influential 2D shooters of all time. Developed by Japanese outfit Namco, *Xevious* was distributed to US arcades by Atari in 1983. On release, it was almost certainly the first game to feature pre-rendered graphics, a pioneer of the concept of 'boss battles' as an obstacle to progression, and one of the earliest titles to include a storyline. Certainly, its impact on game design can still be felt far beyond its own genre.

"*Xevious* was equally a technically impressive title that played fast and fluidly, filling its screen with impressive numbers of enemies and bullets – all of which makes the Atari 7800 *Xevious* port particularly captivating. There are differences here and there, but it remains a notably thorough conversion of a technologically demanding arcade release. The 7800 version has all the pace of the original, with every enemy and bullet in place, and flows with an excitable energy that absolutely feels arcade-authentic. Contrasted to the cancelled Atari 2600 version of *Xevious* – which is charmingly primitive – the 7800 version is staggering. Indeed, it may be one of the console's finest arcade ports, even if it isn't the most well known."

Will Freeman, games journalist

Platform
7800

Released
1986

Genre
Scrolling shooter

Developer
GCC

Publisher
Atari

Originally by
Namco

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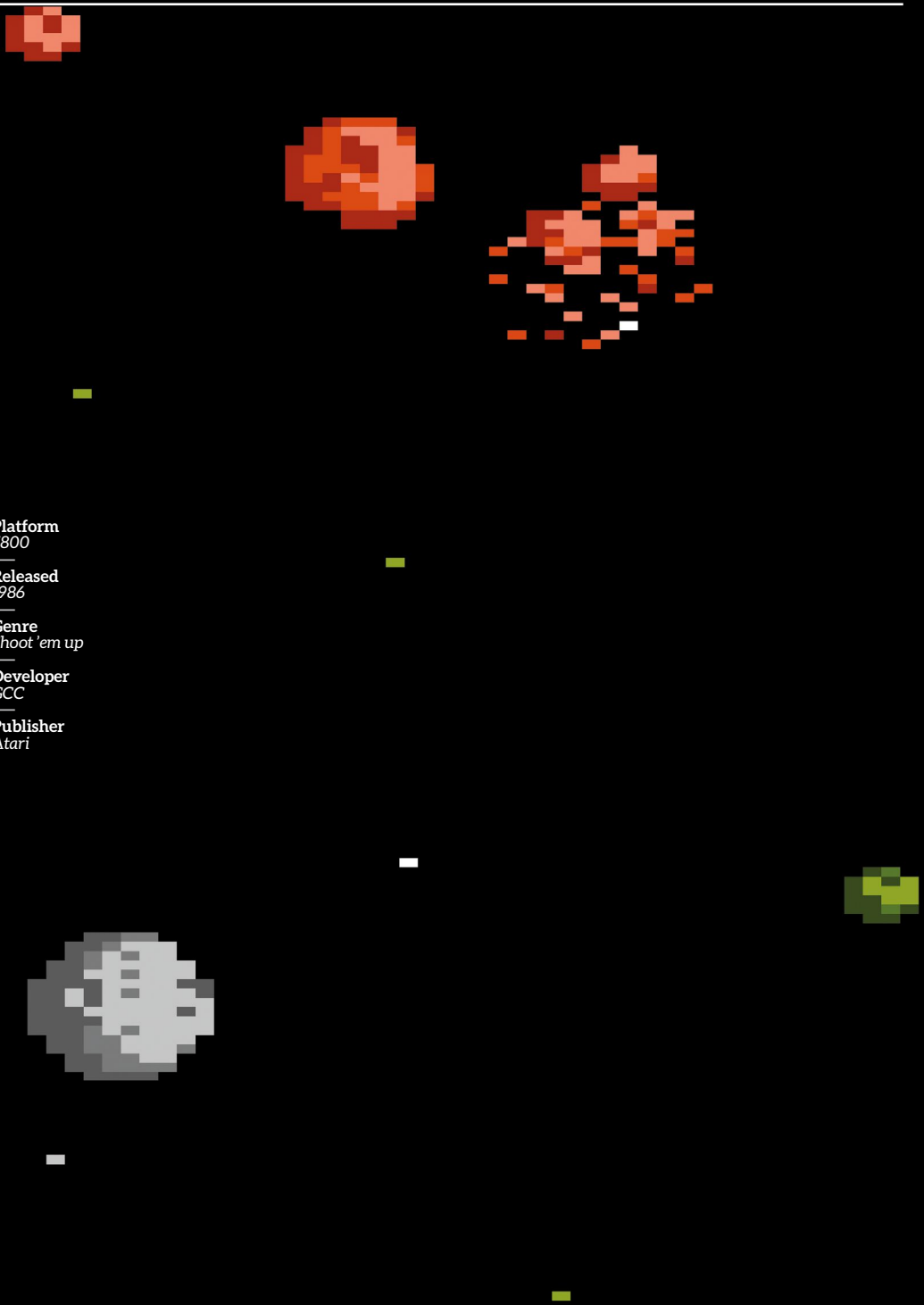


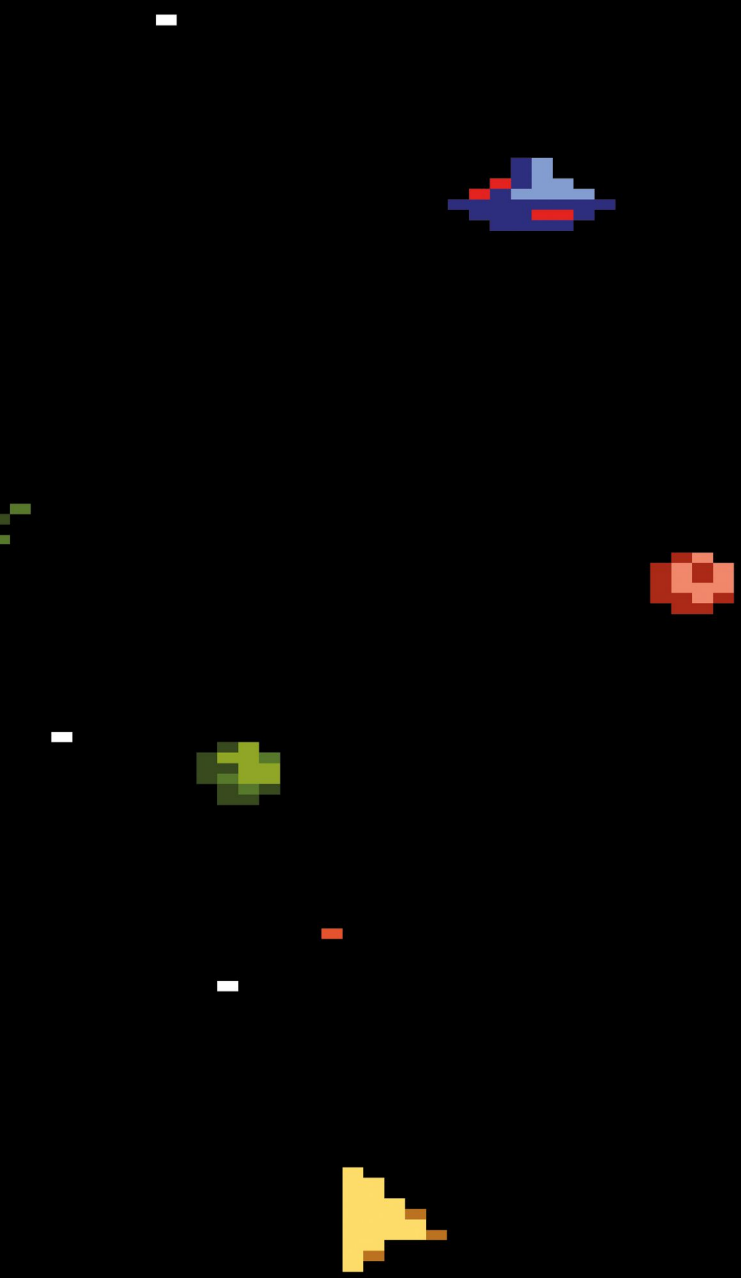
Platform
7800

Released
1986

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari



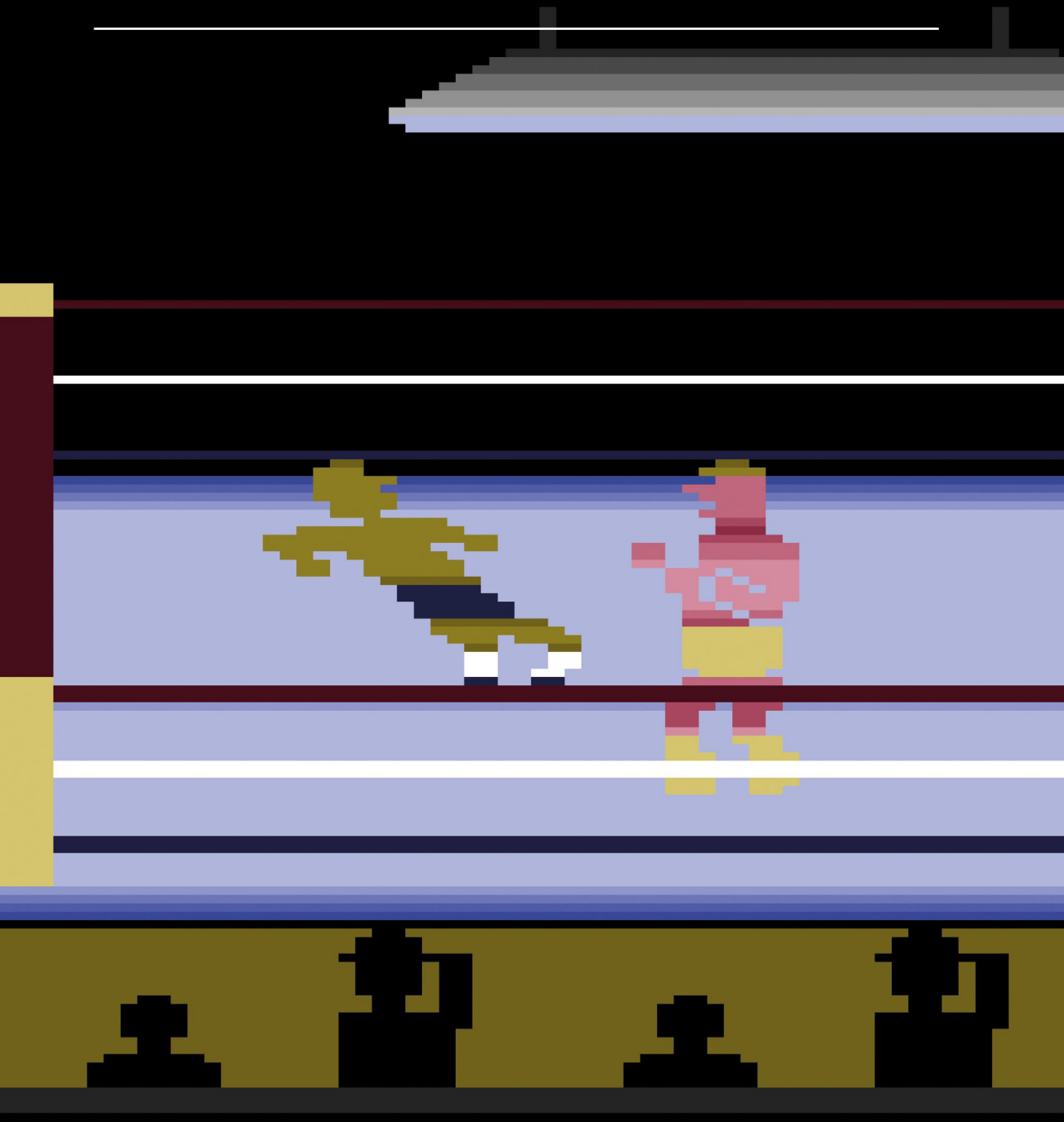
Asteroids

"As mentioned in the *Robotron 2084* review, I'm a fan of the 7800 console – so much so that I actually still have three of them (two USA and one PAL) in storage amongst my 50-odd boxes of goodies from 1979 to present day.

"The first game I played was *Asteroids*, and it was a 'pack-in' with the console, or you could buy it separately (as they used *Pole Position II* in the USA as the pack-in title). *Asteroids = Lost in Space!* Same feeling as the old TV show; you are, indeed, lost and looking for danger and excitement… and you get it!

"Graphics were great, with big hunky asteroids for those of you that like your boulders bold, and a more immersive feel than the vector scan original (though I do still love the smoothness of vector scan). The shooting sound was pretty basic, and destroying asteroids made a sound like swotting flies 'Thwat, thwat – die fly!' There were four difficulty levels, and one of the big pluses was the two-player co-op mode, which was very cool for the time and played really well. There were two saucers there for extra points, which were like a blue mini Jupiter 2 on steroids; not the smartest A.I. but, hey, don't knock the free points!"

Tony Takoushi, games journalist


KNOCK-OUT !!

RealSports Boxing

"We already knew Atari had relaunched the 2600 at a budget price, and heard that it was selling very well, especially in Europe. Most of us at Absolute/Imagineering already had the knowledge to program 2600 games, and, as we were already planning to publish several 2600 and 7800 titles ourselves, it made sense to develop games for Atari too. The biggest difference was that, back in the day, it took at least six months to code a 2600 game, and it was usually the work of just one programmer. But by then, it only took us three to four months to turn a project around, thanks to time-saving routines we had learned, and new programming aids and dev kits that had been developed. Additionally, the work was now (usually) divided up among several people, with dedicated artists and musicians to help out.

"*RealSports Boxing* was fun to produce because I was already a big fan of the sport. I was a sports fan in general, actually, and also worked on the *Pete Rose Baseball* games as well football, racing and tennis titles. In fact, I was so pleased with *RealSports Boxing* that I later reused most of the code to create *Title Match Wrestling* for Absolute."

Alex DeMeo, programmer

Platform
2600

Released
1987

Genre
Sports

Developer
Imagineering

Publisher
Atari

Choplifter!

Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
Ibid, Inc.

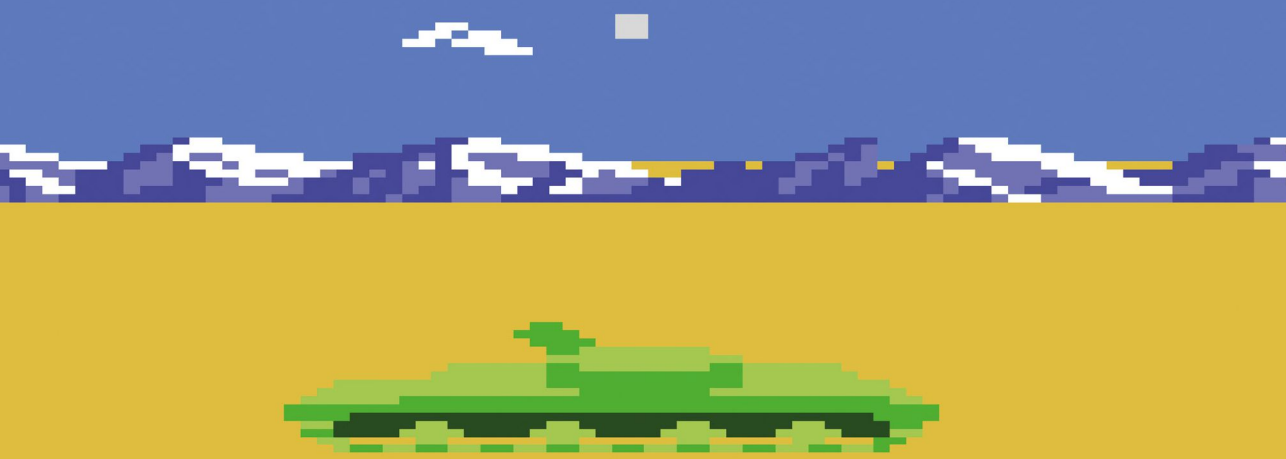
Publisher
Atari

"*Choplifter!* was developed by a company in Hartford, Connecticut, called Ibid, Inc. I remember this because my uncle and aunt also lived in Hartford at the time, which was very convenient for me because I could just go and stay at their house while I was working on it.

"*Choplifter!* was fun to produce because the programmer wrote the program in Forth, which is an unforgiving language. The way he had programmed the helicopter's speed, there was only two possible settings: fast and Whoa, Nelly! I asked him if he could slow it down a little bit, at least in the first level, and he said it would take too long to re-program. So I said, okay, we will stay with the too-fast for the early levels, and we'll only go to the Whoa, Nelly in the upper levels!

"Then we had a real adventure! I was under the gun to get the game done, and then, one night, the developer's 7800 went bang, and smoke started coming out of it. He thought we had lost everything, so he called in the chief engineer, who rushed in, replaced the burnt-out chip and saved the day!"

Tom Sloper, producer



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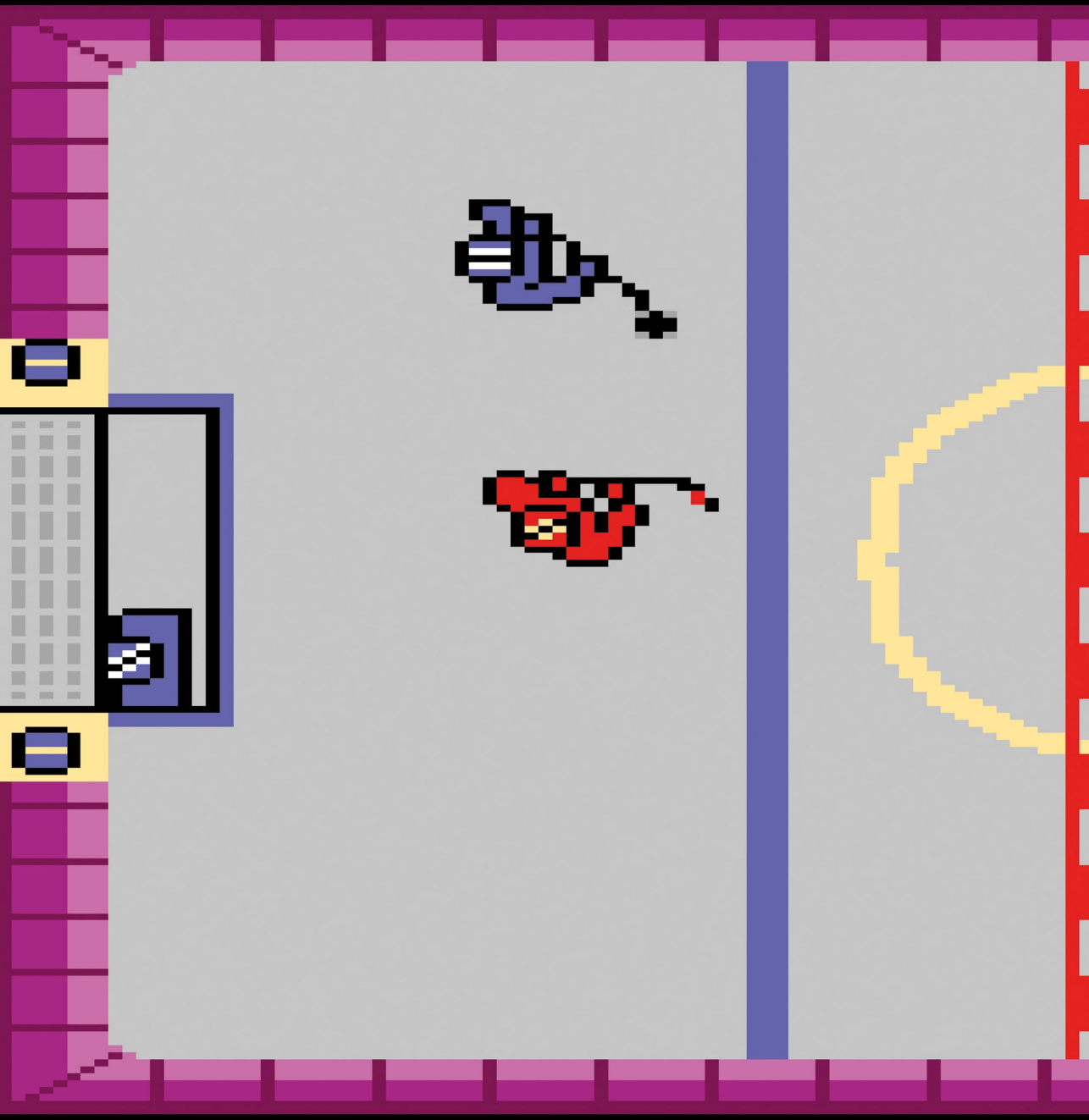
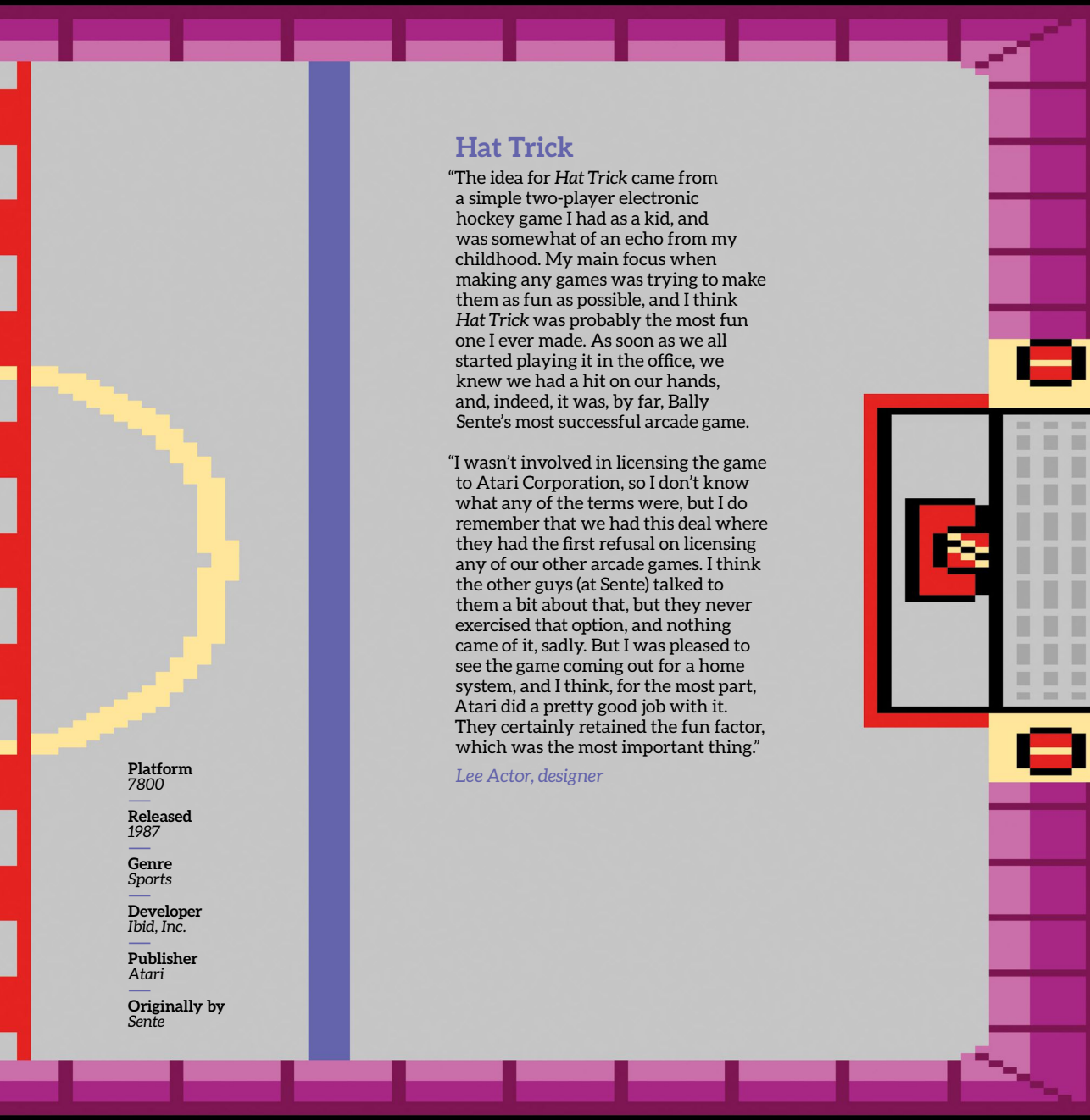




Platform
7800

Released
1987

Genre
Sports

Developer
Ibid, Inc.

Publisher
Atari

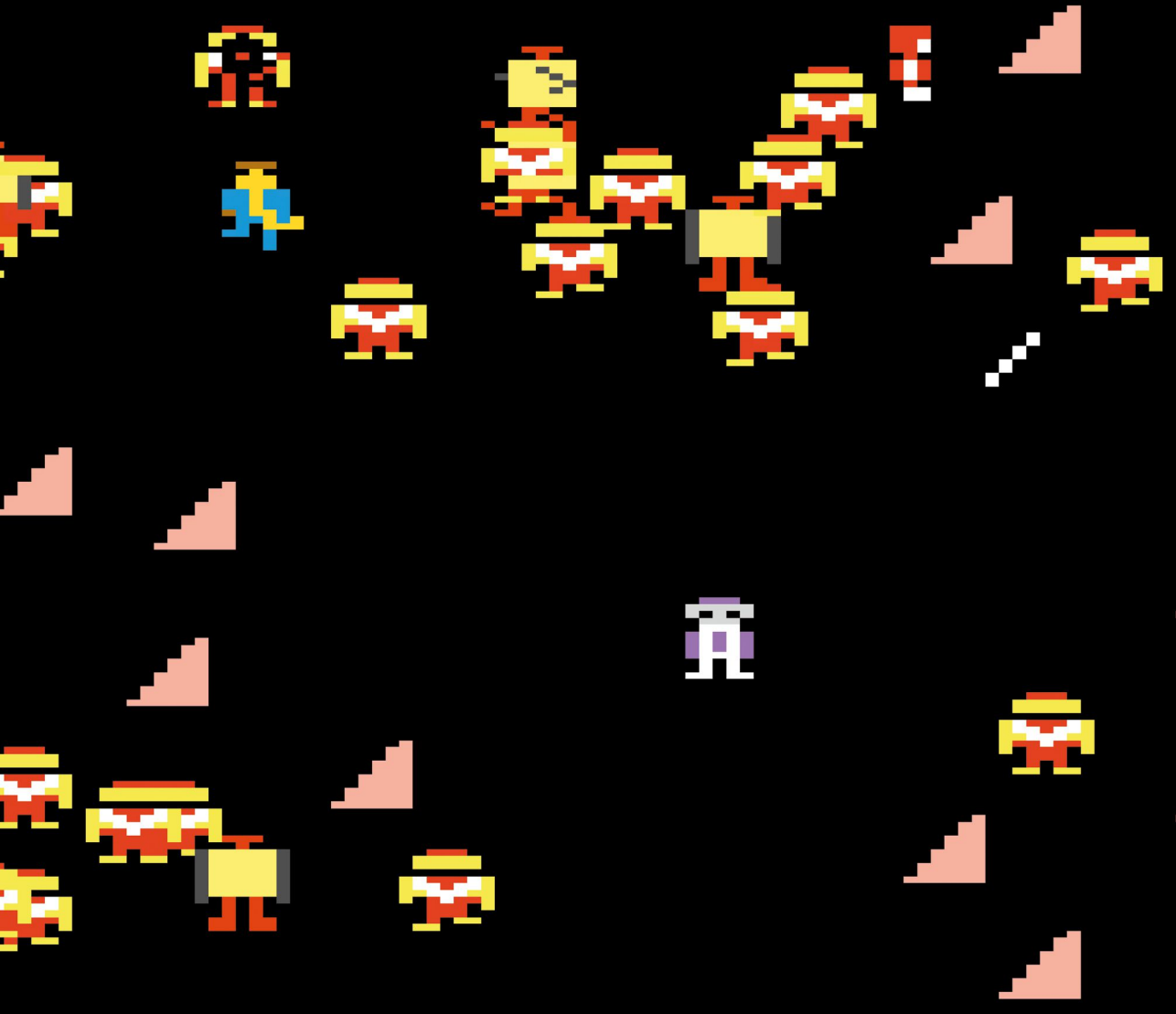
Originally by
Sente

Hat Trick

"The idea for *Hat Trick* came from a simple two-player electronic hockey game I had as a kid, and was somewhat of an echo from my childhood. My main focus when making any games was trying to make them as fun as possible, and I think *Hat Trick* was probably the most fun one I ever made. As soon as we all started playing it in the office, we knew we had a hit on our hands, and, indeed, it was, by far, Bally Sente's most successful arcade game.

"I wasn't involved in licensing the game to Atari Corporation, so I don't know what any of the terms were, but I do remember that we had this deal where they had the first refusal on licensing any of our other arcade games. I think the other guys (at Sente) talked to them a bit about that, but they never exercised that option, and nothing came of it, sadly. But I was pleased to see the game coming out for a home system, and I think, for the most part, Atari did a pretty good job with it. They certainly retained the fun factor, which was the most important thing."

Lee Actor, designer



Robotron: 2084

"It's June 1987: I finally manage to get my mitts on an Atari 7800 and four carts to review for *Computer + Video Games* magazine. I really wanted to see what it could do; the 5200 console was a non-starter, and this was its replacement, AND it was backwards-compatible with the 2600 VCS console.

"As for *Robotron 2084*… I lurvvvv this game! It was the first console game that I scored over a million points on. I'd gone down to visit Jeff Minter (he of Llamasoft fame) and taken some goodies, which included *Robotron*. We had some heavy *Robotron* sessions, and I managed to score over one million, and my palms were, indeed, sweaty and my brow moist. However, I think I had to use a Kempston joystick as the Atari pads weren't man enough for me, with the small thumbstick and lack of throw distance (ugh!). Awesome simple graphics, good audio, and insane, frenetic action all made for a classic blaster! If you had the urge to nip off to the loo while playing, and had sweaty palms and had to reach for that very small PAUSE button on the console, you were in trouble, so I often had to play with my legs crossed! It still plays brilliantly, and I have it on my GPD XD Plus emulator… BLISS! Go get 'em, Tiger."

Tony Takoushi, games journalist

Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
GCC

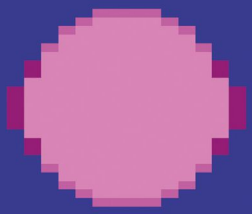
Publisher
Atari

Ballblazer

"There's a very interesting story behind *Ballblazer*. The game was being produced prior to Jack [Tramiel]'s takeover and left incomplete. The programmer of that game, Bob Payne, didn't work for us, so I had to track him down. When I finally found him, he said, *'Well, I need the source code and you'll have to get it for me if you want me to finish it.'* You guys probably have it there somewhere because all that stuff was backed up. So I went and made friends with the guy who ran the minicomputer. And he had a work list. He had a lot of stuff he was digging up for the management, so I made friends with him, and he managed to fit my request in while doing the searches for information for legal and corporate. He found me the source code and gave it to me on a floppy disk, and I sent that off to the programmer.

"Bob finished off the game quite quickly, but it needed a special cart for the sound. So I had to try and get extra money out of Jack to fund that, and getting money out of the Tramiels was never easy!"

Tom Sloper, producer



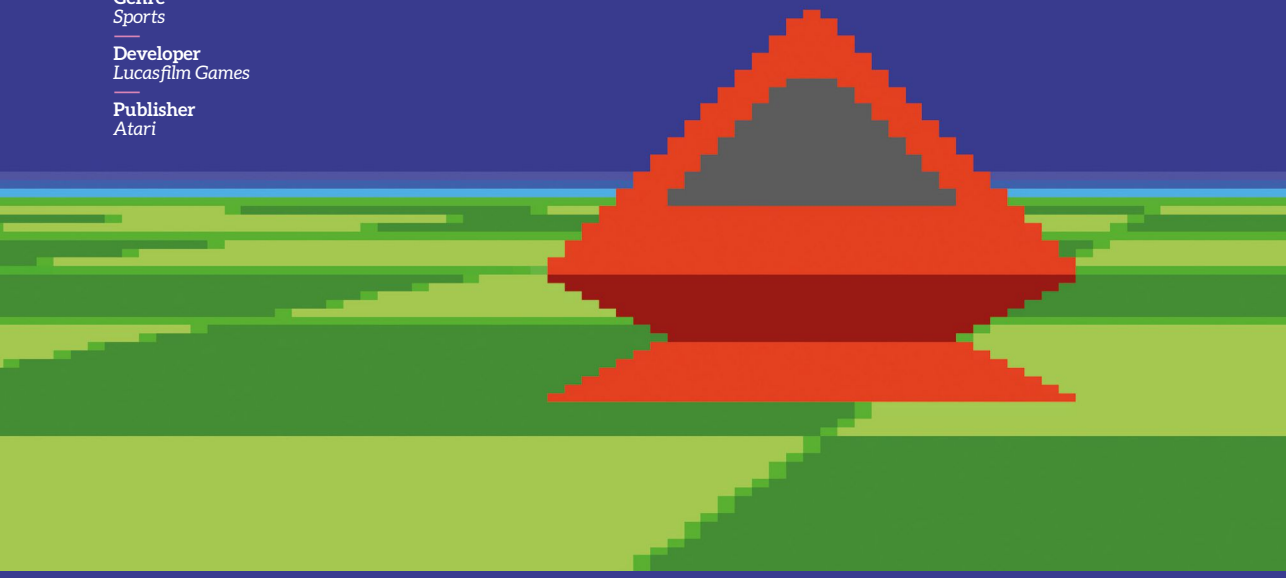
Platform
7800

Released
1987

Genre
Sports

Developer
Lucasfilm Games

Publisher
Atari



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"First released on the Commodore 64 in 1984 by Lucasfilm Games (before the developer became better known as LucasArts), *Ballblazer* is a classic one-vs.-one futuristic sports simulation that can be played against another human, or a ten-level computer opponent.

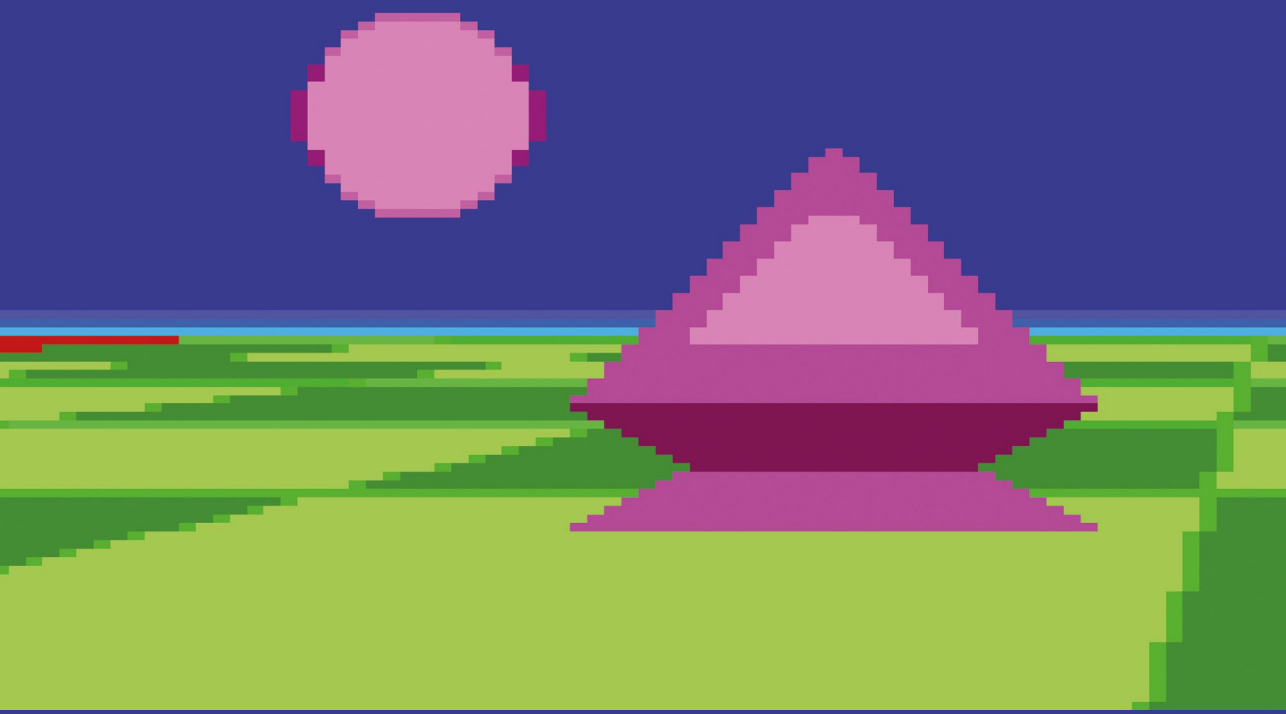
"Participants each take control of a Rotofoil, a floating single-seat craft that speeds around the game's checkerboard playfield at an impressive clip. The objective is to score points by shooting a floating ball into your opponent's goal, while the enemy player attempts to do the same to you.

"At the start of the game, the ball is shot across the playfield, and players attempt to chase it down and gain control of it. Successfully controlling the ball sees it hover in front of your Rotofoil. Pressing fire launches the sphere in a straight line – hopefully, between the posts of your opponent's goal.

"Participants can knock the ball away from an opponent's Rotofoil by bashing and jostling it, and this is where the skilful aspect of the game comes into play. Players basically chase one another around the playfield, trying to win control of the ball by bumping each another out of the way, and making enough space to be able to shoot and score. It's simple, challenging, and really good fun.

"Indeed, the 7800 version of the game is excellent. It's fast, smooth, and the action is clearly articulated thanks to the game's bright and colourful graphics. Gameplay is best enjoyed with a human opponent, but, even without another person to play against, the game provides decent AI opponents that are good enough to keep you on your toes, making this an addictive and entertaining future sports game that is one of the 7800's finest titles."

Julian Rignall, games journalist



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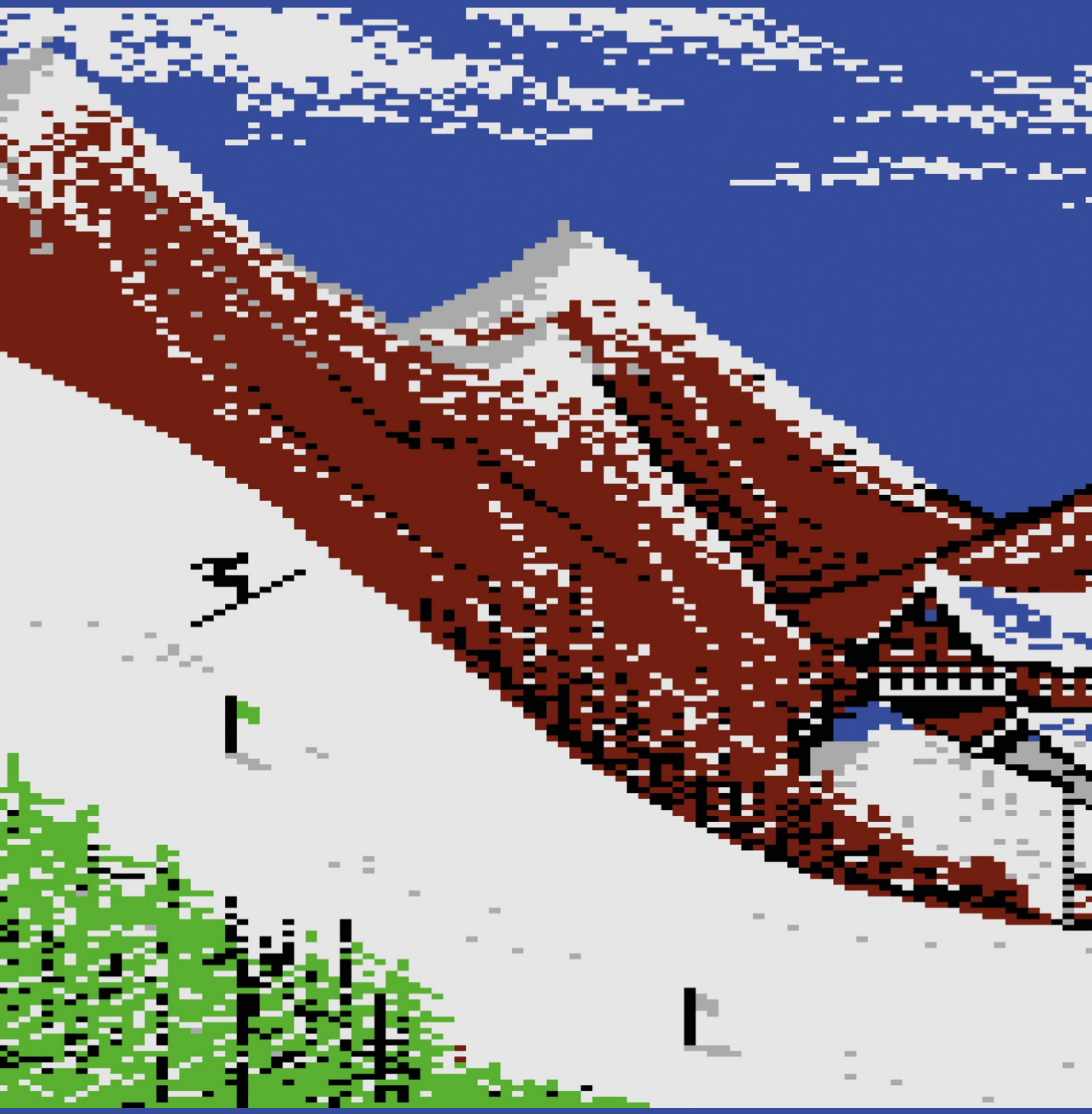

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Winter Games

"After the tremendous success of *Summer Games* in 1984, the bosses at Epyx demanded a sequel, of course, and Epyx immediately rolled its internal staff into developing *Summer Games II* for release ASAP in the spring of 1985. But, by the time that was released, the Epyx staff programmers and artists had been become burnt out on the Games series and didn't want to do any more. We'd already come up with the idea for *Winter Games*, so Epyx did the design and then contracted it out to other people to actually produce the game, so to speak. I was actually hired by Epyx in the summer of 1985, and given responsibility to manage *Winter Games*' development, making sure that it shipped in time for the fall/Xmas selling season. Luckily for me and Epyx, the developer teams, led by Richard Ditton, were also dedicated to finishing the game with attention to quality, very much banking on collecting royalty payments later.

"As it turned out, *Winter Games* was an even bigger market success than *Summer Games I* and *II* had been. So, naturally, Epyx' management demanded even more instalments in the Games series, which soon became pretty much my full-time job!"

Matt Householder, designer

Platform
7800

Released
1987

Genre
Sports

Developer
Computer Magic

Publisher
Epyx

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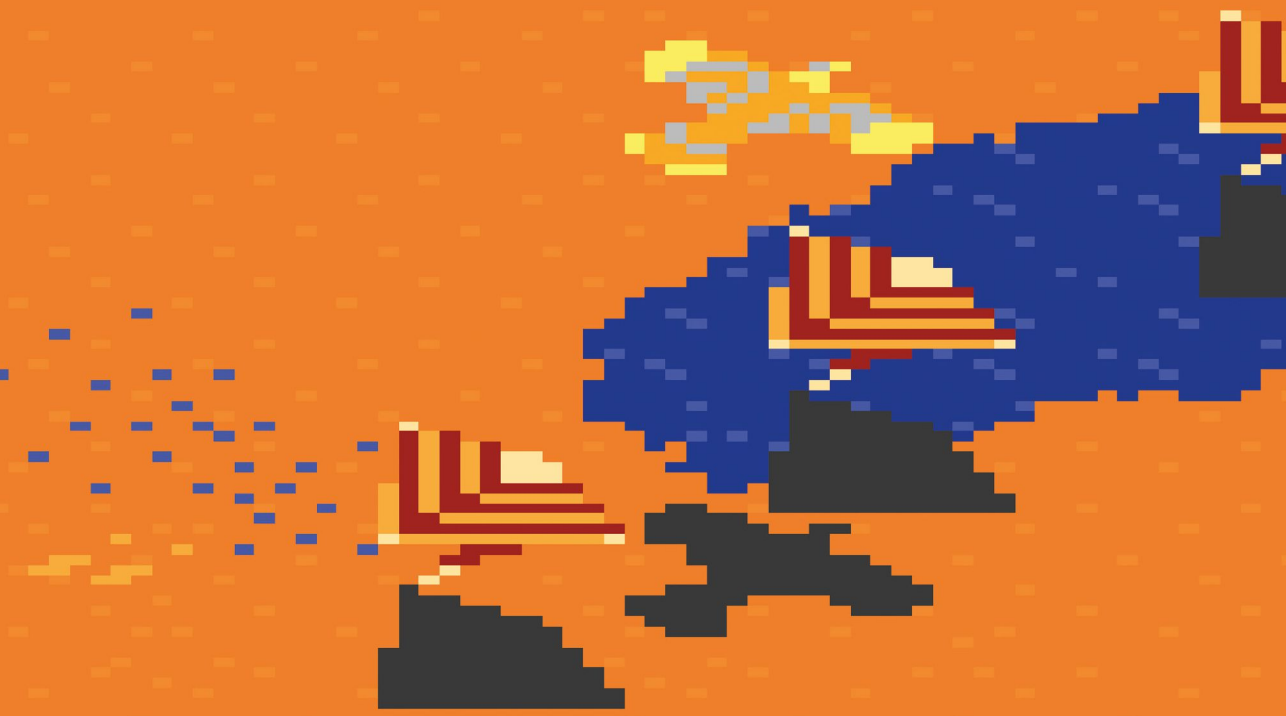
Desert Falcon

"*Desert Falcon* was one of the few original games we wrote, and the first original game designed specifically for the 7800. We wanted to make a game reminiscent of *Zaxxon*, the arcade classic, but with a new motif. The falcon had a ton of animation – taking off, flying, stalling, turning, diving, landing, hopping, swimming and dying. This was the first part of the game we wrote, and we incorporated the graphics early on to get the animation looking realistic. The animation, including the sound, gives the falcon a personality. We spent so much time working on this that, while other original 7800 games progressed, we could only show a 'bird and dirt' on the screen. That became the internal nickname of the game, but, by the time we were finished, it had so much more.

"Beyond just being a shooter game, we added the hieroglyphs that could be collected to give the falcon added powers when activated. This gave great depth and strategy to the gameplay, as an experienced player would learn the combinations, collect the hieroglyphs without being killed, and then deploy the power at the right moment. If the power helped you defeat the Sphinx, all the better!"

Michael Feinstein, programmer



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Platform
7800

Released
1987

Genre
Shoot 'em up

Developer
GCC

Publisher
Atari

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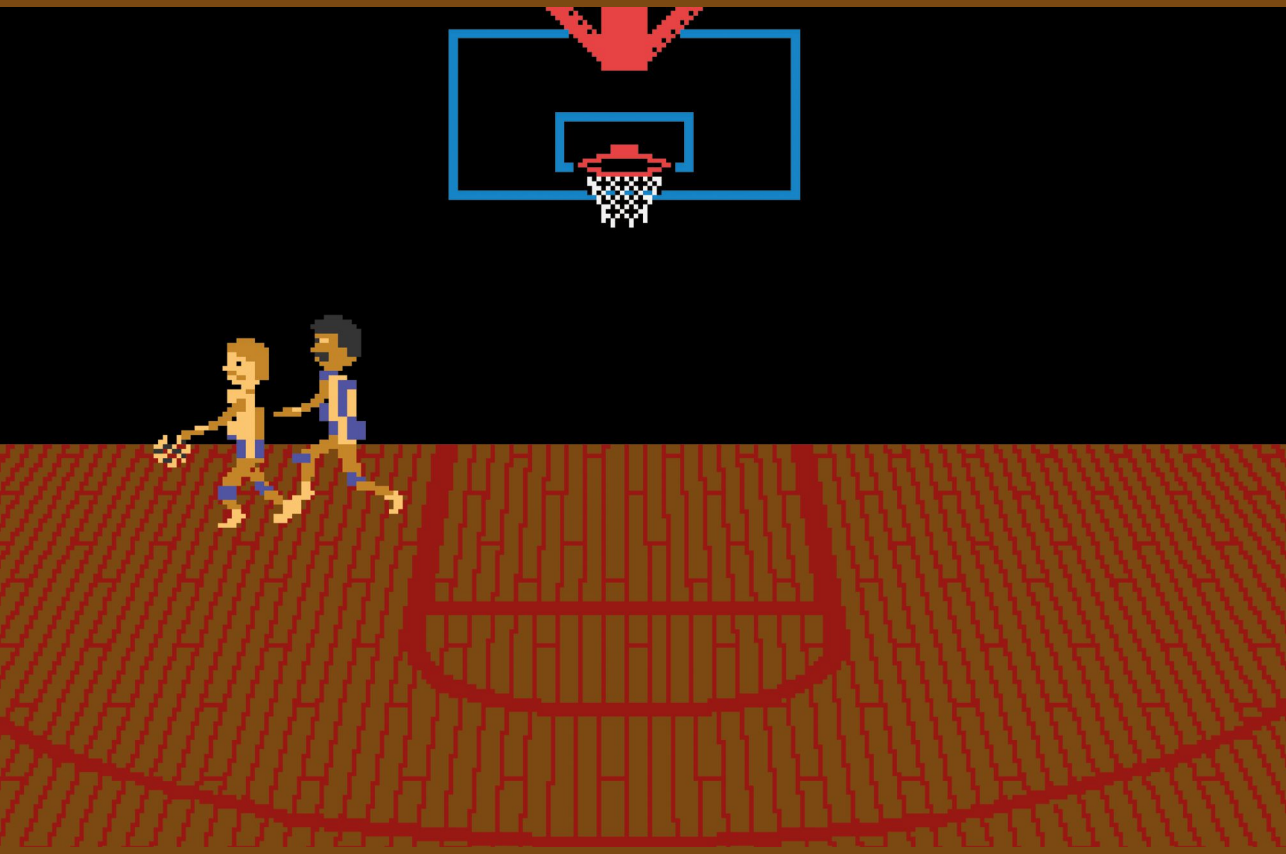

One-on-One Basketball

"I had contacts with Electronic Arts from when I was at Western Technology, so, when I went to Atari, they were one of the first people I spoke to about licensing games for 7800. *One-on-One Basketball* was pretty much the first one we spoke about because it had star appeal and would also be an easy port. EA still had all the source code for the Atari 8-bit computer version, so I just handed that over to our programmer, and he turned it around very, very quickly.

"The biggest challenge was getting the box art signed off because we had these two NBA Hall of Famers in the game (Larry Bird and Julius 'Dr. J. Erving) and they had to agree to everything. So we had to send these designs back and forth until they were completely happy with it. I always got involved in signing off the boxes, but this was different. It was actually the only licensed sports game we did for the 7800, and that, in itself, is pretty special, I think."

Tom Sloper, producer

Platform *7800* / **Released** *1987* / **Genre** *Sports* / **Developer** *Computer Magic* / **Publisher** *Atari*

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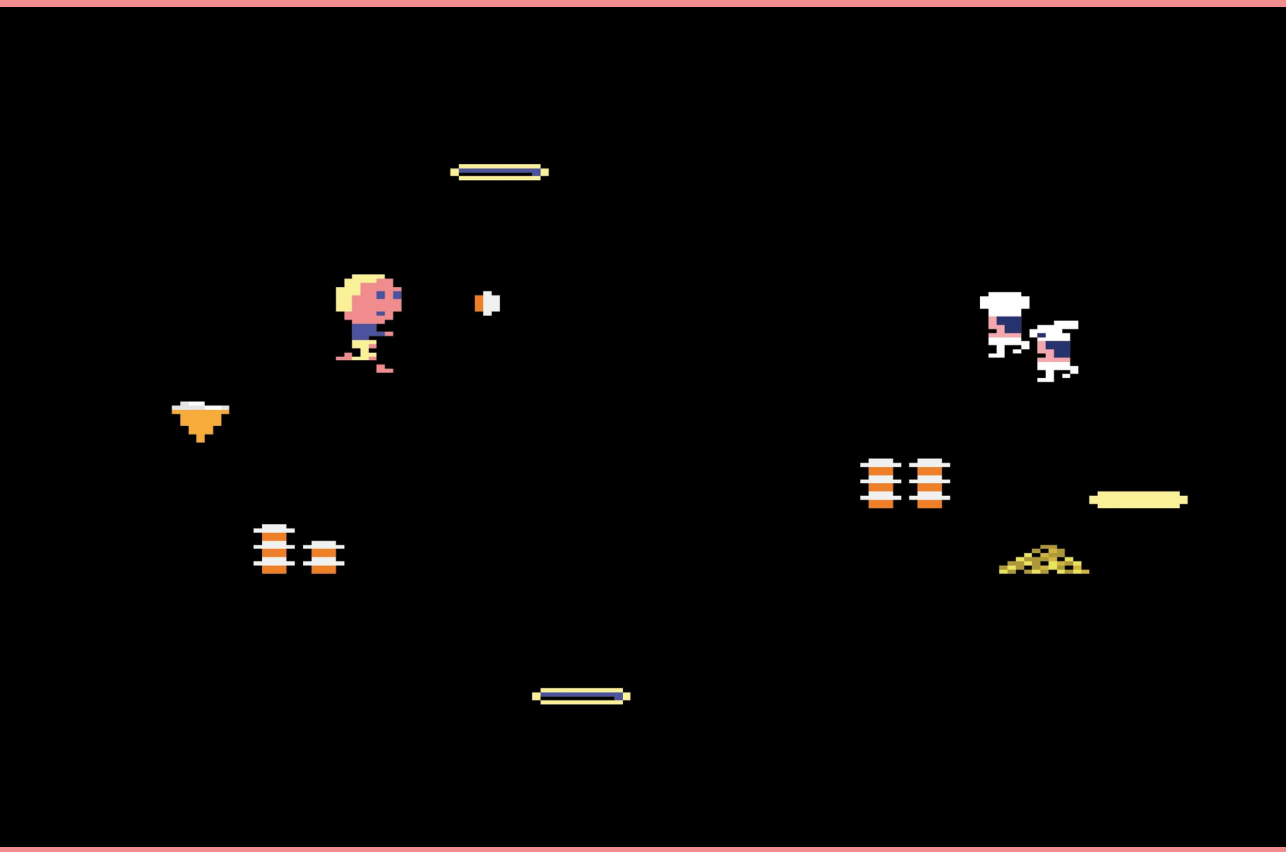

Food Fight

"Think of a food fight, and the mind likely conjures up images of chaos, an unbridled release of energy, and, perhaps, a lot of flour and eggs. The 1987 Atari 7800 release *Food Fight* – ported from an arcade game from 1983 – is based on exactly that kind of misadventure, but its theming belies a game that's actually a rather nuanced strategy title. On paper, *Food Fight* sits squarely in the arcade-action genre, and it borrows somewhat from 2D shooters, but genre classifications don't communicate how it feels to play.

"The idea is that you have to cross an open playfield and reach an ice cream before it melts. Four chefs are intent on stopping you reaching your goal, and chase you wildly, flinging food as they go. You can hold them back – albeit temporarily – by lobbing edibles towards them.

"There's certainly an intensity to the gameplay, but *Food Fight* isn't quite the chaotic frenzy that its subject matter suggests. Food stocks dwindle, defeated chefs reappear, and a path must be cut through a space that changes at a furious rate. As such, *Food Fight* is packed with rewarding nuance and engenders considered strategising, albeit amidst a hail of tumbling bananas and pies."

Will Freeman, games journalist

Platform *7800* / **Released** *1988* / **Genre** *Arcade* / **Developer** *GCC* / **Publisher** *Atari*

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Platform
2600

Released
1987

Genre
Scrolling shooter

Developer and Publisher
Atari

Originally by
Williams

Defender II

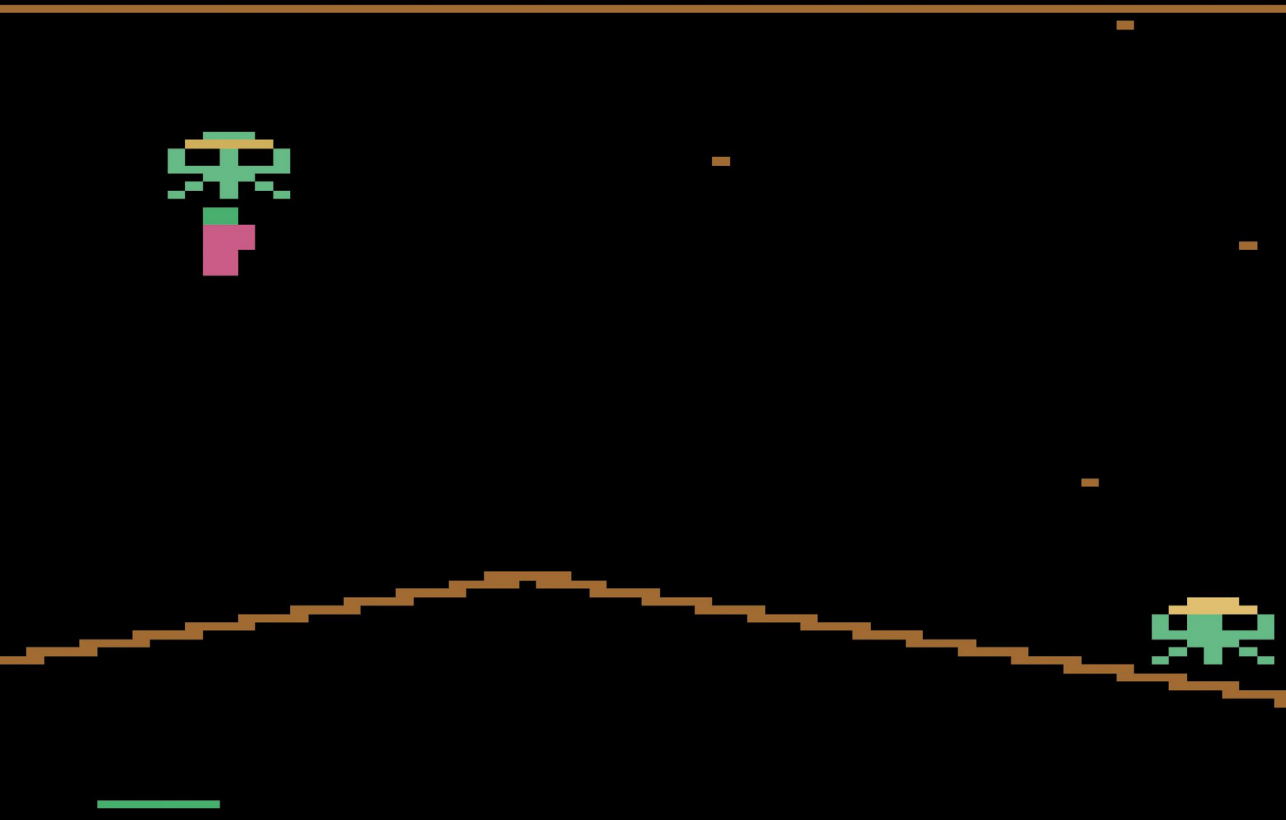
"*Defender II* (originally released under the name *Stargate*) is a sequel to the Eugene Jarvis 1980 classic. Much of what made the first game beloved is still retained here. Blast aliens from the sky and save the humanoid captives while avoiding obliteration on your end. What more could you want?

"The sense of speed needed in a space shooter like this is retained on the Atari 2600. You'll need to use that speed effectively, especially to catch the humanoids that often fall from the aliens' clutches. Keeping an eye on the map at the top of the screen is crucial to know where enemies are located on either side of you.

"There's not too much different here compared with the original game, aside from an invisible mode to slip past enemies and some different aliens to blast. *Defender II* is a relatively safe sequel, but one that's still very much worth playing.

"It's also worth noting that this was the first game out of three under Eugene Jarvis and Larry DeMar's independent game studio, Vid Kidz, followed by *Robotron: 2084* and *Blaster*. Not a bad line-up of titles in such a short history!"

David Giltinan, games journalist

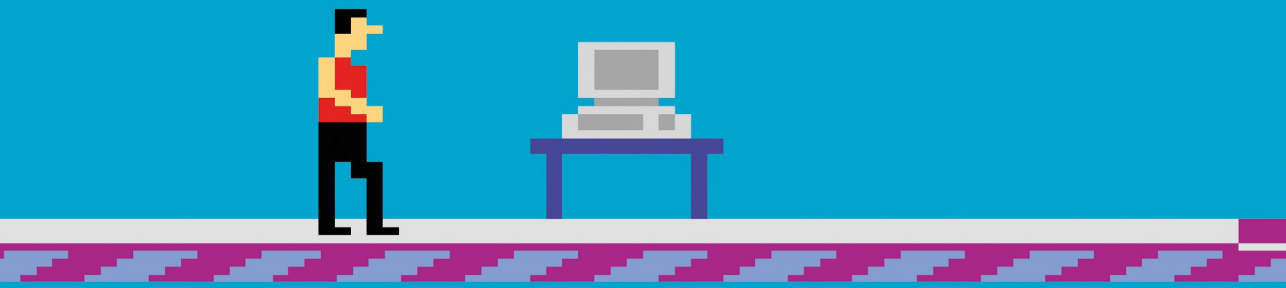


An interview with Michael Katz

There have been very few people in the video game industry more influential than Michael Katz. He pioneered electronic handheld games while working at Coleco and also helped launch their popular ColecoVision console. He transformed Epyx from a struggling strategy game publisher into one of the biggest software houses in the world, and he was the man responsible for proving that Genesis does what Nintendon't during his days as President of SEGA America. But the part of his career that often gets forgotten is when he was headhunted by Atari Corporation and then-CEO Jack Tramiel to head up their video game division. While fulfilling this role, he was responsible for the hugely successful relaunch of the Atari 2600, finally bringing the 7800 ProSystem to the masses, and pushing hard for the company to branch into other entertainment arenas.

We spoke with Michael about his many outstanding achievements…

Can you tell us about how you landed the job at Atari and what your responsibilities were?
The short story is: I knew Jack and Sam Tramiel. I'm not sure when I first met them, but they knew of my background, in terms of introducing the handheld games at Mattel and then becoming the first Head of Marketing at Coleco, where we introduced miniature arcade games and the ColecoVision. At this time, I was Head of Epyx, where I'd been recruited by the board of directors who wanted more of a packaged goods, marketing, video games toy guy to get involved with Epyx, which was, at that time, called Strategic Simulations. Under my leadership, we expanded into educational games and action strategy games, like *Pitstop*, the Games series and *Jumpman*. We also had a category called activity toys, which were sort of like the category of superheroes at Mattel and Hasbro, where there was no winning or losing, but it was all about participating. We got the licences for Barbie, G.I. Joe, Hot Wheels, etc. and, very quickly, we turned Epyx around from a 1.5-million-dollar strategy games company losing money to – in the first six or seven months that I was there – a company that made money.



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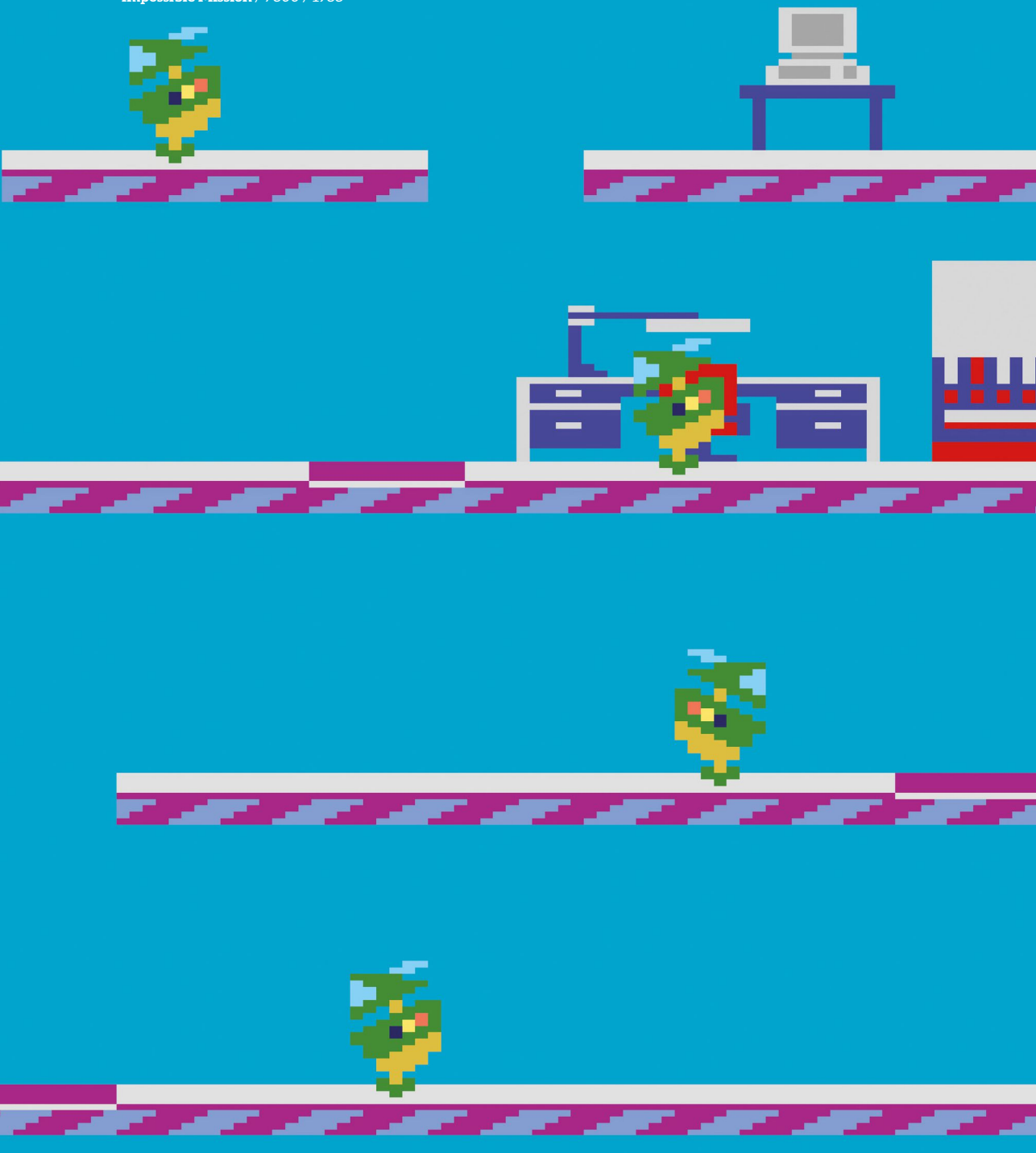
Impossible Mission / *7800 / 1988*



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> *“It was my dream job, basically, so I said, “Yes,” and that’s why I went to Atari.”*

Anyhow, I guess that sort of caught the attention of Jack Tramiel, and I wanted to expand Epyx into more than just a computer software company. I wanted to do a new generation of portable games, but the board of directors didn’t see it; they didn’t want to make that investment. All the money was in software, and so they said, *“No, we don’t want you doing anything other than software that can be played on home computers, blah, blah, blah.”* So I was bored and knew it was time to move on.

I got a call from Jack Tramiel at one point, after I’d been at Epyx for about two years, and he said, *“We want to have lunch with you.”* I went to have lunch with him and his son, Sam, and he said, *“You know computers and you know video games. I’m trying to come out with a popular-priced computer, just like my Commodore 64* (this was Jack talking about when he was at Commodore) *and I’d like you to bring back video games with the new Atari, and bring back the 2600 and make it the low-priced console for those people who can’t afford $99-$120 for Nintendo, and who can’t afford $29.95 software. We need someone to not only bring back the 2600, but also complete the introduction of the 7800 too, formally introducing it nationally and getting independent developers and the Atari design group to develop software for it.”*

That wasn’t particularly appealing to me, in and of itself, because I loved what Worlds of Wonder had done, they had Lazer Tag and Teddy Ruxpin, and I really thought that there was opportunity for electronic toys beyond video games. So I said to Jack at the lunch that I’d be willing to come and be the head of his video game division, but I also wanted to create a new division for entertainment electronics. I would be president of that division and the video game division, and for Jack to make a commitment that he would give me the money to form an electronic toy and game company under the Atari name.

And he said, *“Sure, sure,”* and I believed him at the time. *“Sure, sure, we’ll do that, and you can do that, and I also want you to help in sales and marketing on the computer side.”* So the job offer was marketing and sales head of computers, to be the overall head of video games and bring back the 2600 and 7800, and maybe come up with some new product there, and also you can start this new division called Entertainment Electronics and you can become the head of that. So that was almost, by definition, my perfect job because it allowed me to use my experience of video games, my experience of computer games, my love for toys and games, and my experience at Mattel, where I was in charge of new product categories, which also included traditional games which we were trying to develop in addition, having started the handheld game category. It was my dream job, basically, so I said, “Yes,” and that’s why I went to Atari.

In retrospect, down the road, it became apparent that Jack basically wanted to use the return of the 2600 and the 7800 as a cash cow to fund the development of the Atari ST computer. He also learned that I was not a computer guy, and that I wasn’t particularly interested in doing anything on the computer side, in terms of bringing back Atari computers or working on the ST. So we eventually made an agreement that I would run the video games side, I would make the decisions there.

He would do the computer thing, and we would hire a computer sales guys and also a computer marketing guy. What turned out to be his commitment to entertainment electronics was actually nothing at all. When we came up with some great concepts and prototype products and needed the money to further develop and complete them as well as to do the marketing, Jack wasn’t there with the chequebook saying, *“Here’s so many millions of dollars, go do that.”* Not being, as we had previously agreed, a Worlds of Wonder of our decade, and that soon became very apparent.

Can you tell us more about these prototypes for the proposed Entertainment Electronics division that you developed?
Yes, of course. Williams Electronics in Chicago, the famous arcade company, had two very good video game designers, but they also were creating new hardware. I knew Ken Fedesna, who ran the arcade division at Williams, and he said to me, *“You know, I have two guys who developed a state-of-the-art laser tag-type product. We’re not in that business, we’re just in the arcade business, we’re not in the home game or the home electronics business – would you like to license the laser tag product?”* And I said, *“Great, perfect,”* because that fit perfectly in my concept for the Entertainment Electronics division. So we had a meeting. Jack said, *“Yes.”* Then, to cut a long story short, about a month and a half before Christmas, when we were going to launch the product, Jack pulled out of the deal and left me and the guys from Williams high and dry.

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Because he pulled out on his spending and broke the agreement in terms of the licensing, it was too late for Williams to go after another consumer electronics company to take it over, and it was too late for Williams to do the product for Christmas, if they wanted to on their own, because the Christmas buying season was basically over. So that was the outcome of my position – it was supposed to be three-pronged, with two of the prongs that I was most interested in, entertainment electronics being the most interesting. Where it was positive was we did generate a lot of volume with very little spending on marketing or development for Atari. We did successfully bring back two products – the 7800 and the 2600 – in terms of generating good returns with very little spending, so that was nice for the company and nice for funding the development efforts on the Atari ST.

Were the legal hold-ups for launching 7800 ProSystem frustrating for you, and was it difficult to get new developers on board, with Nintendo's control on the market at that time?
I don't remember the specifics of any legal battles. The main hold-up from my end was there were only about five or six titles ready for launch that weren't particularly good – they were the titles that were developed before I got to Atari. It had been a very half-hearted effort to introduce the 7800 with the old Warner Bros. regime previously. So the main problem with the 7800 was getting developers to produce new software for it because it had a very small install base, and they didn't trust Jack to spend the money to promote and market the 7800 as a serious new games system. So my dilemma was, how do you sell a system that doesn't have any software? What I had to do was put on my thinking cap and come up with a solution. What sells hardware is software, right? And what sold any hardware console from the store was the quality of the games on it. And whichever company got the hottest arcade titles and got the rights to them first usually won. At the time, that was Nintendo, which already had a lock-down on all the hottest arcade titles. None of the arcade companies of the time were willing to deal with Atari or license their titles for the 7800.

We had just come out after a big lull in the video game business, and what had taken the place of console video games, albeit rather briefly, was computer games. So it occurred to me that, if I wasn't going to get a big budget to try to create awareness for new products for the 7800, and I wasn't going to get any R&D budget so that outside developers have an incentive to develop software, and if there wasn't a good internal development department to design the software for the 7800 at Atari, the dilemma was, how do I get software that has some kind of awareness and would have some kind of a following, in terms of generating excitement behind the introduction of the 7800? It occurred to me that the install base and the awareness that had just been built in the last three to four years had been built by us at Epyx and all of the other computer games companies. So, I called up all my buddies that ran the these companies, and I said, *"How about licensing this title or that title,"* their hottest titles basically, *"to Atari for the 7800?"*

Before long, we had a nice group of participants – the likes of Accolade, Electronic Arts, Spectrum Holobyte, Epyx, Brøderbund, etc. I thought that was a pretty decent strategy because we really couldn't do anything else, and these games had brand recognition. So that's what we ended up doing – we developed a few titles of our own, and we finished a few titles that had already been in development, but the main punch we were going to get was from the titles that we'd licensed from the computer games companies.

> *"It occurred to me that I wasn't going to get a big budget to try to create awareness for new products for the 7800."*

What was it like trying to go up against Nintendo and SEGA with a fraction of their marketing budgets?
In a word, difficult. We did do some TV advertising, believe it or not, as I'm sure you didn't see it. Probably because they ran at about 4:00 in the morning, if they ran at all! Actually, though, we were kind of ahead of our time, because we got the USA Video Game Team on board and put them in a few commercials. Our team was kind of like the precursor to the eSports teams of today, and I've gotten a kick out of how hot eSports has gotten because this was part of my vision for Atari and getting involved in competitive gaming. We at Atari were very much ahead of everyone, when it came to eSports, because we tried to make something out of the USA Video Game Team and make it a credible thing. Sadly, that's another thing that never really came to fruition.

We had a professional ad agency for the 2600, and the whole positioning for the 2600 was: make it under $50 for the hardware, make the software under $15 – and preferably under $10 – and make the 2600 a low-priced spread for lower-income game players who couldn't afford the Nintendo at,

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whatever, $99-$120, with software that was $29-$39. It was a good strategy, and it worked, and we generated a lot of income that went into the R&D budget for the ST computer. That TV ad was very catchy, too. It had the jingle "The fun is back… under $50", and it worked. So it met the objective of what we were trying to do.

Our marketing department and my division were no more than ten people at this time, and, whenever Jack complained about us spending too much, I just divided the number of people we had in the office with the amount of sales revenue that was being generated, and I said, "Compare this to Nintendo, Jack, and you'll see that each employee in your video game division is generating about $10 million dollars in sales each!" I think that was compared to about $500,000 at Nintendo, on an employee-to-sales basis. So, with very few people, we did a lot, spent very little money, in terms of marketing, and got the money for Jack to put behind the ST computer.

The problem then was that Jack couldn't get the distribution for the ST that he wanted, not because the product wasn't great, but because none of the retail chains – Sears, Penney's, Walmart, Best Buy, etc. – didn't trust Jack to spend the money on marketing and merchandising the way they would have wanted to help launch the ST computer into the public eye. What Jack decided to do, which might have been a good idea but turned out not to be, was to buy a retail company himself. So he bought Federated Electronics out of bankruptcy in Los Angeles, but they didn't have very good distribution themselves because they were only a local retailer, rather than a national chain, and very poorly run. Not to mention that nobody at Atari around that time had any experience of running a retail chain of stores, so it ended up being a complete disaster. That's the whole story really!

There were a lot of games announced for the 7800 at launch that never ended up coming out, such as* Track & Field, Moon Patrol *and* Elevator Action. *Do you know what happened to these titles and why they weren't released?
We were offered them by Warner, but we knew that they weren't particularly good. Some involved licensing fees that just weren't worth it; many of the games were old and just wouldn't have appealed to the audience we were targeting. They wouldn't have got consumers interested, wouldn't have got retailers interested, and so we, basically, passed them up in favour of licensing titles with more star appeal, some kind of oomph behind them, and some kind of consumer awareness. That's where the strategy of licensing the titles from computer game companies came from.

A lot has been written about Jack Tramiel being difficult to work with. How did you find him?
I was somewhat used to the Jack mentality because I'd experienced something very similar at Coleco, which was also family-run. I think that prepared me well for working at Atari.

What were your thoughts on the XE Video Game System, a console many people think was crazy as it competed directly with Atari's own 7800?
I didn't really have a choice because Jack said, *"This is going to be great. We're going to position this as both a computer and game system! It's a console that's also a computer, and has more games than anyone else!"* What we learned very quickly was nobody believed that a computer could play games better than their dedicated games system, and none of the computer guys believed that a combination product would make for a powerful computer. So it turned out that there was a credibility problem, and, while the concept might have been interesting from a marketing standpoint, nobody believed it. We couldn't really get developer support either; the developers didn't want to spend time developing a dedicated product for the hardware because they didn't love the concept themselves, they didn't trust Jack to spend the marketing dollars needed, and they knew the retailers weren't going to fully support it.

A lot of people like to speculate on the 'what ifs' surrounding Atari's two unreleased 16-bit consoles, in the Panther and Super XE Video Game System. Did you have any input into the plans for a 16-bit console and, if so, what are your memories of this?
Well, I wasn't there for any of that really, and, if they were being developed while I was there, I certainly wasn't made aware of them. I can tell you about the Atari deal to license the Mega Drive from SEGA though! Dave Rosen called me and said, *"You know, the Japanese headquarters of SEGA has developed a 16-bit game system. We don't want to get into the hardware business again; we haven't been successful with that in the US or Japan. So how would you like to license the new 16-bit games system and continue the tradition started by Nolan and the boys, bringing Atari back to a position of prominence against Nintendo?"* And I said, *"Wonderful, great!"* I convinced Jack to take a meeting, and I said, *"This is our opportunity,"* and everyone thought it was great, except for Jack, because Jack wasn't willing to pay the advance and the guarantee to get the Genesis for Atari. The problem was that Jack wasn't a video game guy, and Jack wanted any available funds to go behind the ST computer. So the little-known fact is that SEGA offered the rights to the Genesis to Atari before deciding to do it themselves. Had Atari licensed the Genesis and gotten support,

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then Atari would have been a very tough competitor against Nintendo, and might have done what SEGA ended up doing, in terms of putting up a real good fight and becoming a real competitor to Nintendo a few years later.

You left Atari in the same year as the Lynx was released. Did you get to see this at all, and was it a system you wanted to work with?
Atari acquired that shortly after I left, but I was aware of it through contacts at Epyx. The funny thing is that the Lynx was exactly the kind of thing I wanted to do at Epyx! I very much pushed for something like that, and that's when I was turned down by the board. It's funny that my desire for Epyx was exactly what they ended up doing in the Lynx. But it was too little and too late for the company, and Epyx went down the tubes. So, if Epyx had become the entertainment electronics company, I wanted them to be, the Lynx would have arrived much earlier and wouldn't have been an Atari product.

What made you decide to leave Atari for SEGA?
I'd been there for three and a half years. I'd invested a lot of time, and I was tired of the video game business, totally burned out, in fact. I'd never travelled extensively, and I wanted to spend three to four months travelling around the world and then decide what I wanted to do next, which might not have been staying in the video game industry. So I quit Atari and travelled for three months, and was sort of doing nothing when I got a call from Dave Rosen asking me if I wanted to be the first official President of SEGA US and to take over the introduction of the Genesis. I said yes, I guess because I always loved going up against the big guys, so I sort of liked the idea of facing off against Nintendo. But also because it was a nice offer and I hadn't worked for the Japanese, so I didn't really know what to expect. It's here I found out that it wasn't so easy to just change industries or fields or professions because you get branded for what you've done for the previous ten, 15 or 20 years. So, for all of those reasons, and because I liked and knew Dave Rosen, I accepted the offer.

Obviously, the 7800 out-selling the Master System by near enough 2:1 in North America was a pretty impressive achievement, but what do you consider your proudest achievement from your time at Atari?
Well, I can't really take all the credit for that as I left to join SEGA, but, to be honest, I think most of my proudest achievements came outside of Atari. Such as coming up with the concept for the very first handheld electronic games, and then, basically, doing the groundwork for what Tom Kalinske takes all the credit for when he replaced me at SEGA: building the groundwork for the Genesis and selling almost 500,000 units in year one, which was actually considered a failure by the Japanese!

"I quit Atari and travelled for three months, and was sort of doing nothing when I got a call from Dave Rosen asking me if I wanted to be the first official President of SEGA US and to take over the introduction of the Genesis."

Choplifter! / *7800 / 1987*

Karateka / *7800 / 1987*

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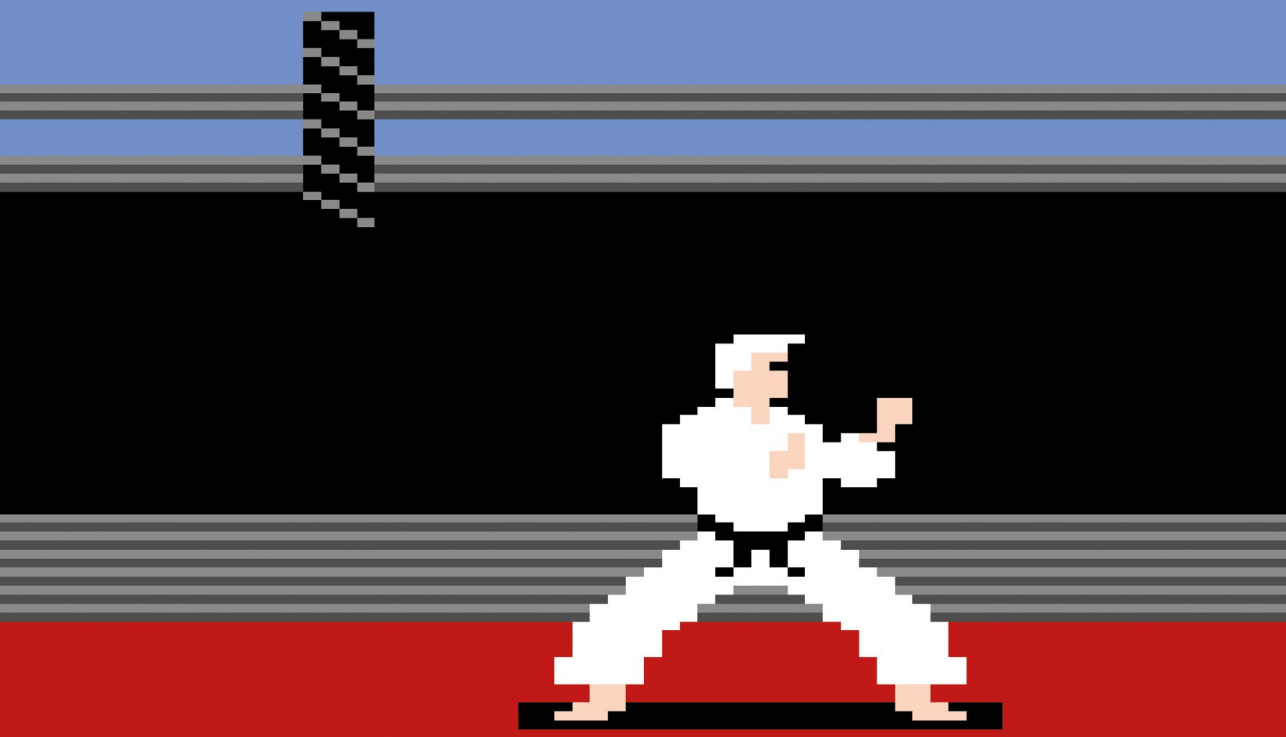
Karateka

Originally designed by Jordan Mechner for the Apple II in 1984, before being ported to a ton of other systems, *Karateka* was the game that pioneered his groundbreaking animation techniques, most famously used in the seminal *Prince of Persia*. Although it's correct to describe Karateka as a fighting game, it actually changes things up quite a bit from similar titles of the time by adding in other interactive elements along with cutscenes to help tell the story. As well as defeating each opponent using traditional karate moves, you also have to avoid various hazards that kill you on contact, and fight off a hawk that has been sent to distract you from your task.

Only after defeating each enemy and making your way through the mountaintop fortress can you take part in the final battle against the evil Akuma. Sadly, this Atari 7800 port misses the mark a little when compared with the home computer versions; while it's still pretty impressive from a graphical point of view, the poor collision detection and unresponsive controls, sadly, let it down. This is a shame, as the 7800 really needed a good fighting game in its library.



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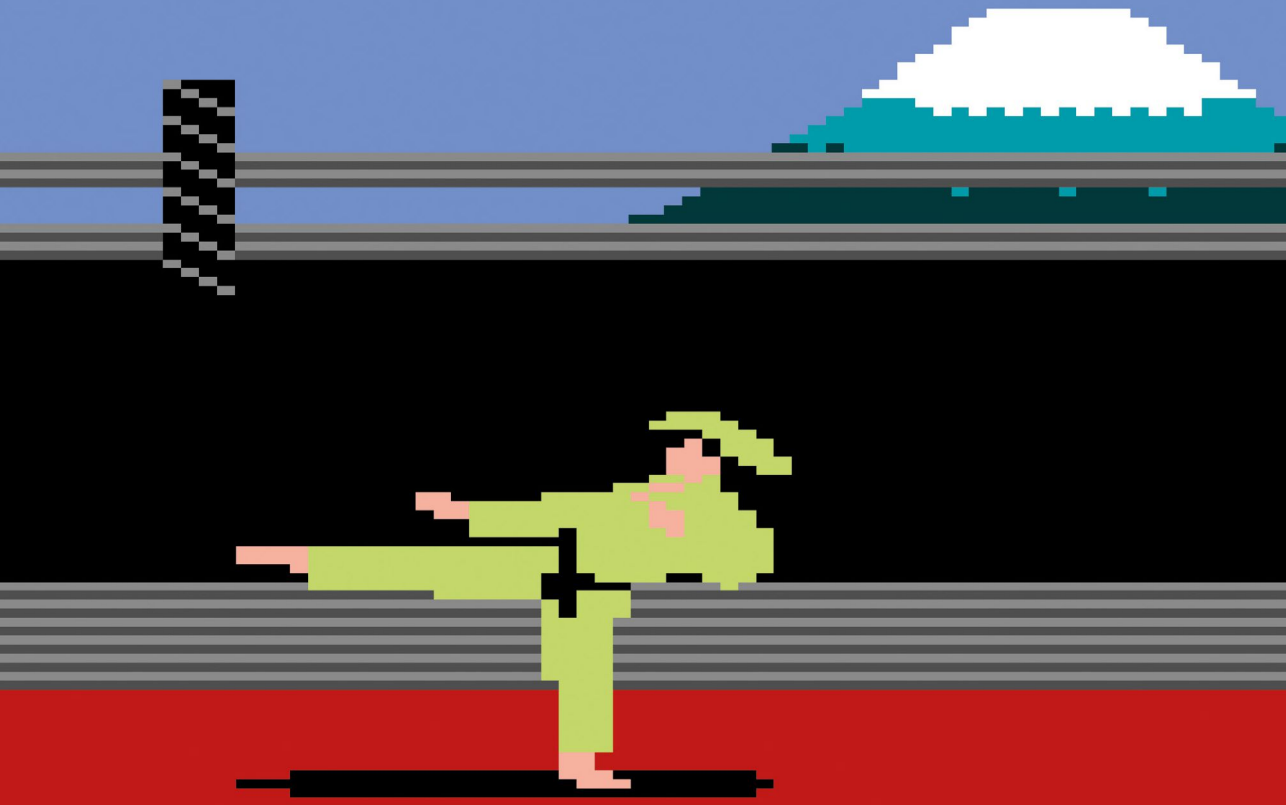
Platform
7800

Released
1987

Genre
Fighting

Developer
Ibid, Inc.

Publisher
Atari



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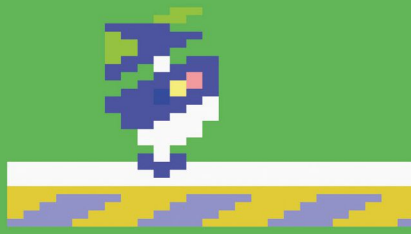
Impossible Mission

"Nintendo had a lock on all the hot arcade titles, and none of the arcade companies were willing to deal with Atari and license their titles to the 7800. We had just come out of the crash, and what had taken the place of console games in that time was the computer games, the likes of Spectrum HoloByte, Electronic Arts, Datasoft, Epyx, Brøderbund, etc. So it occurred to me that the install base and the awareness that had just been built in the last 3-4 years had been built by us at Epyx and all of the computer games companies. So, I called up all my buddies that ran the computer games companies and said *'How about licensing this title or that title to Atari for the 7800?'* Before long, we had four or five companies giving a couple of titles each. Epyx was obviously one of the first I contacted, and *Impossible Mission* was exactly the kind of game we needed."

Michael Katz, producer



"Originally released for the Commodore 64 in 1984, *Impossible Mission* is a highly challenging action adventure in which the player guides protagonist Agent 4125 around the maze-like underground lair of evil genius Elvin Atombender. The objective is to search for and ultimately combine 36 puzzle-like fragments of a password that enables Agent 4125 to enter Atombender's secret room and thwart his plans for global domination. Atombender's subterranean complex is comprised of 32 different rooms that feature elevators, platforms, and numerous pieces of furniture, inside which the password fragments may be found. It all sounds very straightforward, but making the action challenging is the myriad of robots that patrol each screen. Agent 4125 has no offensive capabilities whatsoever, and has to avoid being zapped by enemy bots, either by acrobatically leaping over them, or avoiding their predictable patrol patterns by finding a safe route around each screen.

"The game is played against the clock, and the player starts with a six-hour time limit. This sounds very generous until you realise that, each time you die, ten minutes is knocked off the timer. That might not sound like much, but the game is tough and deaths are frequent, making the time limit a lot tighter than it first appears.

"Although the Atari 7800 port of *Impossible Mission* doesn't feature the famous digitised speech of the Commodore 64 original, it essentially looks and plays very similarly to that version. However, the US release reportedly has a bug that prevents players from finding all 36 password fragments, which makes the title of the game literally and unfortunately true. However, this bug was fixed for the European release of the game, which can be played through to completion. It's a shame that the US version is unbeatable as it's, otherwise, a great version of an all-time classic game. Europeans, however, can sit back and enjoy this thoroughly excellent game in its entirety – assuming you have the skills to be able to beat it!"

Julian Rignall, games journalist

Platform *7800* / **Released** *1988* / **Genre** *Action* / **Developer** *Computer Magic* / **Publisher** *Atari* / **Originally by** *Epyx*

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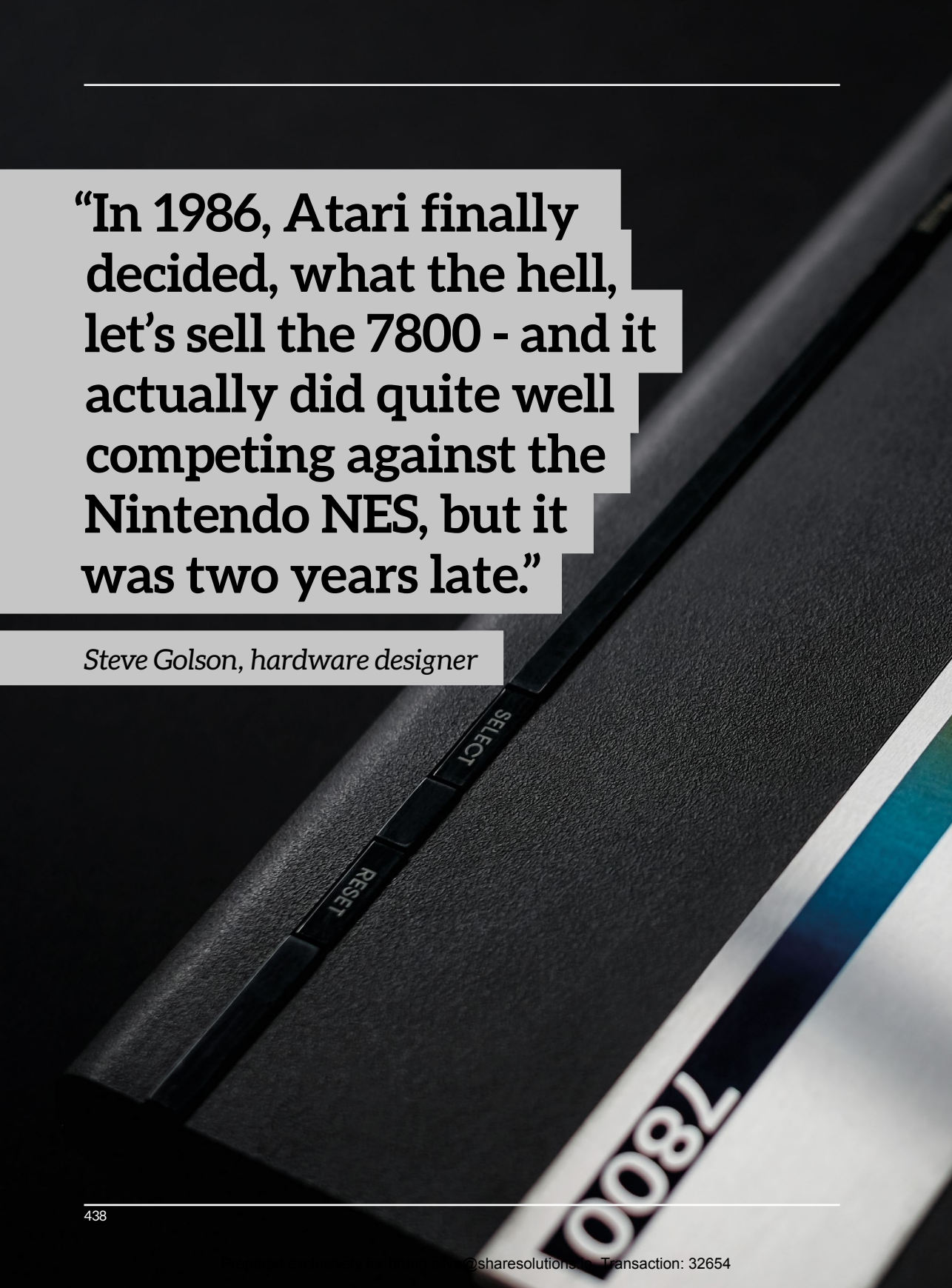

> "In 1986, Atari finally decided, what the hell, let's sell the 7800 - and it actually did quite well competing against the Nintendo NES, but it was two years late."

Steve Golson, hardware designer

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Atari 7800 ProSystem console */ 1986*

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Platform
2600

Released
1988

Genre
Racing

Developer and Publisher
Atari

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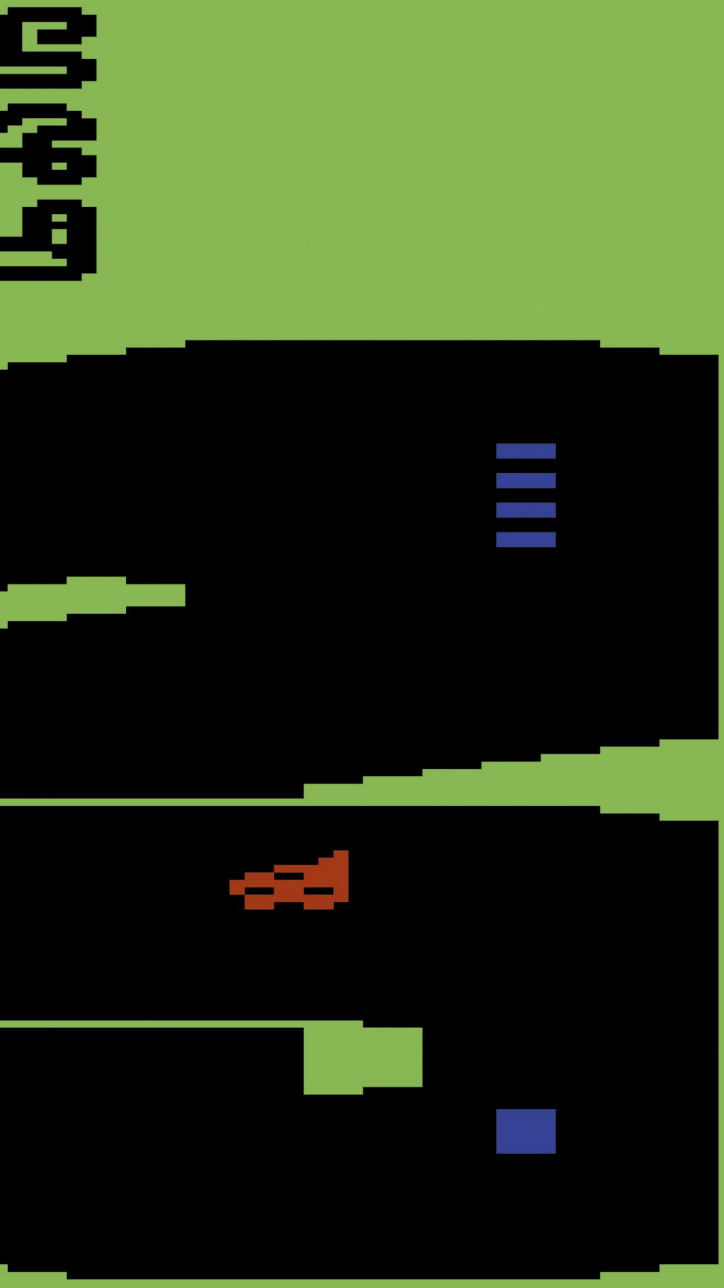

Sprint Master

The story of the Sprint series is actually rather complex. The original games - *Sprint 2*, *Sprint 4* and *Sprint 8* (named for the number of players supported) - were produced under Nolan Bushnell era Atari and created as microprocessor-based follow-ups to the popular *Gran Trak 10* (1974), *Gran Trak 20* (1974) and *Indy 4* (1976). Much later on, the Atari Games arcade division released *Super Sprint* (1986), *Championship Sprint* (1986) and *Badlands* (1989), which was the last in the series.

Coming suprisingly late in the 2600's life, Atari Corporation's *Sprint Master* is the only title in the series that remains a home exclusive. We spoke to the game's producer, Tom Sloper, about how the project came out: *"I was just talking to Bob (Polaro). And I was like, 'We need to do more games on this thing, but I can't get titles,' and he said, 'I can come up with something!' And I said, 'Well, what have you got in mind?' and he gave me a rough idea with a few sketches. Then we had to figure out what to call it, and remembered that we already had the rights to the name Sprint for racing games going way back. So, we just called it* Sprint Master. *This name made it sound like a new title while directly following on from the originals."*

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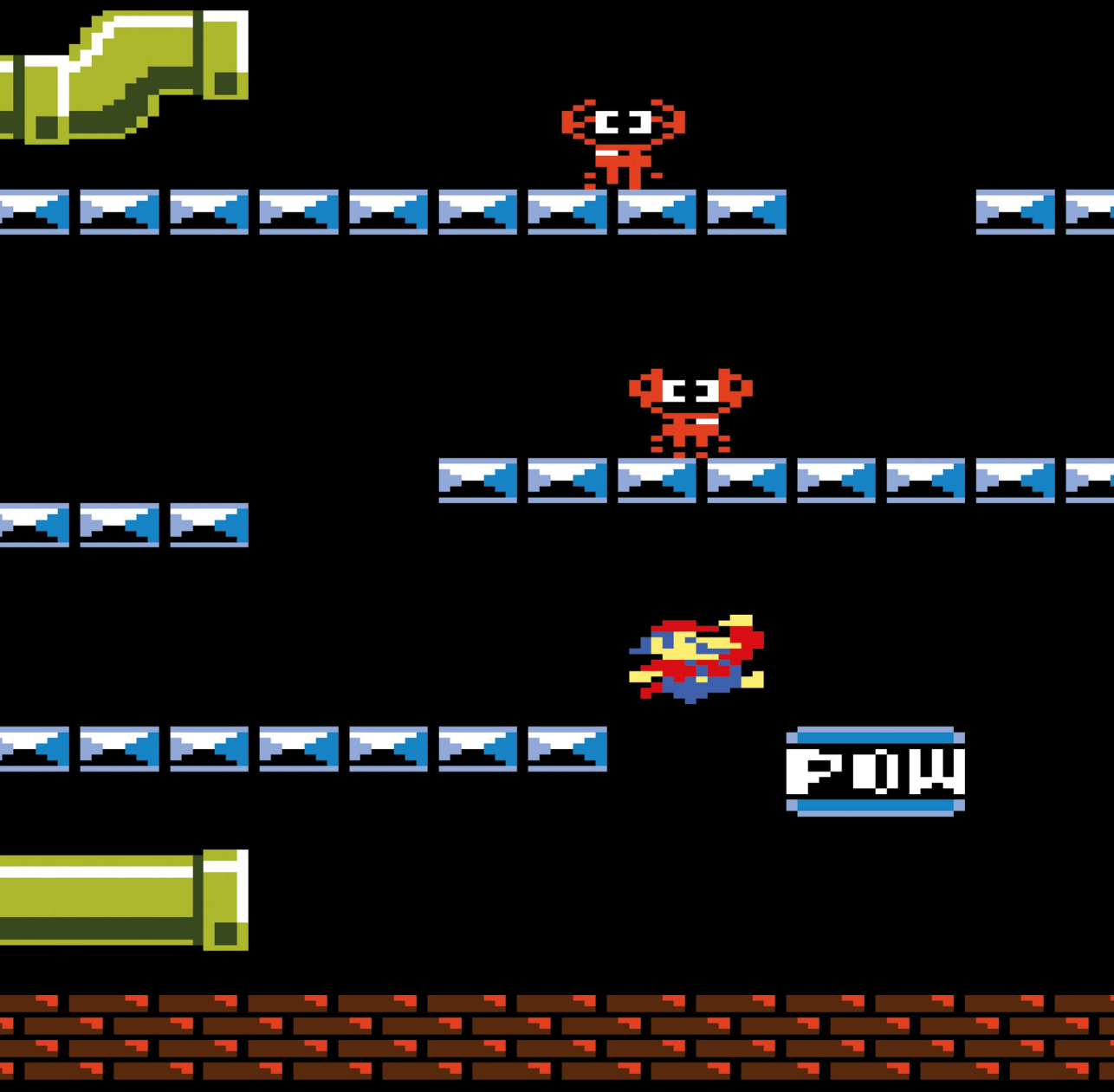
Platform *7800* / **Released** *1988* / **Genre** *Arcade* / **Developer** *I.T.D.C.* / **Publisher** *Atari* / **Originally by** *Nintendo*



Mario Bros.

"Prior to being renowned as 'Super', the classic arcade game *Mario Bros.* was released in 1983. Arguably, it was underappreciated at the time as the arcade game golden age was beginning to wane. This deceptively difficult single-screen platform game finds Donkey Kong carpenter Mario in his new profession as plumber, clearing pipes of pesky Shellcreepers, Sidesteppers and Fighterflies, while also being chased by fireballs and threatened by falling icicles. Mario's brother, Luigi, also makes his debut in simultaneous two-player cooperative play!

"The 7800 version was published by Atari in 1988, a relatively late edition of the game. As a member of the US National Video Game Team at the time, I had the opportunity to endorse the game as being just like the arcade game in a television commercial for Atari. It was a really fun shoot but required a lot of takes. For one, the neon Atari sign hanging from above would not stay steady! And, as the price of the game was not yet set, we did different takes for different prices, such as 'under 25 bucks' and 'under 20 bucks'.

"Indeed, the core essence and fun of the arcade game is amply retained, despite the pace of play being faster and the depth simplified. Most notably, the game has fewer phases between bonus stages, fewer enemies on screen at one time, and there are no falling icicles. The game controls well, offers a rewarding challenge, including three difficulty settings, and features its signature two-player cooperative play. While the sound effects are a bit coarse, the graphics and animations are fair reproductions, such that the bright and playful aesthetic of the arcade game is largely recreated."

Perry Rodgers, games journalist

Platform
2600

Released
1988

Genre
Sports

Developer and Publisher
Epyx

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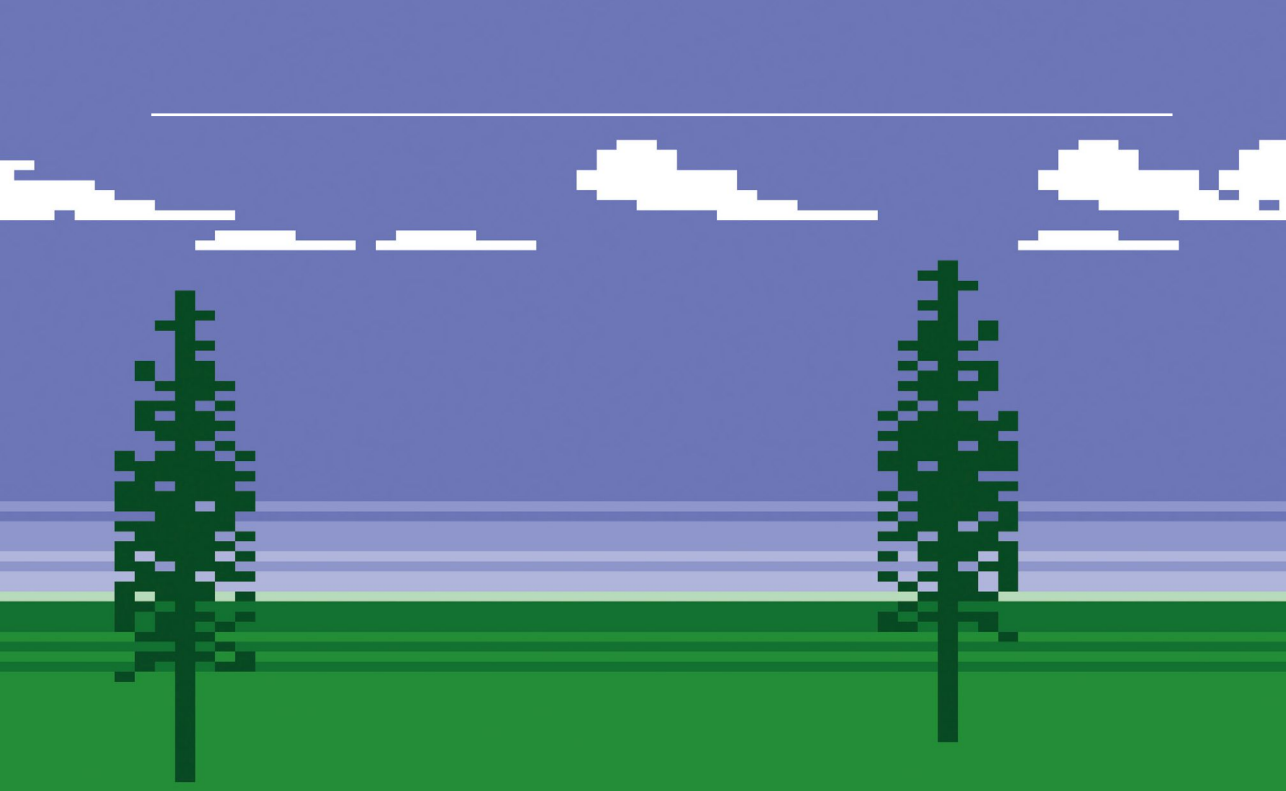

California Games

"Ah, growing up in the '80s, sunny California seemed like the epitome of cool, with its rad cars, bodacious babes, and righteous waves. Epyx, having seen success with its *Winter Games* and *Summer Games* titles, decided to create a spinoff, one focused around a collection of outdoor sports popular in the Golden State at the time – basically, extreme sports before that was a thing. Players compete in events like hacky sack, half-pipe skateboarding, surfing, BMX biking and Frisbee, and perform as many tricks as possible in an attempt to earn the most points. Each event feels like a unique experience with its own set of manoeuvres and challenges, and all are remarkably fun. Somewhat unique for its time are the brands players could choose from as sponsors, which include Kawasaki, Casio and Ocean Pacific.

"Arriving later in the Atari 2600's life cycle, *California Games* was outfitted with 16K of memory in its cartridge, which was considerably greater than that of typical 2600 games – and it shows. The graphics are surprisingly good, with picturesque settings, like skateboarding in front of the Hollywood sign, and ample use of special effects throughout. Audio is also top-notch, with a catchy rendition of *Louie Louie* to boot. The whole thing is pretty gnarly, really."

Sam Kennedy, games journalist

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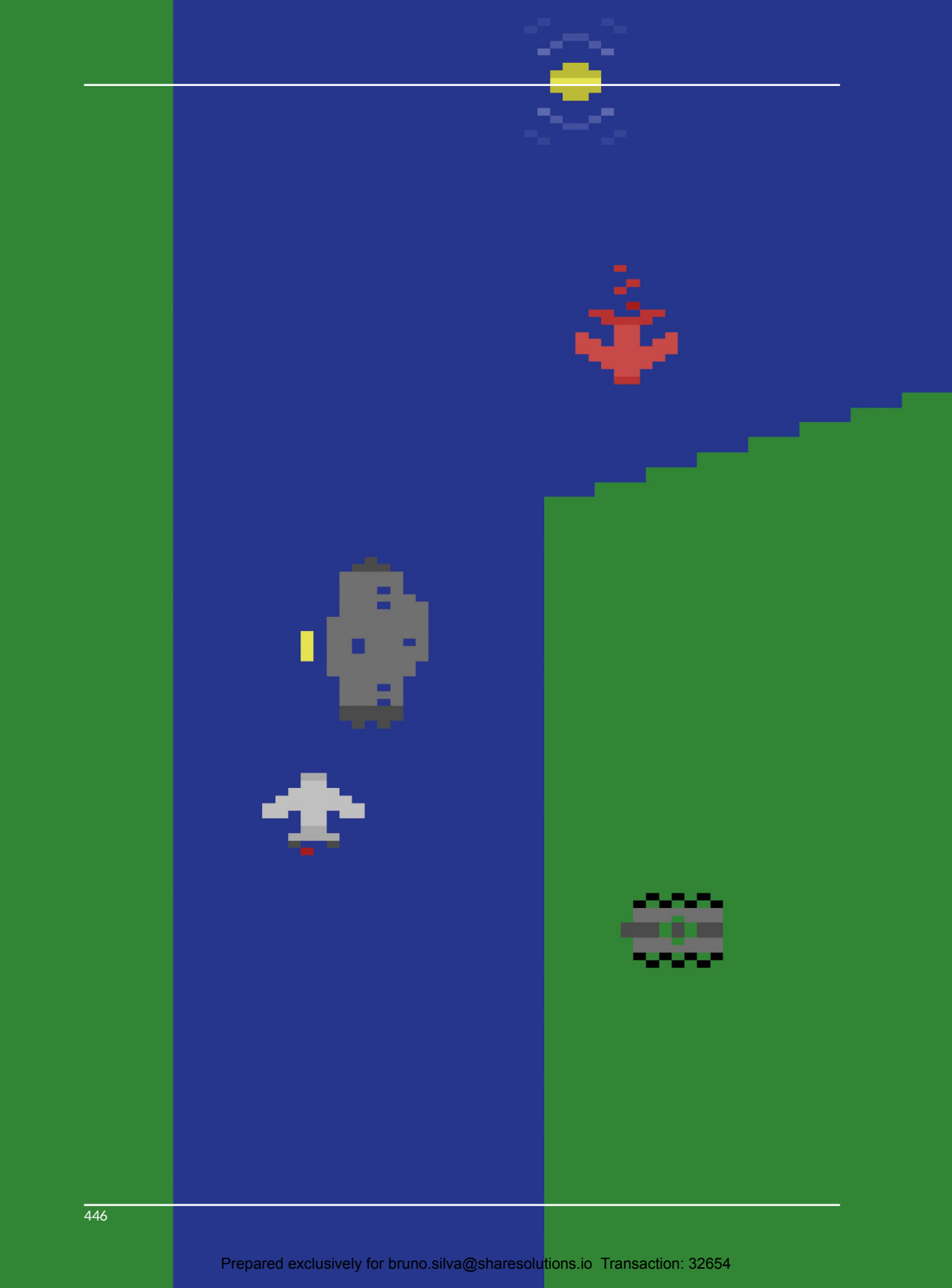

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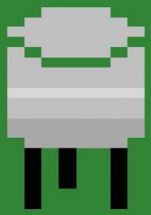


River Raid II

"Play *River Raid* for any length of time, and you might have some questions. Why doesn't anyone shoot back? If the riverbanks are so deadly, why can't the plane just climb? And where does the plane take off from anyway? *River Raid II* provides all the answers – and you might not like them. With Carol Shaw long gone from Activision, it fell to Dan Kitchen to design the sequel. It differentiates itself from the original primarily by adding complexity. A level-based structure has you take off and land from a ship. There's an altitude meter. And, this time, enemies shoot back – a lot.

"Basic visuals and a learning curve that's almost vertical make for a game that practically begs you to not like it. Your fuel gauge is sucked dry in seconds, the bits with the ship are maddeningly finicky, and enemy numbers are such that your squadron of planes is quickly wiped out. Persevere, and there's a lot to enjoy, especially if you found the original simplistic and crave something deeper. But, if what you loved about *River Raid* was its elegance and simplicity, be warned that the sequel is a world away from the older game's intuitive and immediate blasting."

Craig Grannell, games journalist

Platform
2600

Released
1988

Genre
Scrolling shooter

Developer
Imagineering

Publisher
Activision

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Summer Games

"I had been working for just a few months at my first job out of college, creating coin-op games at Taito America in Chicago, when I ran into a couple of guys (Craig Nelson and Bob Brown) at the Amusement Operators Expo. They wanted to recruit me to move to California and work on the Supercharger they had invented to enhance the Atari 2600. That sounded cool, and the temperature when I moved to Chicago was 86 below 0° Fahrenheit, and hadn't gotten above freezing for three months, so I jumped at the chance. Their company was Arcadia, which quickly changed its name to Starpath, and, while there, I helped design and develop a summer Olympics game called *Sweat*.

"Shortly after this, Starpath was absorbed by Epyx, and they soon cancelled all Atari 2600 development. But they did like *Sweat* and wanted to develop the idea further. So I got together with a bunch of the Epyx guys, and we turned it into *Summer Games* for the C64. It was a big success and, rather ironically, ended up being ported to the 2600, its original target platform, as well as the 7800 too. Both versions turned out very well, from what I remember."

Jon Leupp, co-designer

Platform
7800

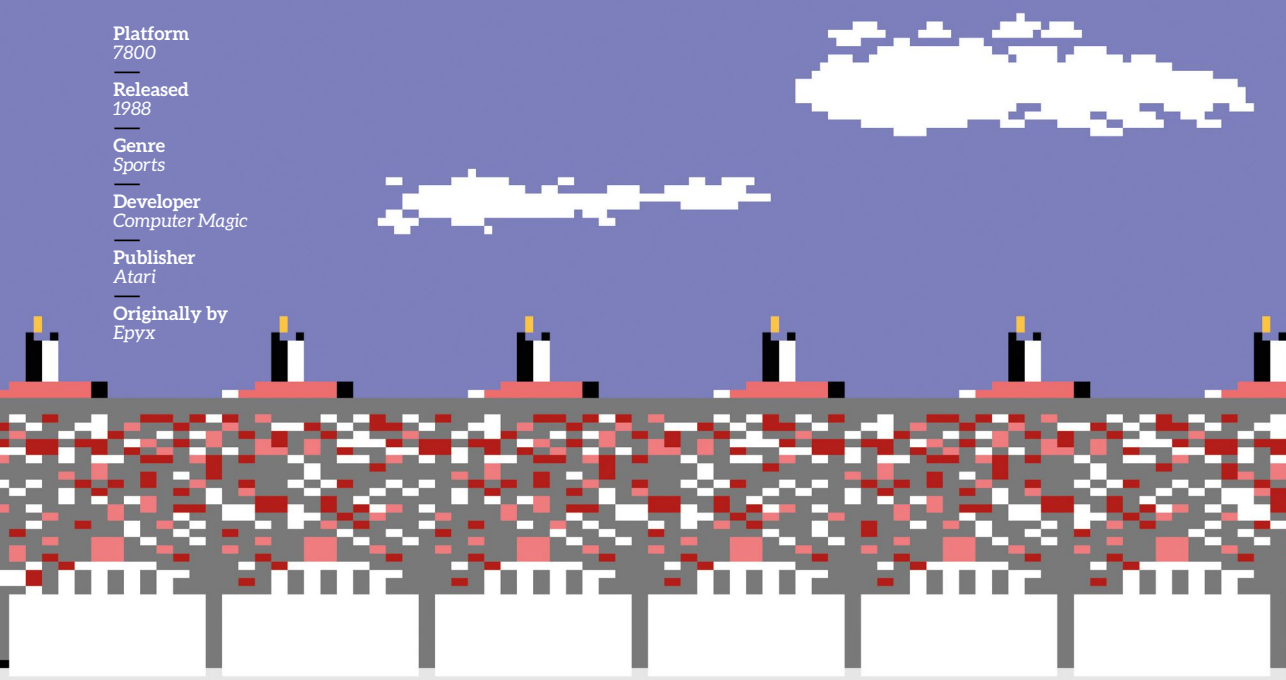
Released
1988

Genre
Sports

Developer
Computer Magic

Publisher
Atari

Originally by
Epyx



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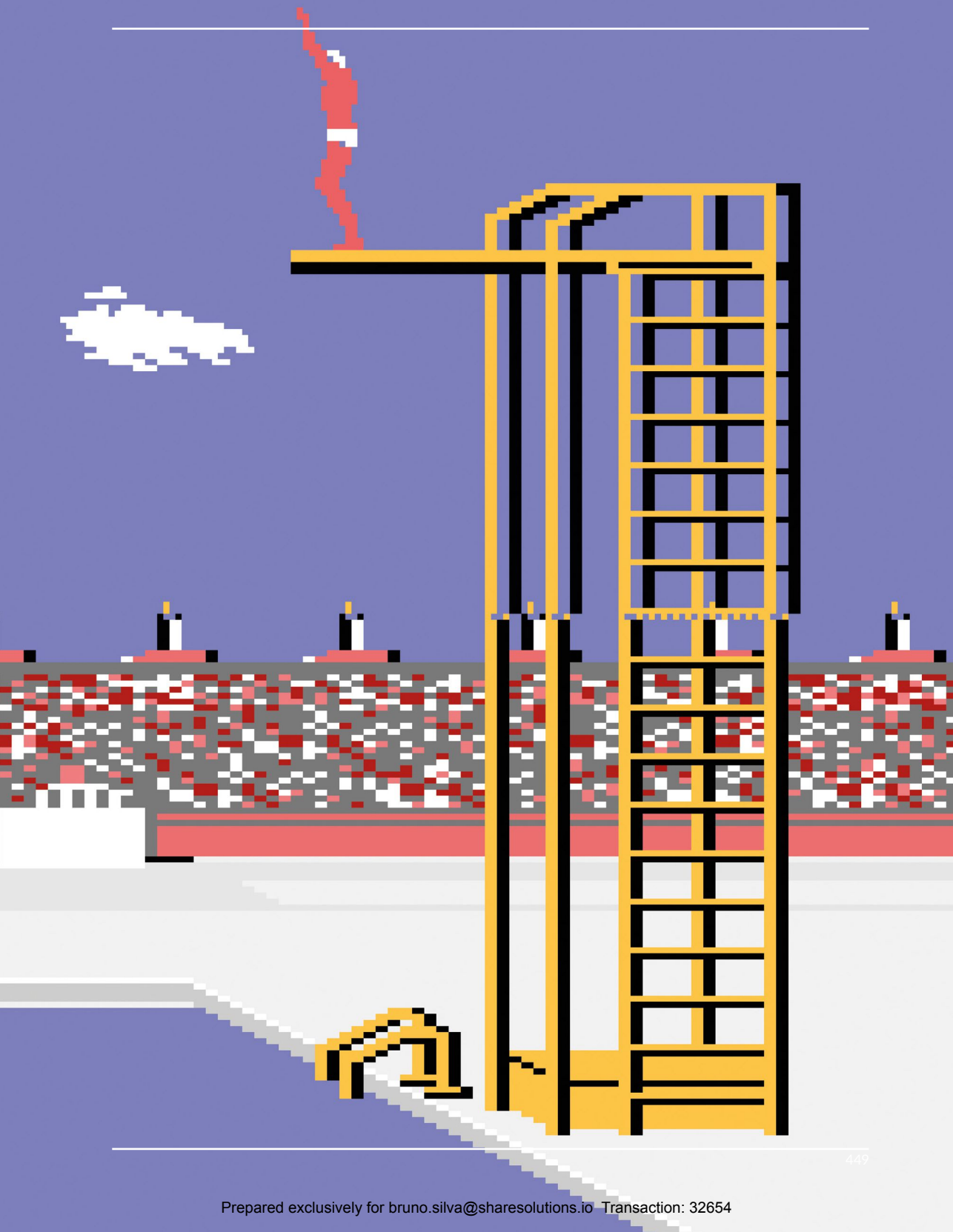

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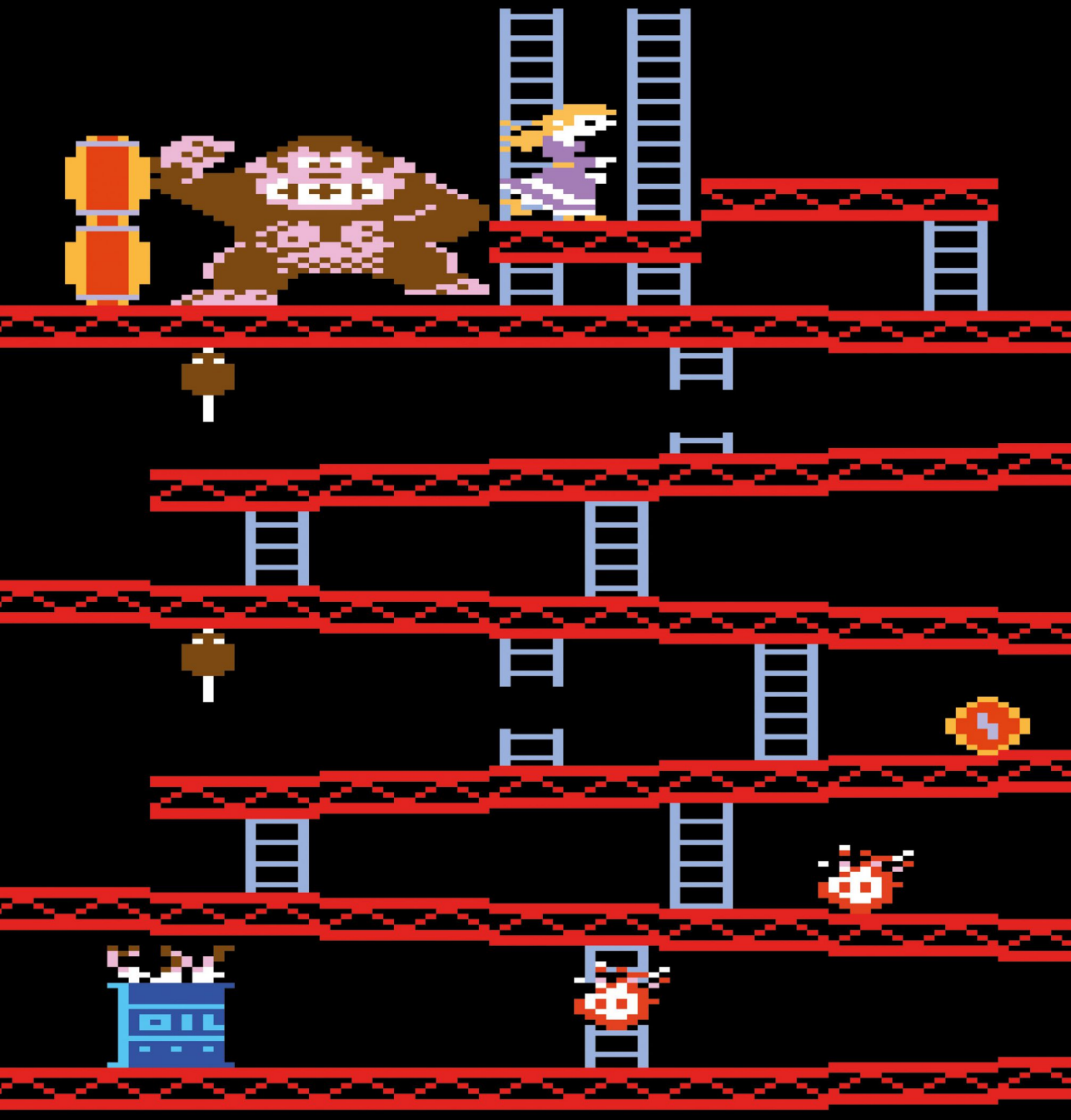
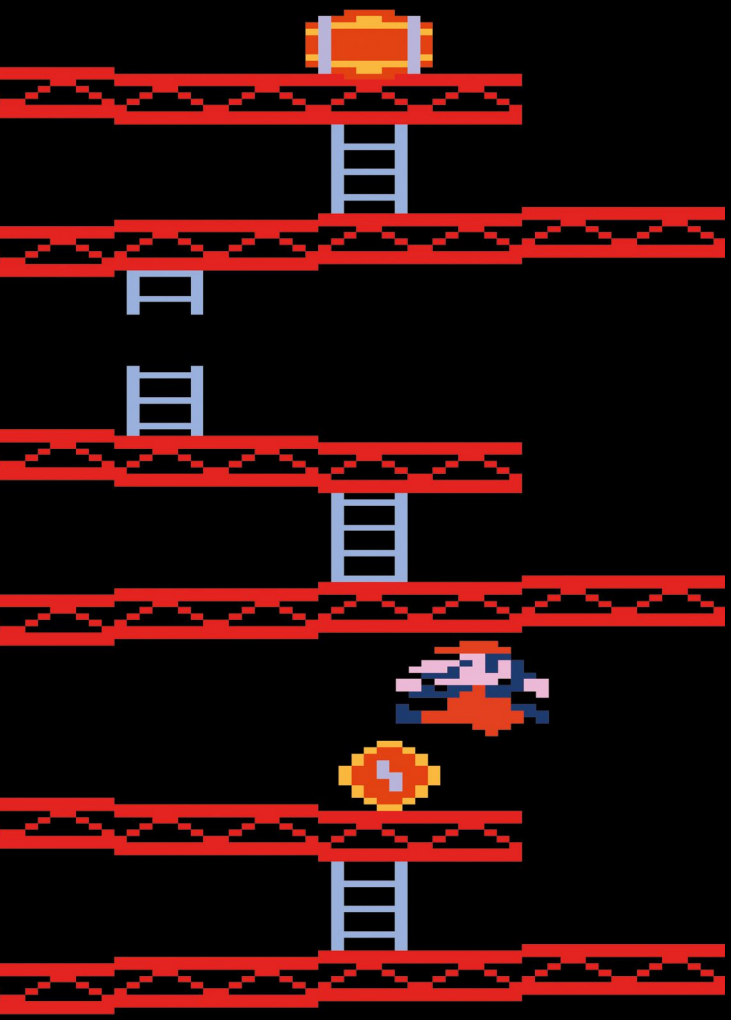




Donkey Kong

Some people still seem to be pretty stunned that three Nintendo games appeared on the 7800, especially as they were all launch games for the rival Nintendo Entertainment System. This was all because of a loophole that meant Atari Corporation still held the home rights to the games from earlier, when Warner Atari published them for the Atari 2600 and Atari 8-bit computers. The conversions of all three are pretty good, for the most part, with only the audio letting them down.

From a graphical and gameplay point of view, this version of *Donkey Kong* is certainly on a par with the NES iteration. Like many other versions, the pie factory level is missing, but this shouldn't come as much of a surprise. However, a homebrew hack of the game was recently created that put in the missing level, adds extra intro screens, improves the sprites and, most importantly of all, fixes the awful audio by making use of an additional POKEY chip. Known as *Donkey Kong XM*, it was only made available in limited quantities, so, for many people, this version will have to do, not that it's such a bad thing, of course!

Platform
7800

Released
1988

Genre
Arcade

Developer
I.T.D.C.

Publisher
Atari

Originally by
Nintendo

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Platform
7800

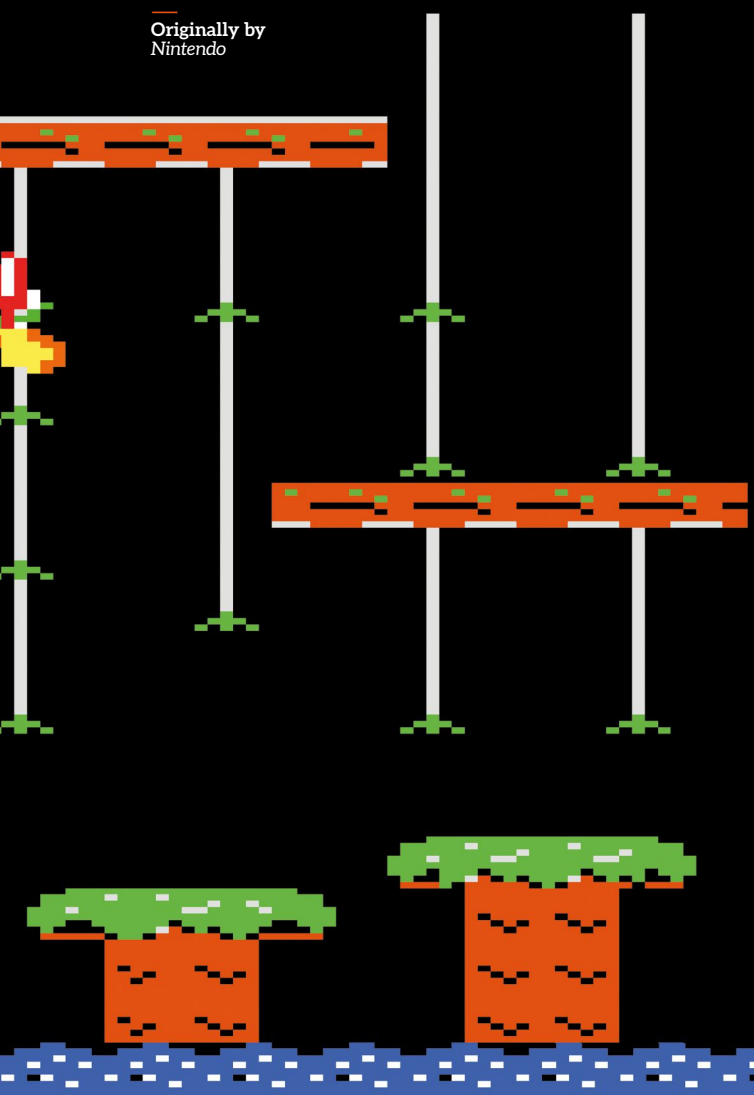
Released
1988

Genre
Arcade

Developer
I.T.D.C.

Publisher
Atari

Originally by
Nintendo



Donkey Kong Jr.

Joining *Donkey Kong* and *Mario Bros.* in the 7800's Nintendo line-up is the only official game to ever feature Mario as the villain! First released in the arcades in 1982, *Donkey Kong Jr.* is basically a role reversal of the first game, with Kong being captured by Mario and kept in a cage at the top of the screen. It's the job of Kong's son to make his way up the screen and rescue his chest-thumping father. You're now climbing ladders as well as ropes alongside the more traditional platforming, while a new mechanic has been added in the need to collect keys to unlock the cages on each level. Standing in your way is a selection of different animals that Mario has sent to stop you, and tasty fruits can be collected for bonus points as you swing around each screen.

While *Donkey Kong Jr.* isn't as instantly accessible as its predecessor, it does have much more varied gameplay and is also more challenging. The game often seems to get forgotten in the Mario/Donkey Kong timeline, which is a shame because it offers up something genuinely different. This 7800 port is also pretty authentic to the arcade original.

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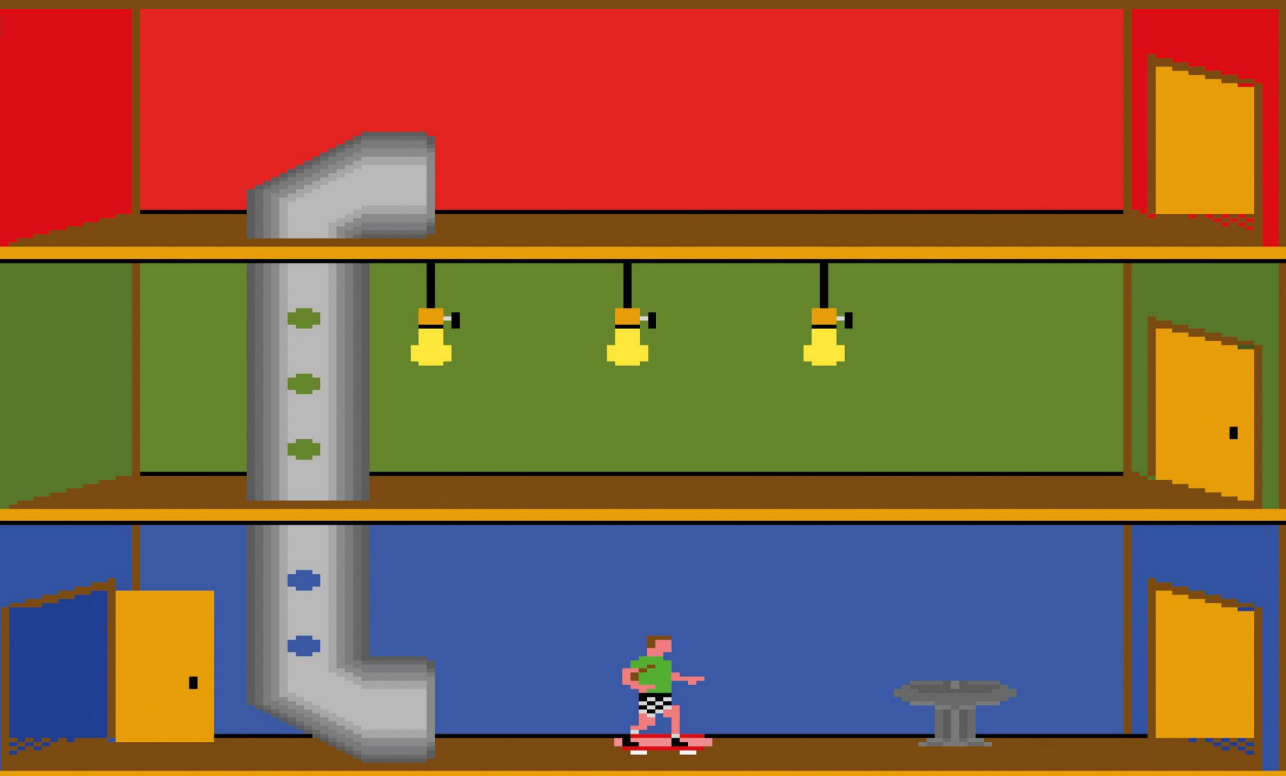

Super Skateboardin'

Absolute was one of only a handful of third-party publishers for both the 2600 and 7800, and part of its strategy was to release the same game for both formats, with the latter obviously getting a greatly enhanced version. The one exception to the rule is this game, as *Super Skateboardin'* is radically different to the Atari 2600 game of almost the same name (it lacks the 'Super' prefix). Whereas David *'Pitfall!'* Crane's 2600 version was focused on the extreme port of skateboarding itself, this 7800 title is actually a multi-screened arcade adventure. Apparently, you're the last guy left at work in a huge factory, and so it's your job to go round and turn all the lights and equipment off.

To make things quicker, you jump on your skateboard and fly around those floors, taking shortcuts, such as utilising the many air ducts. Although skateboarding plays a big part in the title and box design, the actual game gives almost no focus to it, so don't expect any half pipes, ramps or special tricks. It might not sound like the most exciting game, but *Super Skateboardin'* is actually a pretty enjoyable romp.

Platform *7800* / **Released** *1988* / **Genre** *Action* / **Developer** *Imagineering* / **Publisher** *Absolute Entertainment*

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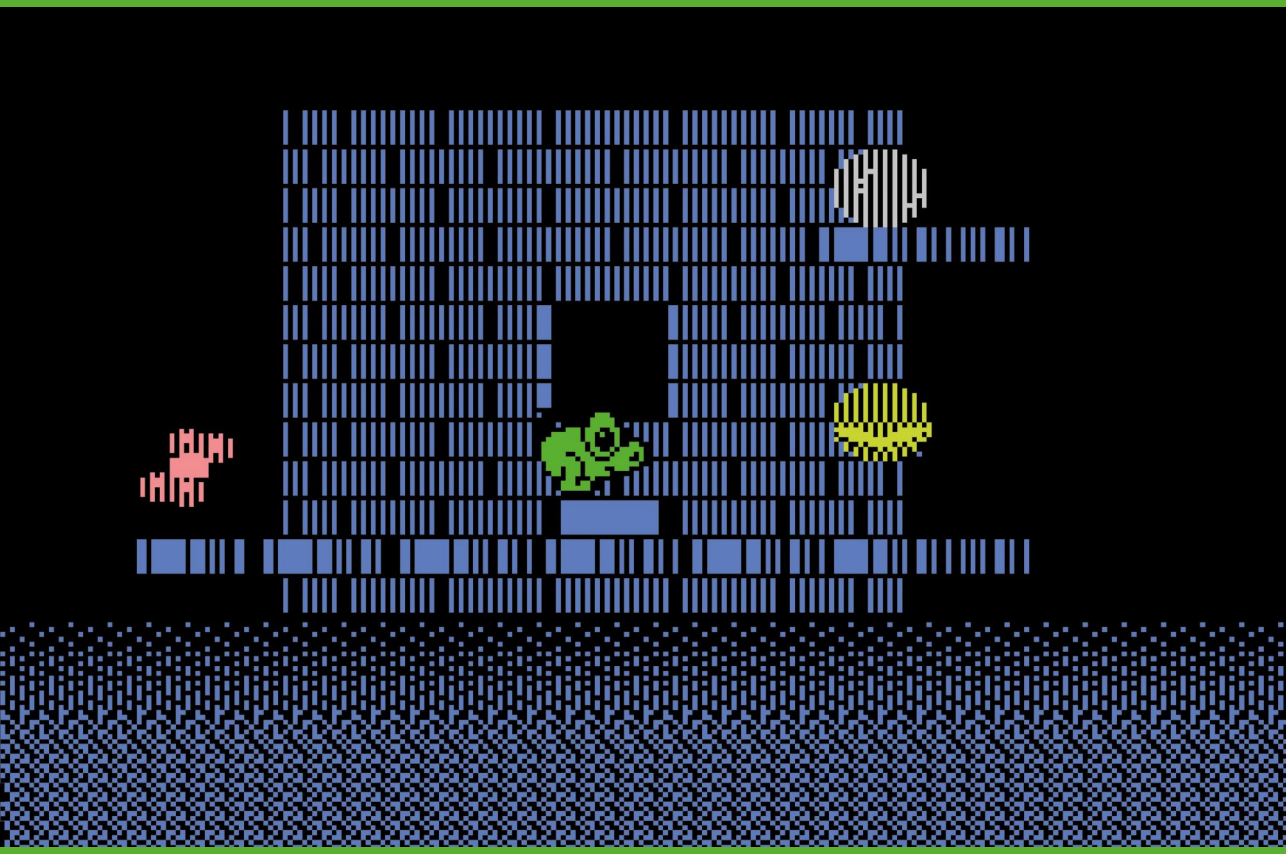

Tower Toppler

While the name *Tower Toppler* might not seem instantly recognisable to many people, I bet, if I said *Nebulus* instead, your ears would prick up. For some reason, U.S. Gold decided to change the name after licensing it from original publishers, Hewson, and, just to confuse things further, the Nintendo-based ports were published under the name Castelian! While all the different names might be confusing, the widespread acclaim this game received upon launch is not. Originally released for the Commodore 64, it wasn't just a great game but also an amazing technical demo. This comes from the spinning turret that makes up the central focus of the game.

The object of *Tower Toppler* is to climb to the top of each building using the platforms and doorways, while avoiding the enemies. If one of these hits you, then you're knocked down, either to a lower platform or into the sea, where you drown! As you move around the tower, the whole thing rotates, which looks absolutely stunning, both on this 7800 version as well as the original. The submarine-based bonus level also features some amazing graphical effects and provides a welcome break from all the platforming.

Platform *7800* / **Released** *1989* / **Genre** *Action* / **Developer** *U.S. Gold* / **Publisher** *Atari*

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

Atari 7800 control pad */ 1989*

Prepared exclusively for

> **“I never worked harder or longer hours in my life, but every game was a new challenge, like a puzzle that had to be cracked bit by bit.”**

Michael Feinstein, game designer and programmer

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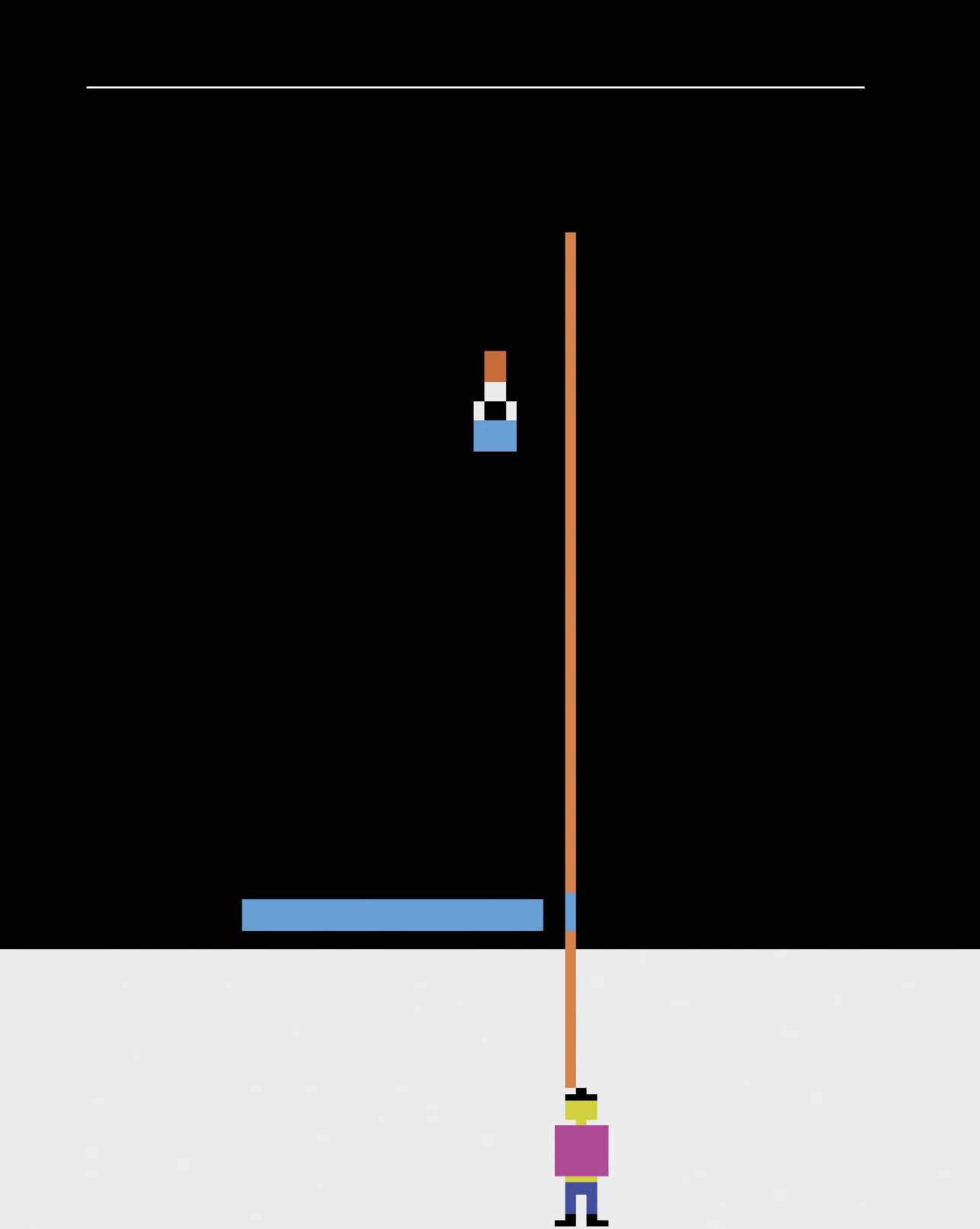

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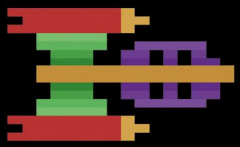


Glacier Patrol

The majority of games published for the 2600 by Telegames were simply re-releases of earlier titles, such as Xonox's *Kung Fu Superkicks* and Mattel's *TRON* licences. *Glacier Patrol*, however, is an original title, developed by VSS and published by the famous mail order company, released late into the 2600's lifespan.

Glacier Patrol features some interesting ideas and gameplay. Although the alien invasion angle has been done to death on the 2600, and, indeed, video games in general, *Glacier Patrol* manages to put together a completely new twist on the tale. This time, you're trying to stop an alien invasion of the North Pole, no less! The mothership in the sky above drops blocks of ice to try and brick you in so that you die a frosty death, so you must use your nuclear ray gun to try and melt these blocks before they land. This isn't the only hazard, though, as you must also watch out for the giant snowballs that roll across the screen, and jump before they manage to squash you! The objective is to survive until sunrise when the ice melts away naturally, which stops the aliens in their tracks. We can only guess they're vampires or something and don't like the heat or sun!

Platform
2600

Released
1989

Genre
Action

Developer
VSS

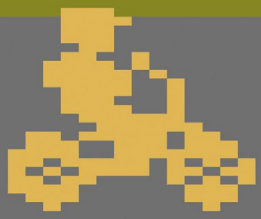
Publisher
Telegames

Prepared exclusively for bruno.silva@sharesolutions.io Transaction: 32654

BMX Airmaster

One of the first things worth noting about *BMX Airmaster* is that it was released twice in the space of a year; firstly, by original publishers TNT Games, and then in 1990 by Atari, which picked the game up after TNT went bust. While both versions are considered rare, the red box Atari variant is by far the hardest to find. It's a great shame it never got the wider release it deserved because it's one of the most technically impressive titles you'll find on the machine.

BMX Airmaster starts off with one of the best pieces of music you'll ever hear on the 2600 and only gets better from there. You then get a choice of different game options to choose between, and off you go! The first screen seems to have borrowed the half pipe from *California Games* as you try to perform as many tricks as you can within the time limit. Pick up enough speed, and you'll even fly into the clouds! On the second screen, you race towards a single ramp to perform tricks, while the last stage sees you hit the beach as you ride your bike along the pier doing tricks off a short ramp and trying not to fall in the water.



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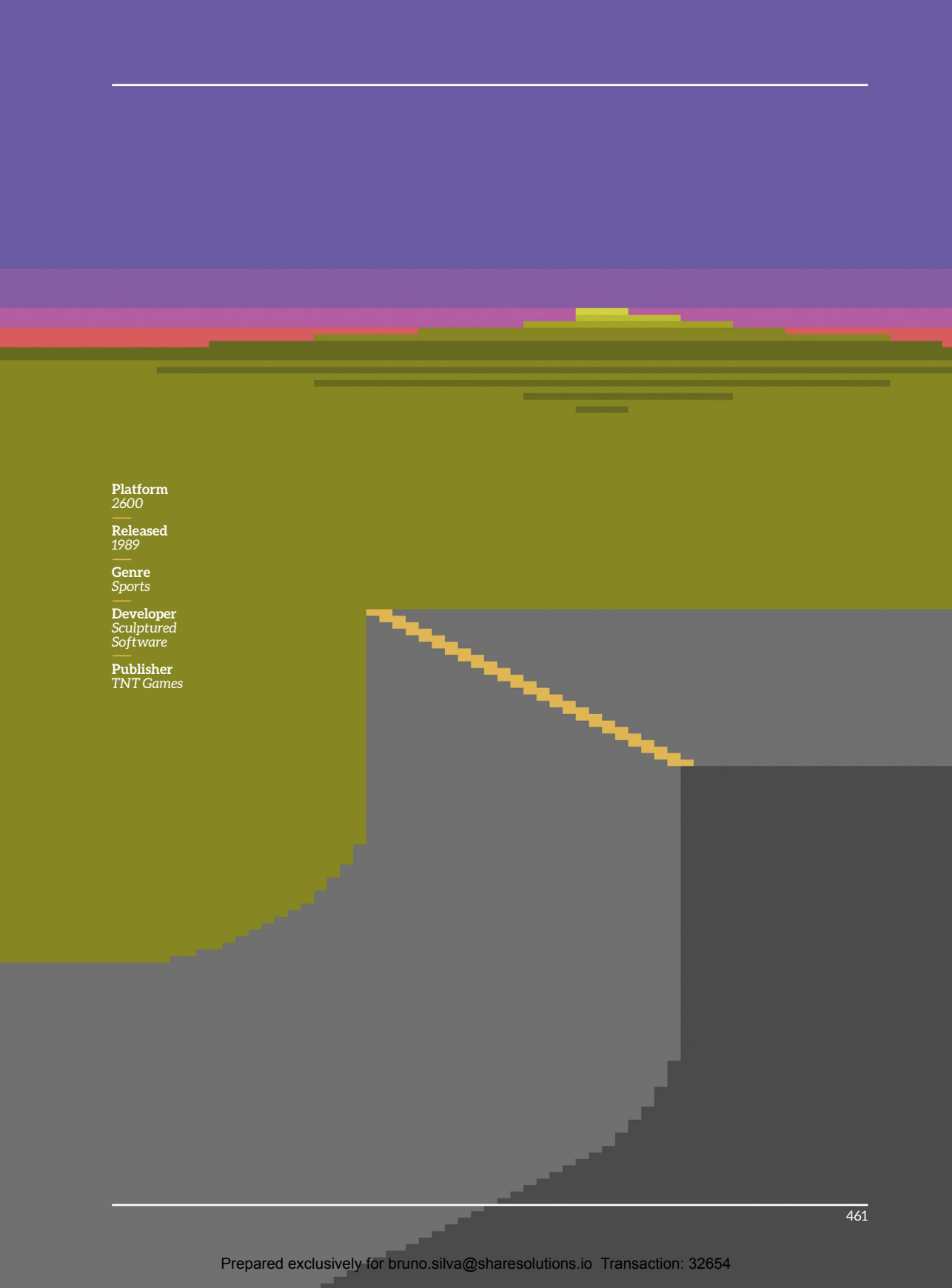

Platform
2600

Released
1989

Genre
Sports

Developer
Sculptured Software

Publisher
TNT Games

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Double Dragon

"*Double Dragon* is the iconic 1987 arcade game that popularised the nascent beat 'em up game genre, introducing exciting new features, such as two-player cooperative play. In a tale of brothers in arms, with a shocking endgame plot twist, Billy and Jimmy Lee battle the thugs that kidnapped Billy's girlfriend.

"In 1988, I landed my first job in the game industry at Activision and was excited to be assigned as the producer for licensed versions for the Atari 2600 and 7800, working collaboratively with teams at Imagineering, a highly respected developer. One of my first tasks was to videotape a playthrough h of the game at a nearby arcade in Redwood City, California, to send to Imagineering. It would serve as our sole reference asset throughout development. Such were the archaic processes of porting games back in the day!

"As an avid arcade game player and purist at heart, I thought that gamers would most appreciate an 'arcade perfect' experience for the 7800 version of *Double Dragon*, versus our taking creative licence with the game. Imagineering's director Alex DeMeo shared this vision and pushed the limits of the technology to achieve it. Some cuts were necessary, but we happily were able to support two-player cooperative play!"

Perry Rodgers, producer

Platform
7800

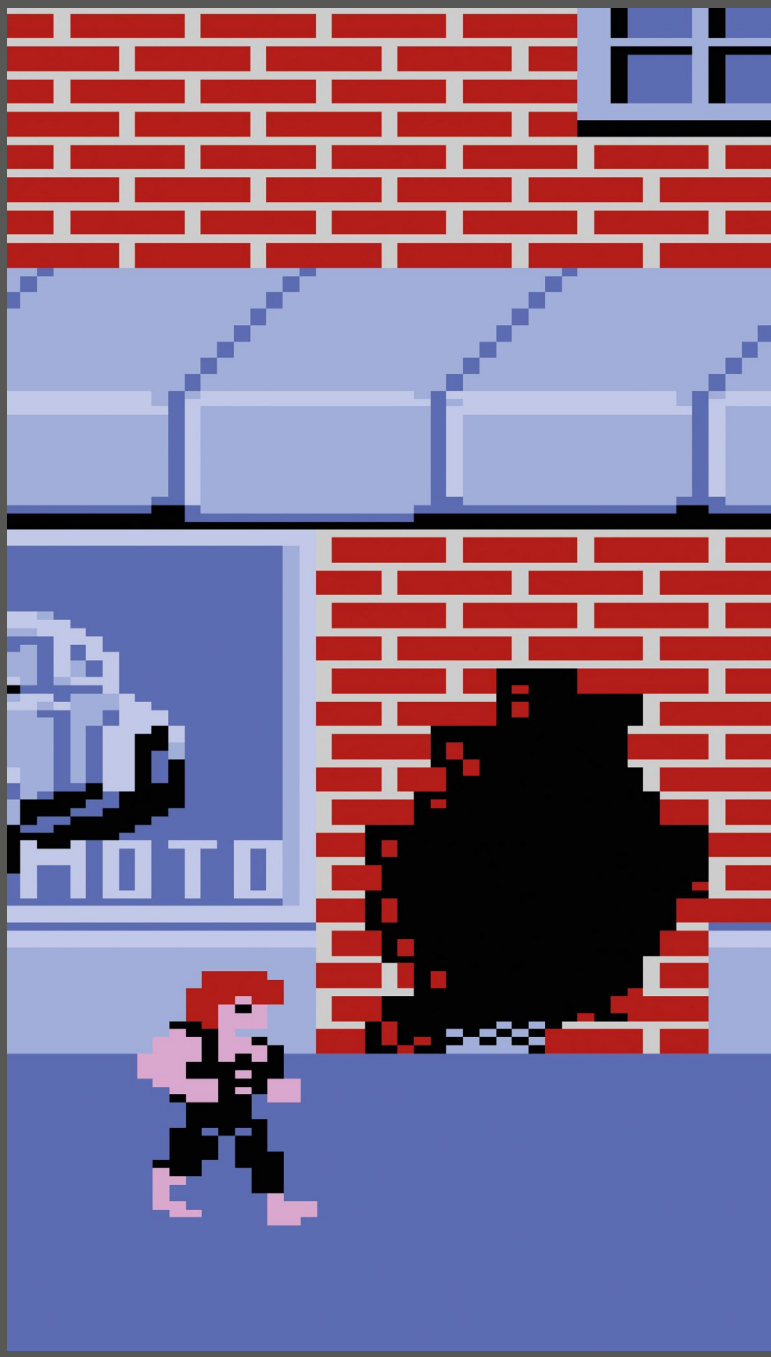
Released
1989

Genre
Scrolling beat 'em up

Developer
Imagineering

Publisher
Activision

Originally by
Technōs Japan



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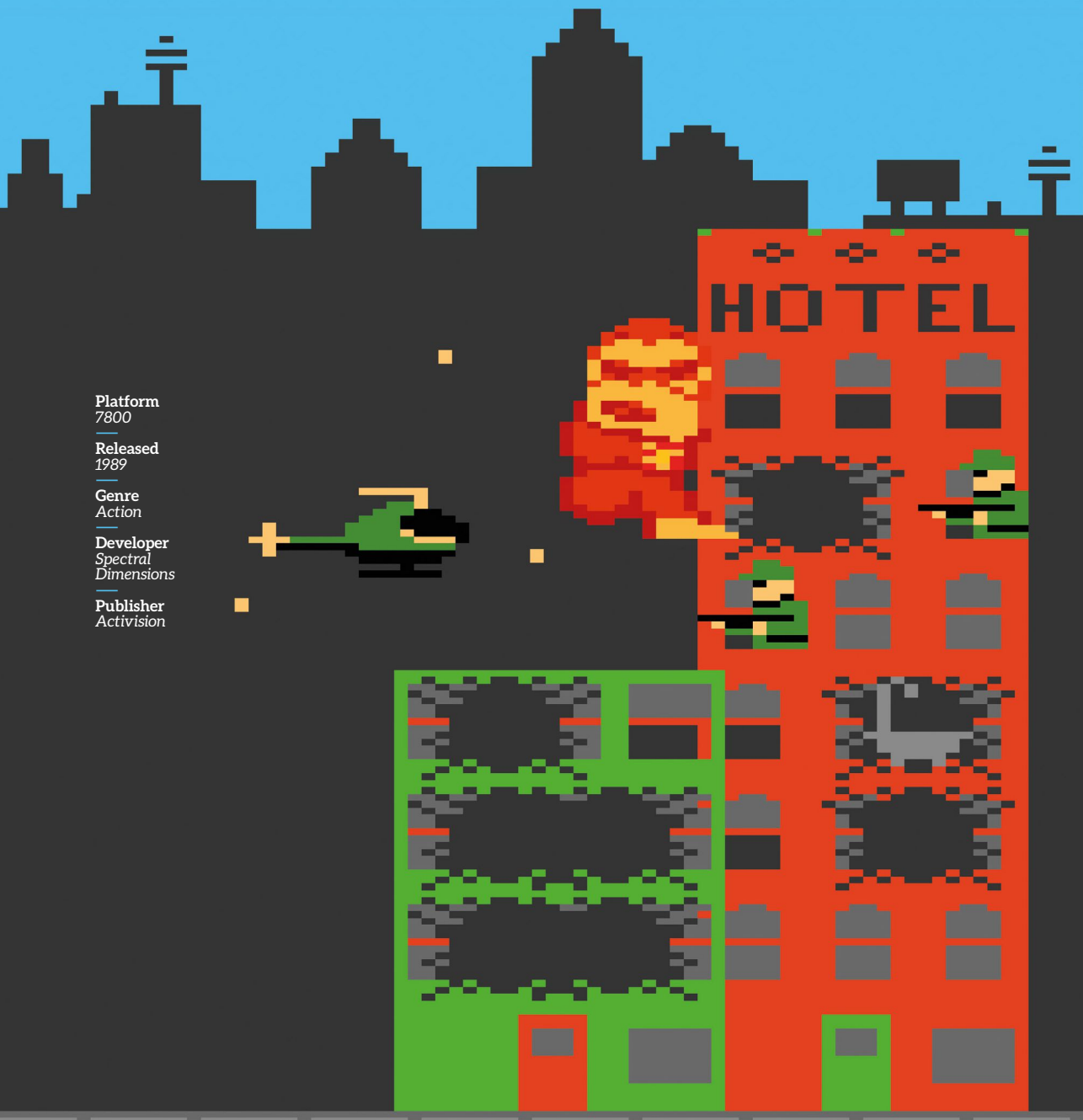

Platform
7800

Released
1989

Genre
Action

Developer
Spectral Dimensions

Publisher
Activision

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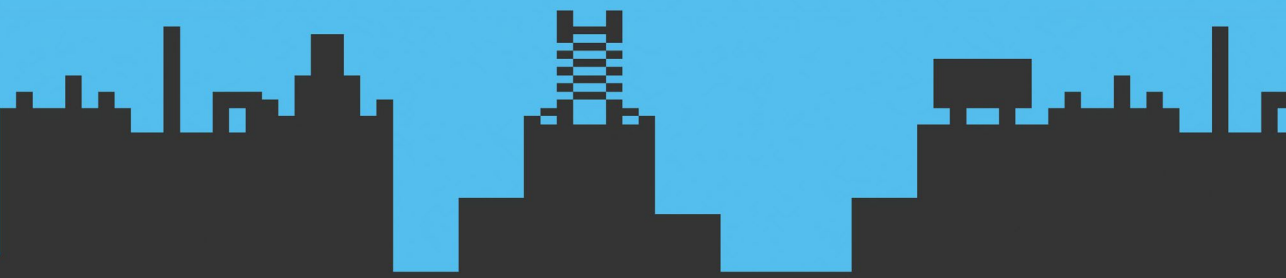
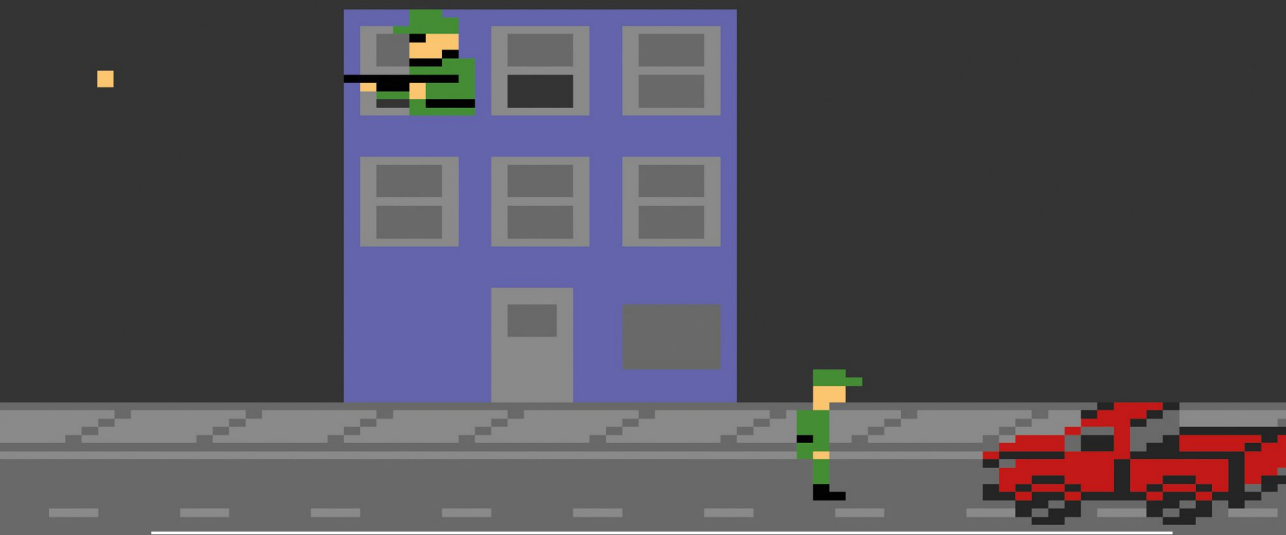


Rampage

"I produced *Rampage* for three console platforms at Activision: the SEGA Master System, the Atari 2600, and the 7800 too. Activision already had the licence for *Rampage*, and this was the game that would finally break Nintendo's exclusivity policy. Nintendo of America had the exclusivity policy on this game and many others that was killing us when I was at Atari. And, when I went to Activision, Bruce Davis was like, *'To hell with that, we're just going to publish on those platforms anyway'*. There was very little blowback on us for this, but it helped trigger a lawsuit where Atari sued Nintendo for monopolising the market, and I was called to give a deposition. So, yeah, it was the 7800 version of *Rampage* that brought that about!

"The 7800 programmer was Bill Hawkins, who I knew from my days at Western Technologies, and I think he did a really good job. He was basically a one-man team, but used the Spectral Dimensions name to make it sound like he was a professional team of developers! The guy who did the 2600 version was Bob Polaro; I didn't think it could be done, but wow, he did a truly remarkable job."

Tom Sloper, producer



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Dark Chambers

"Atari had approached us about doing the game, and they talked to us about how it was *Dandy*. They explained the gameplay, and I said it sounded just like *Gauntlet* and got really excited. Then they told me that *Gauntlet* was just *Dandy* with a different name, and so they were bringing *Dandy* back. Then I said, if you're bringing *Dandy* back, then why are you calling it *Dark Chambers*? And they said, because it sounded a lot cooler than *Dandy*. I had to agree, it did.

"The project manager (Peter Adams) said, I'll take the 7800 version, and you do the XE version. But, all the way along, we shared the same designs and played each other's versions to make sure they matched. We also had an artist who worked on both versions of the game and shared the assets – this was good because we both sucked at creating art! He managed to get the sprites looking pretty close to the ones in *Gauntlet*.

"We kept setting each other a challenge to see who could get the most sprites on screen, and we were amazed at just how many the 7800 could produce, but you'll need to play it on the hardest setting to see them all!"

Chuck Peavey, co-designer

Platform *7800* / **Released** *1989* / **Genre** *Adventure* / **Developer** *Sculptured Software* / **Publisher** *Atari*

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Crack'ed

"I didn't work directly on this game, but there's a rather interesting story behind it from what I remember. There was a guy called Robert Neve who just sent in a game design on spec, and he just sort of said, *'Hey, I've got this cool idea for a game!'* He wrote it all down by hand on lined notepaper, and John Skruch and I both read it in detail, and then John said, *'Well, I think this is pretty good actually; we ought to do it!'* I was like, *'Well, okay, but you know he's going to need to get paid. You can't just take the idea for nothing and not credit him.'*

"John then got in contact with him and basically hired the guy to do three different versions. Unfortunately, I never saw anything more of it as this was around the time I got fired from Atari. But it was cool to see that it all came to fruition."

Tom Sloper, producer

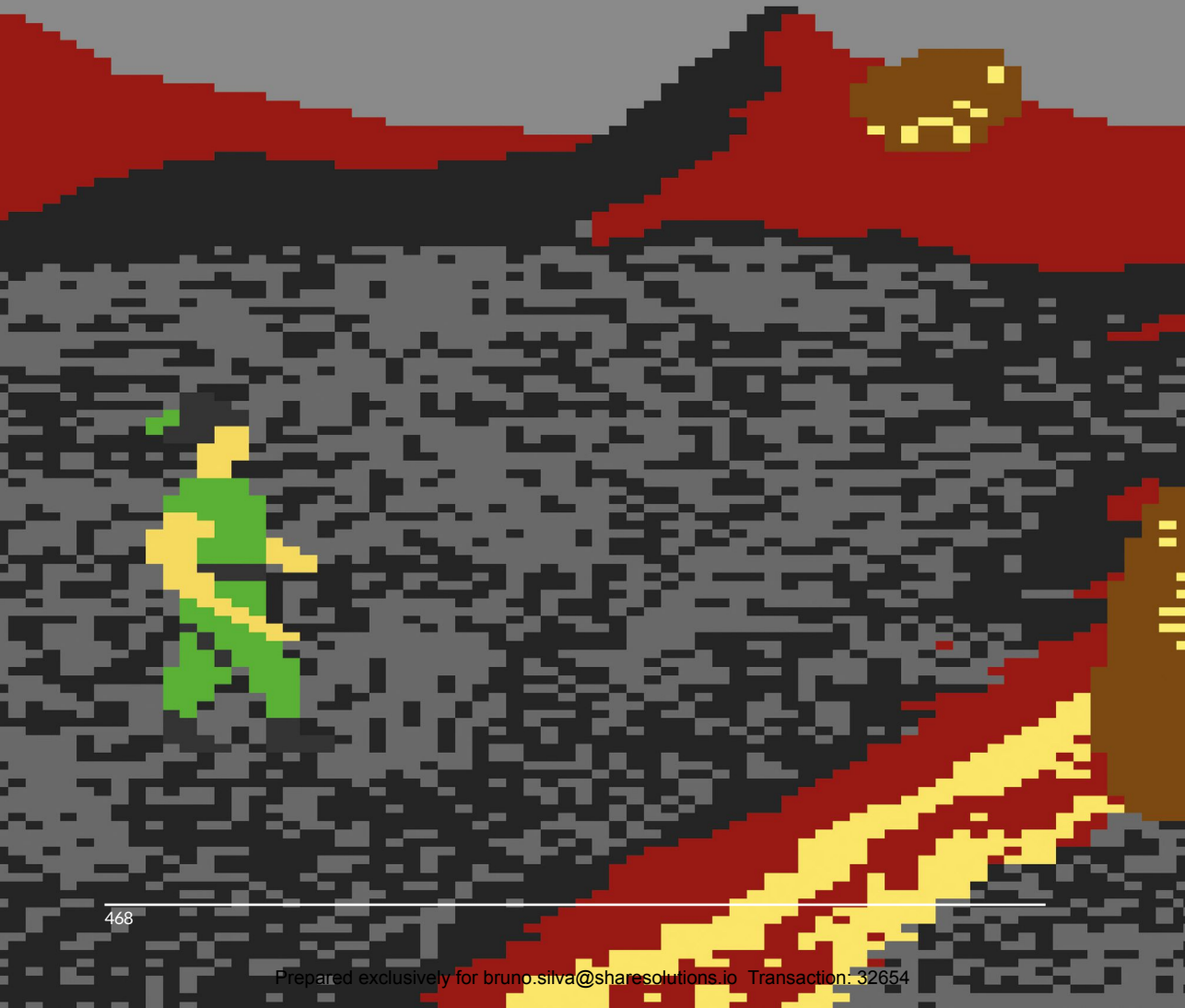
Platform *7800* / **Released** *1989* / **Genre** *Shoot 'em up* / **Developer** *Zip Technologies* / **Publisher** *Atari*

Crossbow

Coming some five years after the release of the original Exidy arcade game, it's easy to forget how groundbreaking *Crossbow* was when it first appeared. Aside from being one of the earliest light gun games – I say light gun, although the cabinet actually featured a full-size metal crossbow – it was actually the first ever arcade game to feature digitised sound. Sadly, that isn't featured in this conversion, but all the great gameplay remains intact. The idea is to guide a band of brave adventurers across the landscape so they can defeat the Master of Darkness and free the land of evil.

Each level is made up of a single screen and is full of its own unique hazards. As your adventurers stroll across the screen, you use the 7800 light gun (or joypad) to shoot all the enemies before they attack, and remove any other hazards from their path. Each stage takes place in a different location, such as the haunted village or lava-spewing volcano, and you can even choose the path that our heroes take. With each level, a new adventurer is added to your party, and these act a bit like extra lives as you have to get each one across the screen.

Platform *7800* / **Released** *1989* / **Genre** *Shoot 'em up* / **Developer** *Imagineering* / **Publisher** *Atari*



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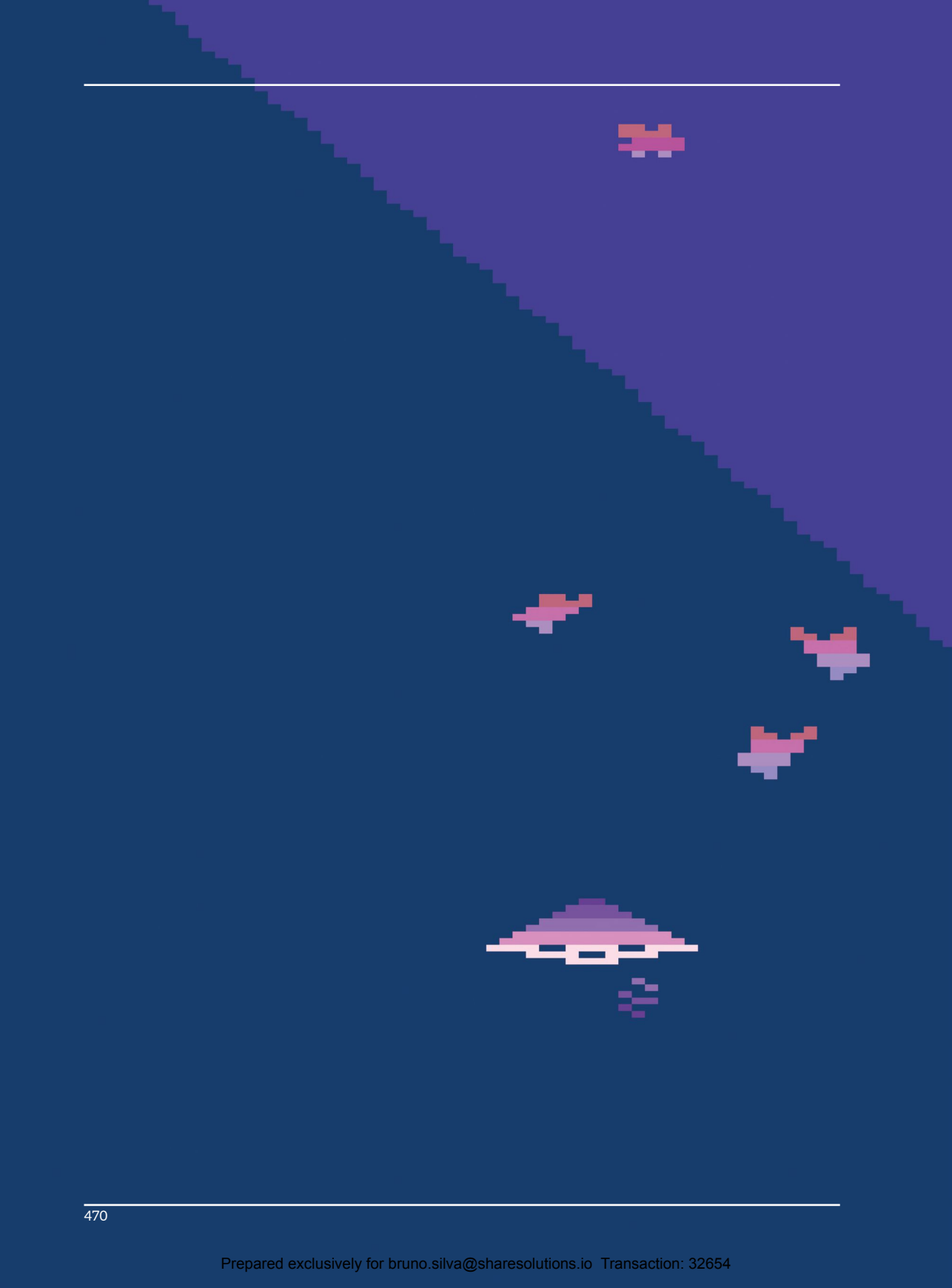

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Radar Lock

Platform
2600

Released
1989

Genre
Shoot 'em up

Developer and Publisher
Atari

While Doug Neubauer will forever be remembered for his creation of the seminal *Star Raiders*, he should also receive praise for a trilogy of titles that he programmed right at the end of the 2600's long life. *Super Football*, *Solaris* and *Radar Lock* all share the same phenomenal 3D engine that appears to achieve the impossible. The latter of these titles, *Radar Lock*, also goes one step further by copying an arcade game that many thought impossible to convert to the home competently – SEGA's *After Burner*. Yep, you read that right: this is a copy of the state-of-the-art coin-op where you fly your fighter jet over a pseudo 3D landscape, shooting down enemy squadrons, checking your control panel, and even docking your plane for that iconic mid-air refuelling sequence!

There are few titles out there that push the hardware as hard as *Radar Lock*. Doug seemingly managed to cram in all the features that made *After Burner* so great without compromising the gameplay. He even squeezed in a few new features, such as hunting down squadron leaders and tracking enemy planes on your radar. *Radar Lock* is a perfect example of just how far the 2600 can be pushed in the right hands.

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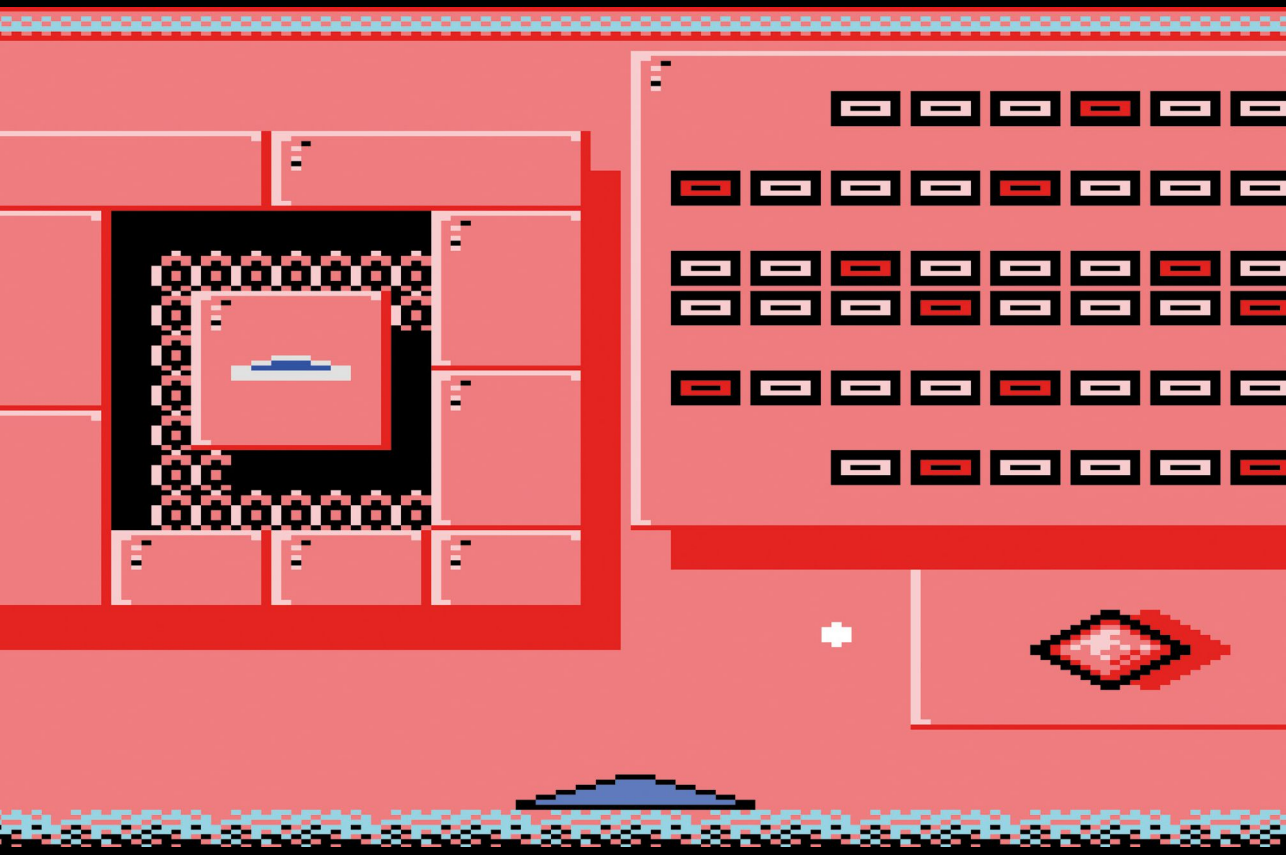

Jinks

Originally developed by German publisher Rainbow Arts for home computers, *Jinks* was converted to the Atari 7800 by legendary British software house U.S. Gold, and remains the only commercial game on the console to feature digitised speech. The notable thing about this speech is that it appears to have been taken from the Atari arcade classic *Gauntlet*. Which is especially interesting as U.S. Gold was handling the unreleased 7800 port of the game, one of the holy grails of so-far-undiscovered prototypes for the ProSystem, alongside *Electrocop* and *Steel Talons*.

Jinks itself is a bizarre cross between pinball and *Breakout* where you guide a ball through four scrolling stages of craziness. You direct the ball using a triangular bat that can be manipulated to change the direction and bounce of the spheroid. Hitting enemies with your bat causes it to shrink before destroying it completely, and you must try to stop the ball from being eaten. There are bonus items that can be collected to restore your bat and also some that award extra lives. Jinks is a brightly coloured world of quirky fun that offers something very different to all the other games in the 7800's library.

Platform *7800* / **Released** *1989* / **Genre** *Arcade* / **Developer** *U.S. Gold* / **Publisher** *Atari*

Kung-Fu Master

Aside from being a truly great game, *Kung-Fu Master* will forever be remembered as the very first scrolling beat 'em up – a genre that went on to give us such classics as *Double Dragon*, *Streets of Rage* and *Final Fight*. Sadly, the quality of the many home versions was pretty mixed, but both the 2600 and 7800 received excellent ports from the ever-consistent Activision.

In the game, you fight your way through the many floors of a temple on a mission to save your girlfriend. Along the way, you encounter a wide range of different enemies, including knife throwers, violent midgets, thugs who attempt to strangle you, and even fire-breathing dragons!

At the end of each floor, you have to beat the boss to climb the stairs and continue your quest. Although you're fixed to a single plane, you can both jump and duck to avoid attacks, and you need to adapt your fighting techniques to handle different enemies. The graphics in this 7800 port are excellent, with some particularly nice backgrounds present and well-defined sprites. It also has some surprisingly good in-game music without the need for a POKEY chip. Fans of the original coin-op will love this.

Platform *7800* / **Released** *1989* / **Genre** *Scrolling beat 'em up* / **Developer** *Imagineering* / **Publisher** *Absolute Entertainment* / **Originally by** *Irem*

Commando

"Arriving as the Atari 7800 entered the autumn of its life, *Commando* pushed the console's abilities considerably. Originally a Capcom arcade release from 1985, *Commando* is a top-down run 'n' gun in the classic form. In fact, it's one of the founding works of a genre that boomed in the mid-to-late 1980s, arriving before the likes of *Contra*, *Ikari Warriors*, *Heavy Barrel*, *Out Zone* and *Rolling Thunder*. It does, however, probably owe a little to Taito's 1982 seminal release *Front Line*.

"The premise of *Commando* reads like a trope of military action games, films and TV shows. Assuming the role of a muscular soldier named Super Joe, you're dropped into the jungle by helicopter and left to single-handedly overwhelm a vast enemy force using a machine gun and an abundance of grenades. The 7800 port was handled by development studio Sculptured Software, which, in doing so, proved that the machine didn't deserve its reputation for muted colour palettes and less-than-dazzling audio; Sculptured's version sounds rich and looks vibrant. It's also remarkably fun, carrying over much of the intensity and gameplay variety of the original. It's a port that doesn't endeavour to be arcade-perfect; instead, it strives to reshape the game perfectly for the 7800 – and it does a striking job."

Will Freeman, games journalist

Prepared exclusively for bruno.silva@sharesolutions.io T...sa... ...32654

Platform
7800

Released
1989

Genre
Run and gun

Developer
Sculptured Software

Publisher
Atari

Originally by
Capcom

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Off the Wall

Off the Wall was created by Axlon, the company owned by former Atari co-founder Nolan Bushnell – which makes it pretty notable in itself – but it also holds the distinction of being one of the very last games Atari published for the 2600 VCS. Another interesting factoid is that, when helping to design this game, Nolan returned to his Atari roots as *Off the Wall* is an evolution of the classic *Breakout*. While the gameplay is very much in the same style – hit a ball against a wall to break all the bricks – there are a number of small changes and enhancements. Firstly, there's now a range of collectible power-ups which help you to clear the bricks a lot quicker, much like that other *Breakout* clone, Taito's ever-popular *Arkanoid*.

Perhaps the biggest change, however, is that this game is played with the joystick rather than the paddles. But by far the best addition is the Chinese dragon, who slithers back and forth above the titular wall, and can be killed for bonus points. *Off the Wall*, like many of the other late releases, is visually impressive and really pushes the then-12-year-old hardware to its limits.

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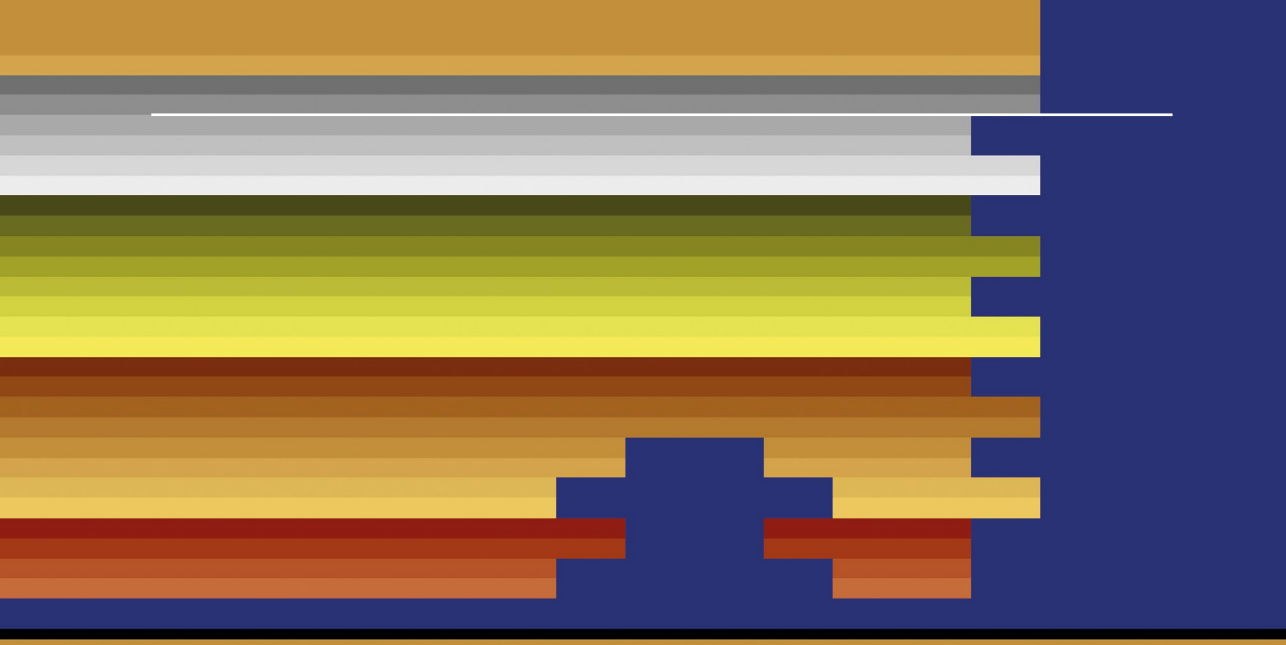


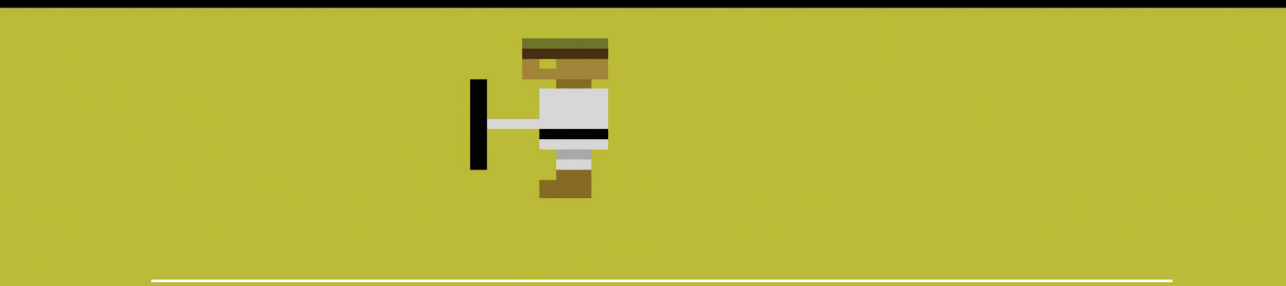
Platform
2600

Released
1989

Genre
Action

Developer
Axlon

Publisher
Atari



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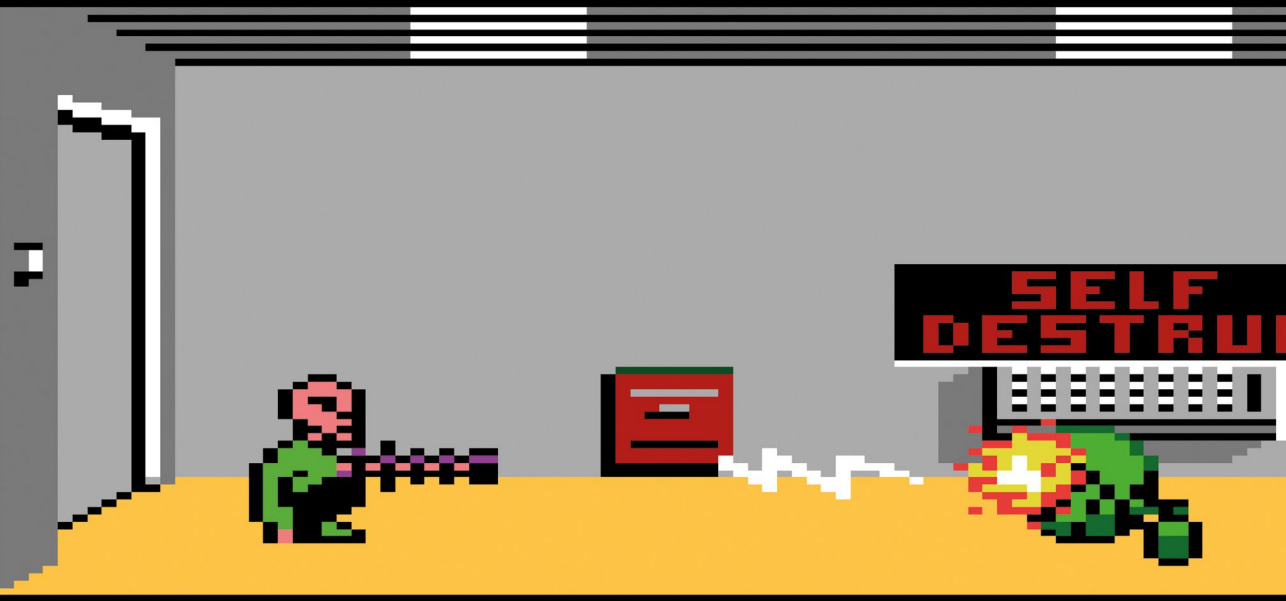


Xenophobe

The original 1987 Bally Midway arcade game was the creation of Brian Colin, the creative genius behind the hugely successful *Rampage*. Like his previous game, Xenophobe was very much focused on the multiplayer element and became the first-ever three-player split-screen coin-op. An arcade adventure crossed with a run 'n' gun, the unashamed influences from the cult sci-fi film *Aliens* are clear to see, and Brian himself has been quoted as saying it was his biggest influence.

Your job is to eliminate the alien squatters from a series of space stations and recover the important assets kept there. Should the station become overcome with xenos, then your only option is to hit the self-destruct and make your escape. The aliens range from annoying little face huggers to huge acid-spitting xenomorphs that do their best to trap you. Thankfully, a range of great weapons can be collected to help you despatch them. The three-player split screen has been pared down to two, as you'd probably expect, and there's no character selection in this port either, but it still manages to replicate the core gameplay perfectly. For that reason, *Xenophobe* comes highly recommended and remains one of the best two-player titles on the system.

Platform
7800

Released
1989

Genre
Action

Developer
BlueSky Software

Publisher
Atari

Originally by
Bally Midway

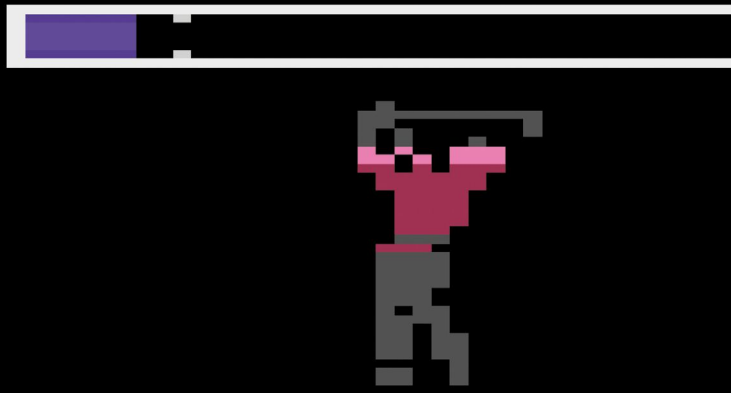
My Golf

"After seeing Atari's early titles *Golf* and *Miniature Golf*, one might wonder whether *My Golf* was made for a different, more advanced game console. While the improvement can largely be ascribed to the relative sizes of the ROMs and the programming tricks and techniques learned over the decade prior to its 1990 release, *My Golf* is, regardless, a remarkable technical achievement. Created by veteran programmer David Lubar at Imagineering/Absolute Entertainment, and based on a concept by Garry Kitchen, *My Golf* was a freelance contractual job resulting in the only release of a 2600 title by HES (Home Entertainment Suppliers), an Australian video game distributor.

"Copy written for a video game's box is sometimes a bit overblown, but *My Golf* is about as 'amazingly real' as a true simulation on the Atari 2600 could be. The included features make it comparable to a number of other of contemporary golf sims. Players have a complete bag of clubs at their disposal to tackle a full 18-hole course, all the while contending with various terrain and hazards, wind in four directions, and hooking/slicing ball physics. The now-familiar 'three-click' swing meter system works well, and its implementation here might even pre-date the supposed origin of the mechanic (Electronic Arts' computer game *PGA Tour Golf*, also released in 1990).

"Golf sim aficionados may not be overly impressed, but anyone familiar with the Atari 2600's capabilities and limitations will recognise the leap forward that *My Golf* represents. Although the Atari 2600 was still being manufactured and sold globally in 1990, the games industry had largely moved on by that point, which means that only a small number of people are familiar with this PAL-exclusive title that saw a geographically limited release. But anyone interested in seeing some of the best of what the 2600 has to offer should feel encouraged to hit the links with *My Golf*."

Rob Wanenchak, guest reviewer



Platform
2600

Released
1990

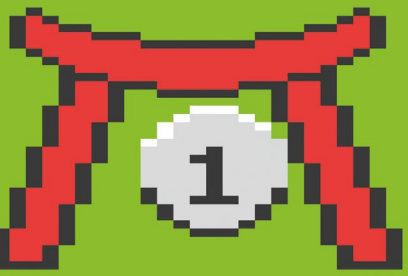
Genre
Sports

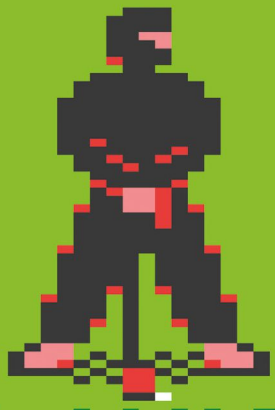
Developer
Imagineering

Publisher
H.E.S.

An interview with David Dentt

David Dentt isn't a name that will be familiar to most gamers out there, but perhaps it should be. An industry veteran of nearly 40 years, David started his career at early arcade industry innovators Cinematronics, which is perhaps best known for its range of vector-based games, as well as the legendary LaserDisc adventure, Dragon's Lair. *Dentt worked on various Cinematronics titles, including* Cosmic Chasm, Alley Master *and* Freeze. *From there, he followed many of his colleagues over to California-based developers, BlueSky software. It was here that he created and coded the cult classic* Ninja Golf *for the Atari 7800 – often referred to as the system's killer app – before coding the sadly unreleased ProSystem port of* Klax.





Ninja Golf */ 7800 / 1990*

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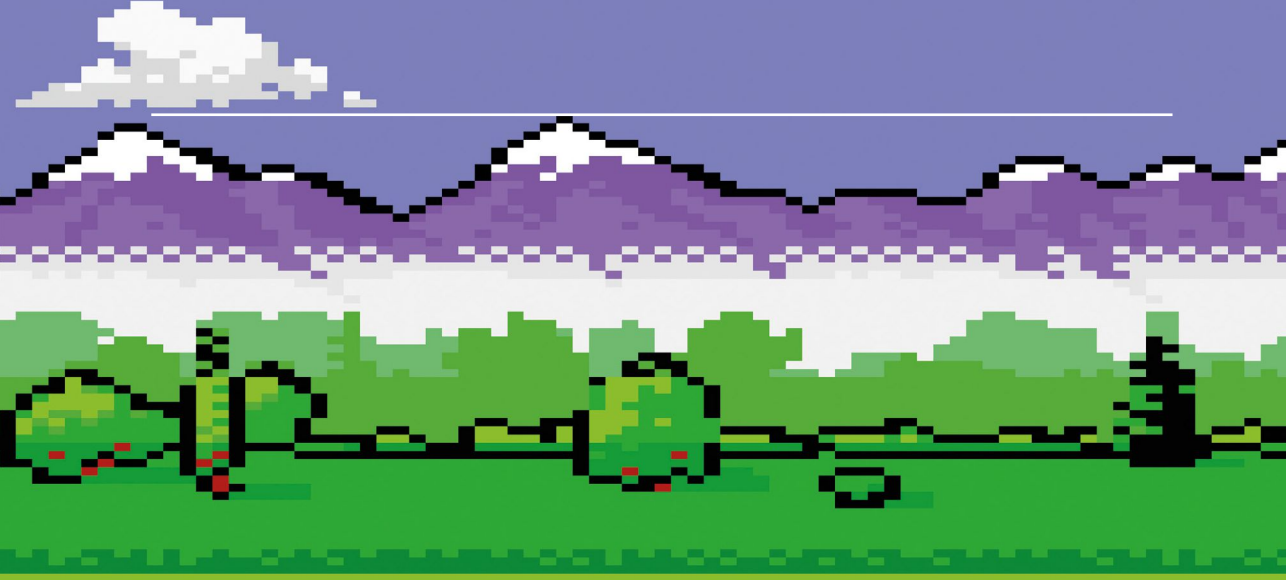

After moving on from the Atari 7800, David programmed games for the Atari Lynx, working on titles such as* Tournament Cyberball *and* Ninja Gaiden *(we guess he had a thing about ninjas!). He then became lead programmer on the World Series Baseball franchise for the SEGA Mega Drive, which kept him busy for several years. A few obscure PlayStation titles followed before BlueSky Software was shut down in 2001, when its parent company, Titus Interactive, entered administration. David has continued to work in the industry he loves, and took time out of his busy schedule to tell us about his memories of working on the Atari 7800 ProSystem.

What led to you producing games for the 7800? Before working at BlueSky, where I did the Atari 7800 games, I'd worked at arcade industry pioneers Cinematronics. Most of the people that founded BlueSky came from there, actually, and I was one of the very first hires at BlueSky, if not the first (depending on who you ask). The company had signed a deal with Atari to produce 7800 games, so that's what I did!

What was the 7800 development kit like, and what were the challenges of creating games for it? We had Atari ST computers connected to a dev card that plugged directly into the 7800, and the programming was all done in 6502 assembly. I'd recently been doing things on IBM compatibles using C and assembly, so the 6502 was just a matter of learning a new instruction set.

In general, development difficulties had more to do with the 7800's limitations than the dev kit itself. Although, I do remember one time I spent most of a day trying to track down what I thought was a software problem, which was actually a hardware fault. Re-seating all the chips on the dev board instantly solved my problem!

What were the 7800's biggest strengths, and how did you feel it compared with the Nintendo NES? Oddly enough, I hadn't played any NES home games at the time, or had any experience with it. Believe it or not, despite working for a big U.S. developer, I never actually developed any NES games either! I was an arcade kid, so I played *Mario* there, but didn't play any NES home games until a friend got a system years later. The Atari 7800 did have some restrictions in colours, memory, sound and display modes, but that seemed normal at the time because I didn't know anything else.

"The Atari 7800 did have some restrictions in colours, memory, sound and display modes, but that seemed normal at the time because I didn't know anything else."

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> *“It was a lot of fun, working with great people, back when things were much simpler.”*

How did* Ninja Golf *come about? Was it your idea, and how much input did you have into the design?
We had a meeting early on with people from Atari, and the instruction from them went something like this: *“Ninja games do well, golf games do well, so how about a ninja golf game?”* That was pretty much the game design we received on the project! We created the rest as we went along. I was programming the 7800 version, with David Sullivan programming the Atari XE version, and a couple of artists too.

How do you feel about* Ninja Golf *now being considered the 7800’s best game and a cult classic?
‘Best game’ might be a stretch, but ‘cult classic’ fits. Some magazine back then voted it the strangest game idea of all time. I still find someone on YouTube who is playing the game for the first time, and it’s always interesting to hear what other people think.

Before you got the job of converting* Klax *to the 7800, were you fan of the arcade game?
I’d played it, and I liked it, but I wasn’t a hardcore fan. I never got further than a few levels into it before giving up.

Did you wish you had been give a POKEY cart for* Klax *so you could have included all the speech?
I think it might have been misplaced if we had. It was obviously a streamlined version of the game with simpler graphics. Having the speech might have made people feel like we should have put the effort into better graphics rather than sound. Of course, the hardware realities of that notion might not be understood by the average player at the time.

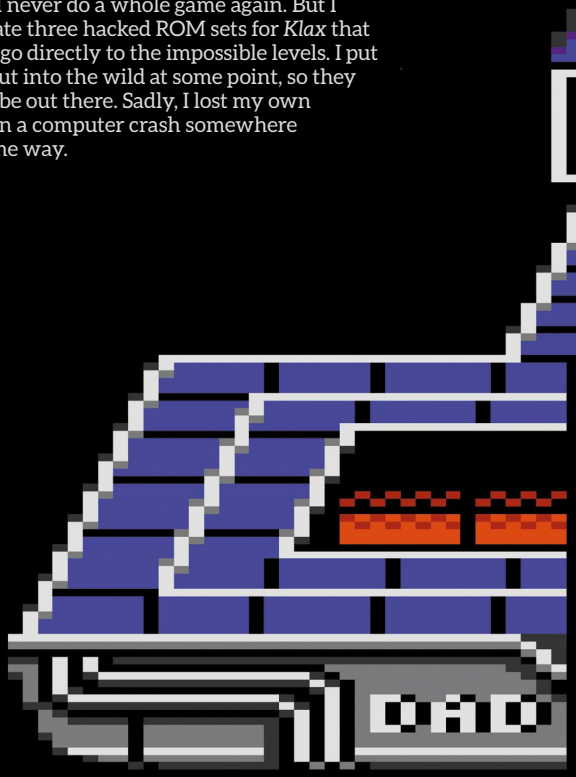
Were you gutted that 7800* Klax *was never released?
It was depressing to put time and effort into a game, and then have the plug pulled for issues separate from the game itself. If *Klax* had been finished before *Ninja Golf*, it would have definitely been released through official channels, and we might be having a different conversation.

How did the eventual release of the game come about, and what was your involvement?
As I understand it, ResQSoft picked up the ROMs at a bankruptcy/liquidation sale. The last ones I’d sent to Atari were near final. ResQSoft contacted me when they were ready to release the game, and I autographed some boxes for them – talk about your fringe collector’s item! I did an interview after that in which I divulged the existence of the three ‘impossible’ levels that made the 7800 version unique.

Were there any other titles you worked on for the Atari 7800 that were never released?
Ninja Golf and *Klax* were the only 7800 games I did. After that, I moved over to working on the Atari Lynx.

What are your best memories of the Atari 7800?
Not so much about the system itself, but that time in my life. It was the beginning of a ten-plus-year stint at BlueSky. It was a lot of fun, working with great people, back when things were much simpler.

Have you ever had the hankering to go back and create a new homebrew game for the 7800?
I would never do a whole game again. But I did create three hacked ROM sets for *Klax* that let you go directly to the impossible levels. I put those out into the wild at some point, so they should be out there. Sadly, I lost my own copies in a computer crash somewhere along the way.



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Mean 18 Ultimate Golf

First released by Accolade for various home computers in 1986, *Mean 18* is very much a traditional golf simulator along the same lines as *Links*, *Leader Board* and *PGA Tour*. This means that you play with a third-person view of your golfer looking at the course in front of him, with the screen completely redrawing to reflect the new surroundings after each swing. The only exception to this is when you finally make it onto the green; at this point, the game switches to an overhead view so you can better judge your putts, with directional triangles showing the roll of the land.

Mean 18 also features a very traditional control system, with a long bar used to govern the power of your swing as well as how you hit it. You also get a full club selection that's displayed in the status panel at the bottom, alongside information, such as the distance to the hole, stroke and hole number. Although there's only one course here, it takes quite a while to play through, and it's beautifully presented. If you're a fan of golf or golf games, then *Mean 18* is a must-have.

Platform
7800

Released
1990

Genre
Sports

Developer
BlueSky Software

Publisher
Atari

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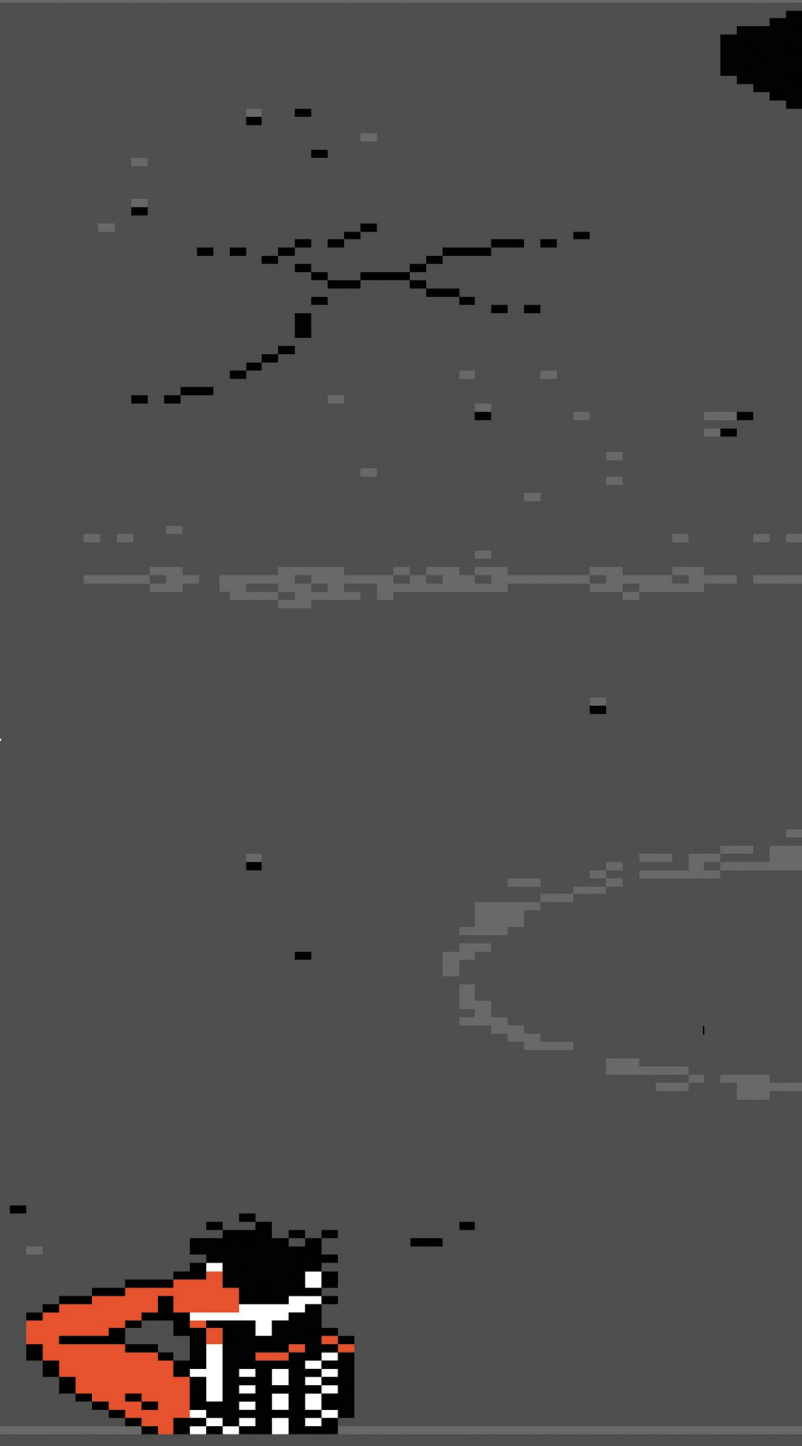
Basketbrawl

Back in the late '80s and early '90s, there was a big craze for making violent sports games, with titles such as *Speedball*, *Mutant League Football*, *Arch Rivals* and *Soccer Brawl* proving very popular. Not to be outdone, Atari had its own stab at creating one in the form of *Basketbrawl*, and did a pretty good job of it too. The game is played out in a tournament style as teams comprising two violent thugs compete across a series of backstreet basketball courts. Each player has their own unique characteristics, so you need to choose wisely. The gameplay really is anything goes: punch, push, hit with weapons, and even knock your opponents out for the ultimate advantage. The players aren't the only ones with a mean streak, though, as the crowd aren't afraid to get involved too. You'll need to move quickly if you don't want a knife in your skull! There are three difficulty levels, the choice of playing the computer, another human or even teaming up together, as well the ability to set the length of each game. The huge sprites look great, and the courtside graphics are really detailed too. *Basketbrawl* is easily one of best sports games available on the 7800.



Platform
7800

Released
1990

Genre
Sports

Developer
BlueSky Software

Publisher
Atari

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Platform
7800

Released
1990

Genre
Action

Developer
BlueSky Software

Publisher
Atari

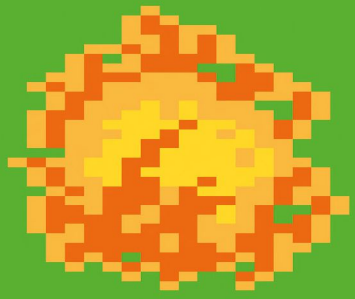
Ninja Golf

"The idea for *Ninja Golf* actually came from someone at Atari. The way it was explained to me was that sports games were popular, ninjas were popular, so why not *Ninja Golf*? One cannot help but be in awe of the thought process there! Thankfully, Atari gave me quite a bit of creative freedom to come up with the final product. After being given the basic idea, we came up with most of it as we went along.

"There were two programmers, myself and the guy who did the Atari XE version, and a couple of artists. We would just sit around and throw ideas around until something stuck, the crazier the better! When I needed to, I could always call up my producer at Atari and get their input or help on something, but they always seemed to be very happy with our work.

"I'm still a bit amazed that *Ninja Golf* is so highly regarded by Atari fans. I always thought of it as a fun and quirky game that might be a bit too odd for some people. I guess I was totally wrong as I still keep finding new videos on YouTube talking about it!"

David Dentt, designer and programmer



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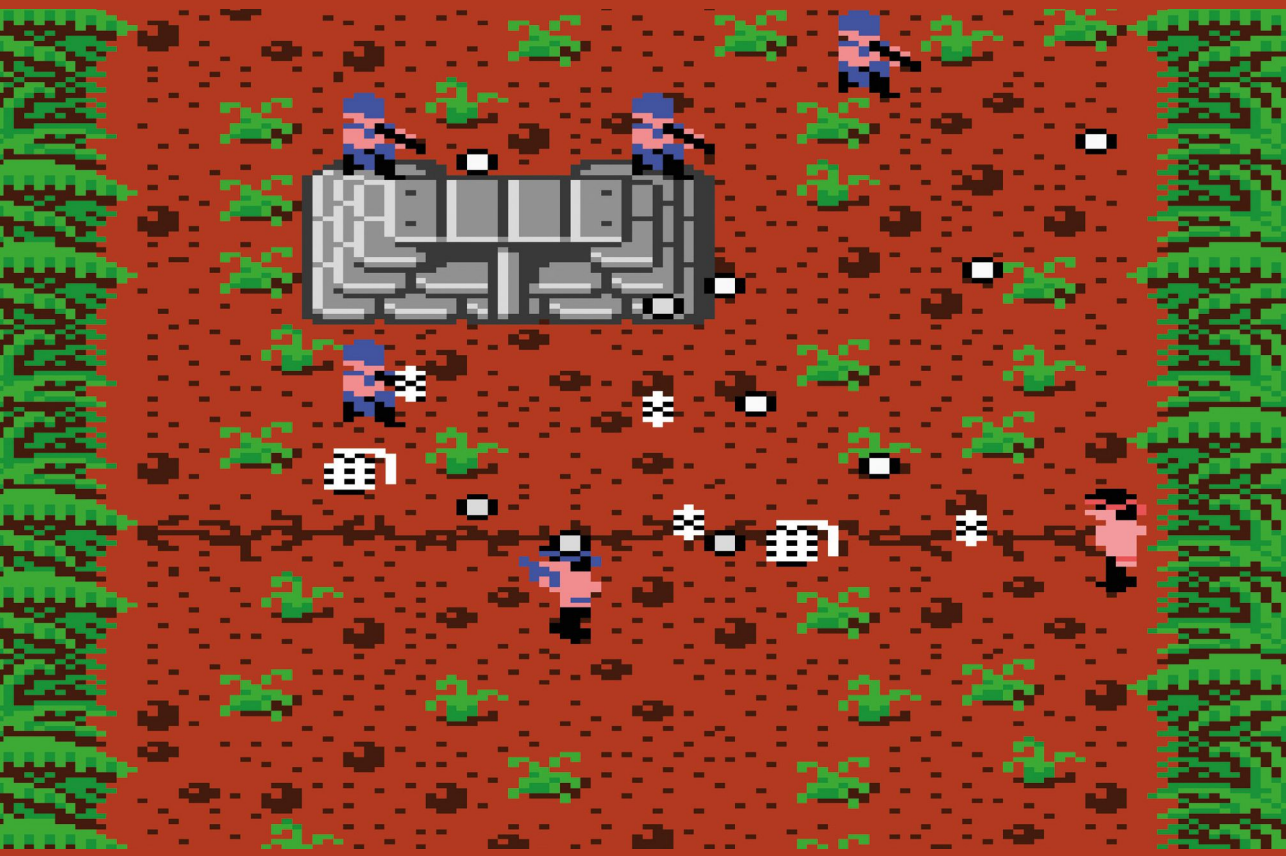

Ikari Warriors

Legend has it that there was short period, around 1990, when the Tramiel family (owners of Atari Corp.) became very friendly with the Barone family (owners of SNK America) as they were close neighbours in Sunnyvale, California, and made plans to work with each other. The result of the friendship was *Ikari Warriors* appearing on the 2600 and 7800. Both versions are very impressive indeed, and it could even be argued that this 7800 port is the best to appear on an 8-bit system. We have loads of sprites on screen, with no flicker or slowdown – unlike the NES version – plus all the levels and a simultaneous two-player mode.

It's funny that, despite the 7800's relatively small library, it managed to get ports of both of the big, one-man-army-style shooters of the time in *Commando* and *Ikari Warriors*. If you have somehow never played *Ikari Warriors*, then we should probably explain: you play as a Rambo wannabe (complete with bandana) whose plane has crashed in enemy territory, and he has to fight his way to safety. Machine guns, grenades and even tanks are at your disposal here, and you'll need all the firepower you can get if you're going to survive.

Platform *7800* / **Released** *1990* / **Genre** *Run and gun* / **Developer** *Imagineering* / **Publisher** *Atari* / **Originally by** *SNK*

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MotorPsycho

Like *Fatal Run*, *Scrapyard Dog* and *Alien Brigade*, *MotorPsycho* is another attempt by Atari to copy a popular arcade game of the time without shelling out for a licence. This time, the game in question is SEGA's excellent *Enduro Racer*. *MotorPsycho* features more than a passing nod as you race around four different tracks, avoiding the hazards, passing rival bikes and trying to set the best time. *MotorPsycho* is certainly impressive from a graphical point of view as you speed around corners, go up and down hills, fly off ramps, and burst into flames when you crash into a roadside object. The way *MotorPsycho* plays is very different to most other racing games, which seems quite unusual.

On each track, you're simply trying to beat the best time, and passing other bikes just awards you with a bonus score. So, as long as you keep improving and beating your times, you can theoretically play the game forever. The only real weak point of *MotorPsycho* is the audio, but this is a problem with a lot of 7800 games, thanks to the bone-headed decision to use the 2600's sound chip. If you like racing games, then look up *MotorPsycho*.

Platform *7800* / **Released** *1991* / **Genre** *Racing* / **Developer** *BlueSky Software* / **Publisher** *Atari*

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Platform
7800

Released
1991

Genre
Platformer

Developer
BlueSky Software

Publisher
Atari

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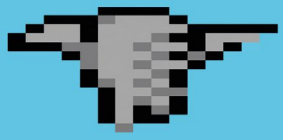
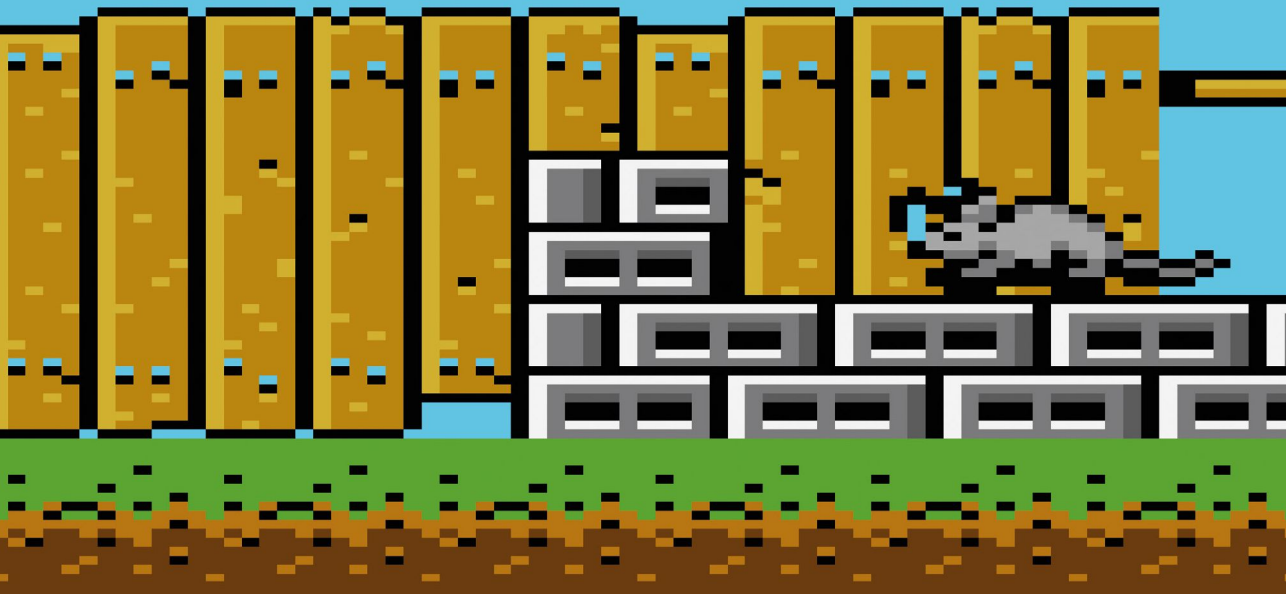
Scrapyard Dog

Without any shadow of a doubt, one of the biggest reasons for the NES's success was the arrival of *Super Mario Bros.* The game became an instant hit, made Mario one of the most recognisable characters on the planet, and set the standard that all future platform games would be judged by. SEGA quickly responded with a character of its own in *Alex Kidd*, but Atari just sat and watched, oblivious to the reality that this was exactly the kind of game people wanted on their console. Eventually, they came up with *Scrapyard Dog*, but it was far too late in the 7800's life to really make a difference, and lacked the same widespread appeal.

This is actually a great shame because it's a very good game and features all the key gameplay mechanics you'd expect to find in a truly great platformer. We have a selection of cute characters, cartoon-like worlds to work through, loads of clever secrets to discover, and some really challenging jumps to perfect. Perhaps Atari's biggest mistake was not creating an iconic character to star in it; Louie, the big-nosed protagonist, doesn't even feature in the game's title, for goodness' sake. Still, there's no question that *Scrapyard Dog* is an excellent game.





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Fatal Run

No doubt inspired by *Road Blasters*, there was a time when games that combined shooting and racing were very popular. We had titles like *Overlander*, *Fire & Forget*, *Road Wars* and *Astro Fang Super Machine* doing their best to emulate its success. While Atari did release an official port of *Road Blasters* for the Lynx handheld, it chose to release this clone on both the 2600 and 7800. While the game is essentially the same, this 7800 version obviously has some pretty huge visual upgrades, so that's what we'll focus on.

The plot of the game seems to borrow quite heavily from *Mad Max* as you're sent into a post-apocalyptic world, trying to get to the last few pockets of survivors and deliver a new drug that cures radiation poisoning. Other drivers are trying to stop you and steal it, so you must use your weapons to blow them off the road. When you get to the city, you can sell your supplies and use them to upgrade your car with more weapons and other upgrades. If you fail to get to the city in time, you see a rather grim cutscene of all the residents dying! *Fatal Run* is well worth a closer look.

Platform *7800* / **Released** *1991* / **Genre** *Racing* / **Developer** *Sculptured Software* / **Publisher** *Atari*

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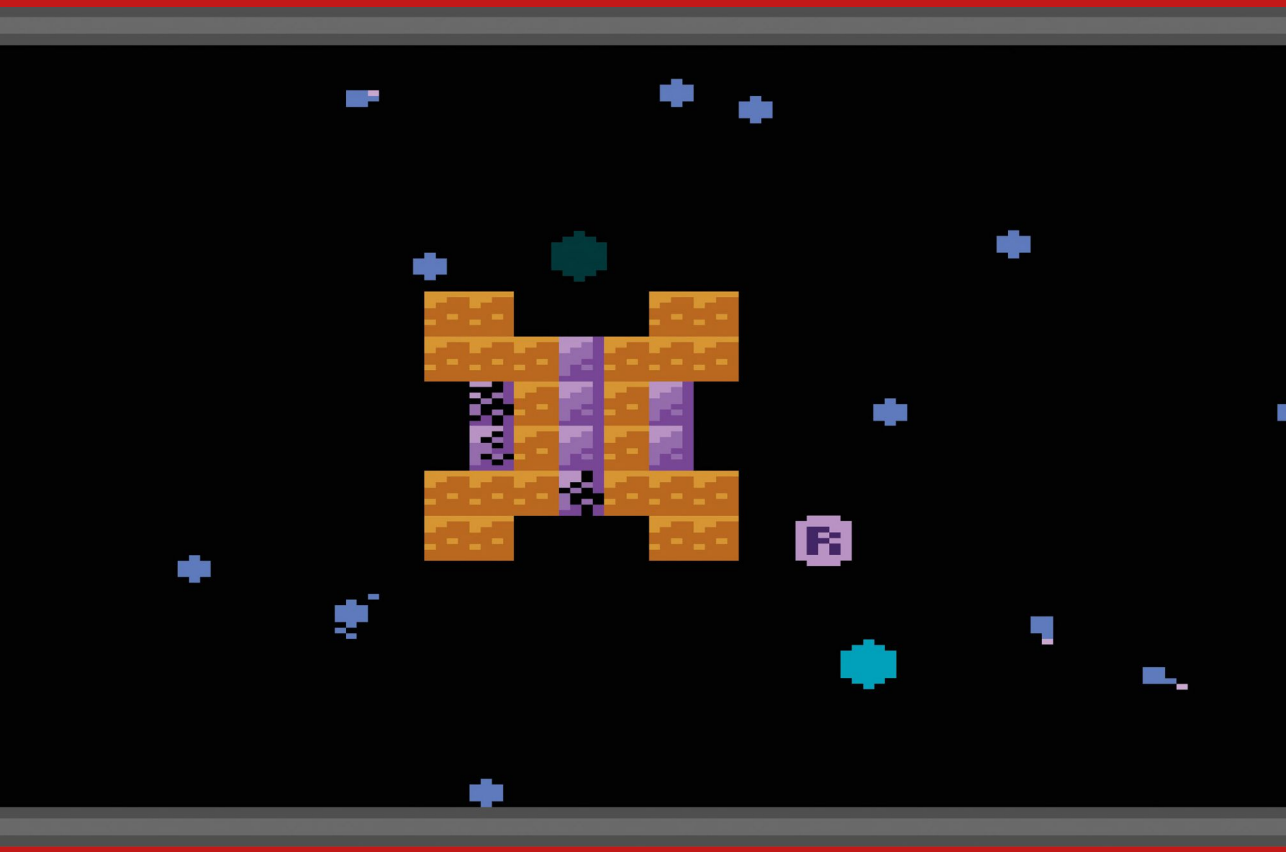

Meltdown

When talking about Atari 7800 exclusives, we should always mention the excellent light gun shooter *Meltdown*. This is definitely a case of a game that looks pretty bland in screenshots, but, once you give it a play, you'll be hooked. It plays much like the old arcade and Atari 2600 game *Reactor*, but with a light gun, and features a similar plot too. You're trying to protect a nuclear reactor in the middle of the screen from attack. You use the gun to shoot the particles that are bouncing around the screen, breaking down the wall to the nuclear core. As the levels increase, the enemies multiply, and it becomes more and more frantic.

Thankfully, there are various power-ups you can grab, including a rapid-fire option that's an absolute godsend! Another cool feature of *Meltdown* is that each level features a password, so, if your arm gets too tired (and it no doubt will!), you can take a break and then carry on from where you left off. *Meltdown* can only be used with the light gun, not the joypad, so, if you're lucky enough to own an XG-1, then pick this one up.

Platform *7800* / **Released** *1991* / **Genre** *Shoot 'em up* / **Publisher** *Atari*

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Platform *7800* / **Released** *1991* / **Genre** *Shoot 'em up* / **Developer** *Sculptured Software* / **Publisher** *Atari*

Alien Brigade

Without doubt, one of the most iconic light gun games ever released was Taito's classic coin-op *Operation Wolf*. While the 7800 was one of the few 8-bit systems not to get a port of the game, it did get something pretty damn close in the form of *Alien Brigade*. Initially, the game looks pretty identical as waves of soldiers start shooting towards you. But then you notice the aliens running around, and this is where the action gets pretty interesting as many of the soldiers you see are actually aliens in disguise! So how do you tell who are the real humans you have to save and who are the aliens? Well, firstly, the disguised aliens move a lot slower, so eagle-eyed gamers can spot them.

The other tactic is to wait for them to change, but this wastes valuable time. This makes *Alien Brigade* a lot more tactical than the game that clearly inspired it. Between each level, you're given updates on the war and a preview of what lies ahead, which is a really nice touch. *Alien Brigade* is one of the largest games created for the 7800 in terms of ROM size, and it really shows.

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Midnight Mutants

So here's something pretty cool: the box for *Midnight Mutants* shows a picture of legendary actor Al Lewis dressed as probably his most famous character, Grandpa Munster, along with a bit of text informing you that he's the star. This might lead you to think that you get to play as him in the game, but actually you don't. Grampa (as the box calls him) merely acts as a guide, giving you helpful hints and tips as you play. *Midnight Mutants* is a sprawling Halloween-themed arcade adventure that uses an isometric 3D viewpoint to display the action. Without doubt, this is one of the most advanced 7800 games you'll find, not only in looks, but also design.

The story tells us that, on Halloween night, 1992, Jimmy Harkman's grandfather (Grampa) was imprisoned inside a pumpkin by the recently resurrected villain, Dr. Evil. The doc is taking revenge for being burned at the stake as a witch by their ancestor, Jonathon Harkman, on Halloween night in 1747. Controlling Jimmy, you head off to rescue Grampa while fighting off the hordes of evil. *Midnight Mutants* was not only one of the last games released for the 7800, it was also one of its very best.

Platform *7800* / **Released** *1991* / **Genre** *Adventure* / **Developer** *Radioactive Software* / **Publisher** *Atari*

Sentinel

Here's something: a truly original light gun game that, for some reason, only ever saw an official release in PAL regions. The plot is some cheesy nonsense about trying to save the Earth (again!) so let's not waste our time with that, and get onto the actual game. On the screen, you see a huge glowing orb, called the Sentinel, which floats above an auto-scrolling landscape. As it hovers over the planet's surface, aliens appear and start attacking it, and yes, you guessed it, it's up to you to stop them! If the enemies manage to hit the Sentinel, it shrinks, and you'll lose some of your valuable energy.

Shooting enemies leaves behind crystals that the Sentinel can absorb to keep this topped up. There are also power-ups that float into view from time to time, such as smart bombs, more powerful shots and invincibility. You can also charge up your Sentinel to release an energy wave that kills everything in sight; the status panel tells you when this is available, and shooting the orb itself releases it. This panel also includes other useful info, such as your score, energy, current power-up, and tracks your progress through each stage.

Platform *7800* / **Released** *1992* / **Genre** *Shoot 'em up* / **Developer** *Imagineering* / **Publisher** *Atari*

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An interview with Ed Fries

Ed Fries is, without doubt, one of the biggest names in modern video gaming. Once dubbed 'The Father of the Xbox', he was almost synonymous with the Microsoft brand for nearly 20 years. As vice president of game publishing, he was the prime evangelist of the platform to game developers, leading to an important role in the acquisition of developers, such as Bungie Studios, Ensemble Studios and former Nintendo stalwarts, Rare. But what many people don't know about Ed is that he started his long career while still at school, programming games for Atari's 8-bit computers. His first game, Space Combat, *was submitted to the Atari Program Exchange (APX), a kind of early public domain library. But California-based Romox Inc. soon spotted his talents, and promptly signed him up. While working under their banner, he produced three games:* The Princess and the Frog, Sea Chase *and* Anteater, *which were all well received by the gaming press of the time.*

Fries left Microsoft in January 2004, and, from there, he moved into a large number of different consultancy roles within the video game industry, and even built up a business producing 3D World of Warcraft figurines. But his love for Atari never left him, and, in July 2010, he released an Atari 2600 game inspired by the Halo series, called* Halo 2600. *This was made with the full blessing of his former bosses and, as Ed wanted to keep the game faithful to the machine's original releases, uses just 4K of ROM. Working on this project reignited his love of programming and made him want to work on even more new games for old machines in his spare time.

You started off your career programming games for the Atari 8-bit computers. What made you want to go back and create games for the 2600?
I read the book *Racing the Beam*, and it made me nostalgic for my time programming the Atari 800 in the early '80s. But the Atari 2600 seemed so much worse; I was amazed programmers back then could do anything at all with this incredibly limited machine.

> *"I was amazed programmers back then could do anything at all with this incredibly limited machine."*

Why did you decide to do a remake of* Halo *for your first Atari 2600 game?
After reading the book, I looked online and found there was a nice assembler (DASM) and an emulator/debugger (Stella), so it was pretty easy to set something up to try to write some code for the 2600. I wasn't sure what I wanted to do, so I just opened up Paint and drew the Master Chief from *Halo*, and then tried to get him to appear on the screen of the 2600. Once I got that working, I made it so I could move him around. Then I created an enemy for him to shoot.

That's pretty much all I had when I went to the Game Developers Conference in March of 2010, where I happened to run into some old friends standing around with Todd Frye (2600 *Pac-Man*). They introduced me and I said something like, *"What a coincidence, I've been playing around coding on the 2600."* They asked what game I was making, and I said I was just screwing around. I explained I had drawn a Master Chief and could drive him around the screen. They said, *"You're making* Halo *for the Atari 2600?"* and I said, *"No! I'm just screwing around."* But they said I HAD to do it. I HAD to complete the game. Then they offered to be my playtesters and to help draw my sprites, and they pretty much took away any excuse I had for not doing it.

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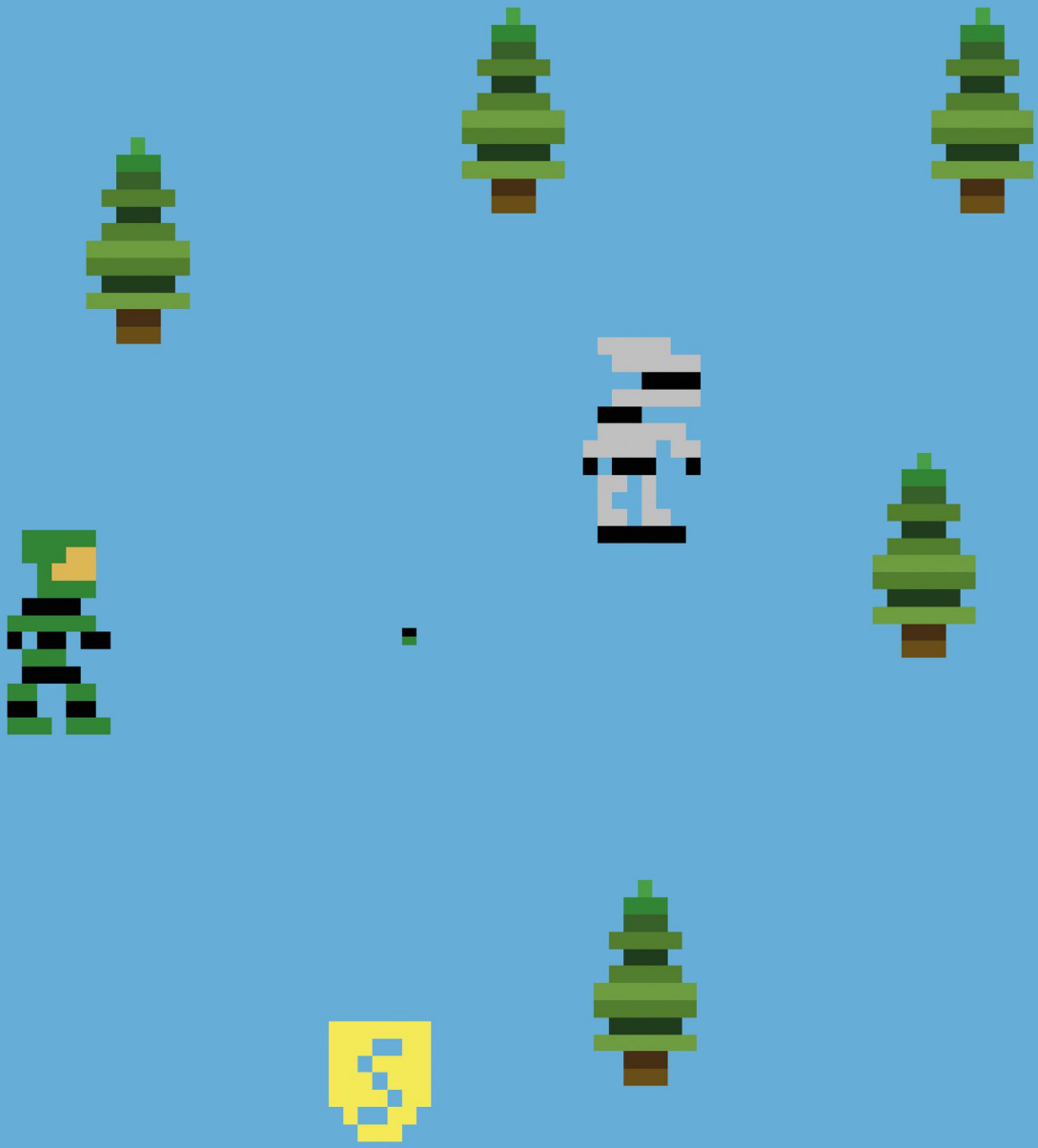
Halo 2600 / *2600* / *2010*



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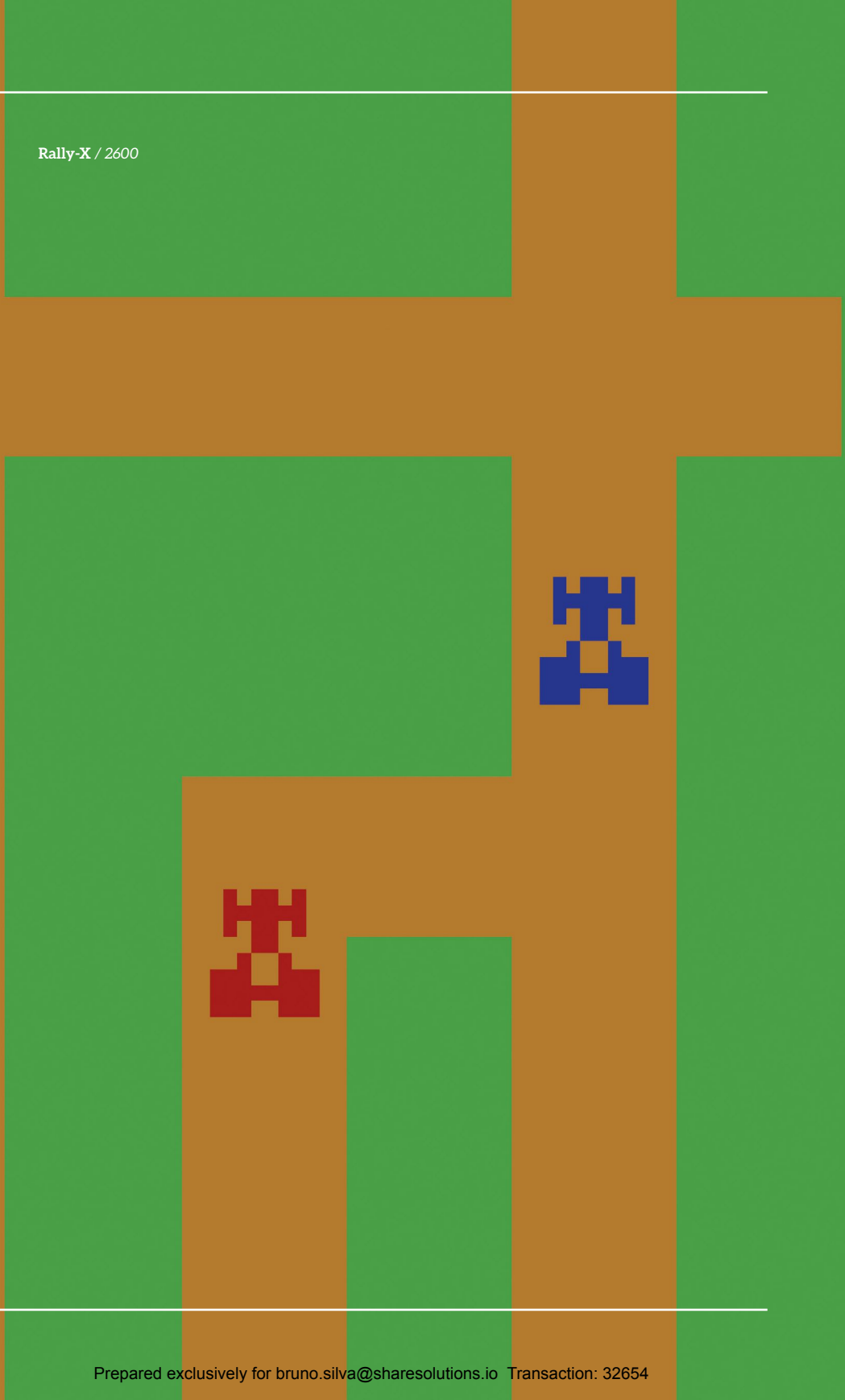

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Did your connections as a former Microsoft employee help in getting permission to do that game, and how did that come about?
When the game was nearly complete I asked to have a coffee with my old boss, Robbie Bach, who still worked in the company. When we met, I mentioned what I was up to, and asked how he felt about it, and he basically just laughed and said it was fine.

You chose to make* Halo *within the constraints of the 2600 – were you tempted to use extended features, such as bank switching and extra RAM?
I was definitely tempted. At one point, I'd written a whole *Moon Patrol*-like section of the game, where you could drive the Warthog in 2D side-scrolling, and it became clear that I would have to cut that if I wanted to fit it all in 4K. It wasn't that much fun anyway, so I didn't feel like I was losing much. By that time, I'd set a goal of having the game done in time for the Classic Gaming Expo in Las Vegas in the summer of 2010, so 4K also limited the amount of work I'd have to do to finish the game.

What were the biggest challenges the overcome when creating* Halo *for the Atari 2600?
By far the biggest challenges had to do with dealing with the constraints of the machine. 4K of code space is one. Another is 128 bytes of RAM, which is a tiny amount. The last big constraint you deal with on the machine is time. As every line of the screen is drawn, you have to do a certain amount of work to get ready to draw the next line. It often felt impossible, at first, to figure out a way to do everything I needed to do in the computer cycles I had available. But, if I stared at it long enough, I usually found a way to get done what I needed to do.

Can you tell us how the deal came about to publish the game through AtariAge?
Al from AtariAge was one of the early co-conspirators on the project, so I was pretty sure he was going to want to publish it. There was a limited release of about 150 carts made for the CGE show, but, after that, Al switched to a different label and continued to make them, so there really isn't a limited number of the new carts.

Did creating 2600 games reignite a passion for programming rather than producing?
It reminded me that I miss programming, that I enjoy it, and that I'm pretty good at it. Hopefully, it's something I will never give up completely.

Why did you choose* Rally-X *as your second game?
I wanted to do a version of *Rally-X* because it was a game I remembered from when I was a kid that had never had a decent version made for the 2600. When I poked around, I found three or four attempts that people had made over the years, but none of them were very satisfying, so I thought I might be able to do something better.

There's a demo of* Rally-X *but not a finished version yet – do you plan to complete it and release on cart?
I would like to finish it. It's almost done (from my point of view), but it's also completely out of RAM and 4K ROM, so it's difficult to work on now. I approached Namco about the rights, and that made things complicated because I don't want to rip off their game, and they weren't willing to give me the rights without any strings attached. Since I work in the game business, I care about what companies think about me, and I try to treat them fairly.

Are there any other Atari systems you'd like to create games for in the future?
The experience of making these games got me interested in learning more about the early days of Atari, and eventually led to some of the work I've written about at edfries.wordpress.com on the early history of arcade video games. I'd like to build my own game using that even-more-primitive technology at some point.

What is the Atari 2600's greatest legacy?
The 2600 was the first really popular game console, and helped create the golden age of video games in the early 1980s – but it also led to the crash of the game business in 1984. I think it reminds us of the promise video games have to become the most influential medium of expression in the world, but also the importance of maintaining high standards for the quality of the games we create.

"I wanted to do a version of Rally-X *because it was a game I remembered from when I was a kid that had never had a decent version made for the 2600."*

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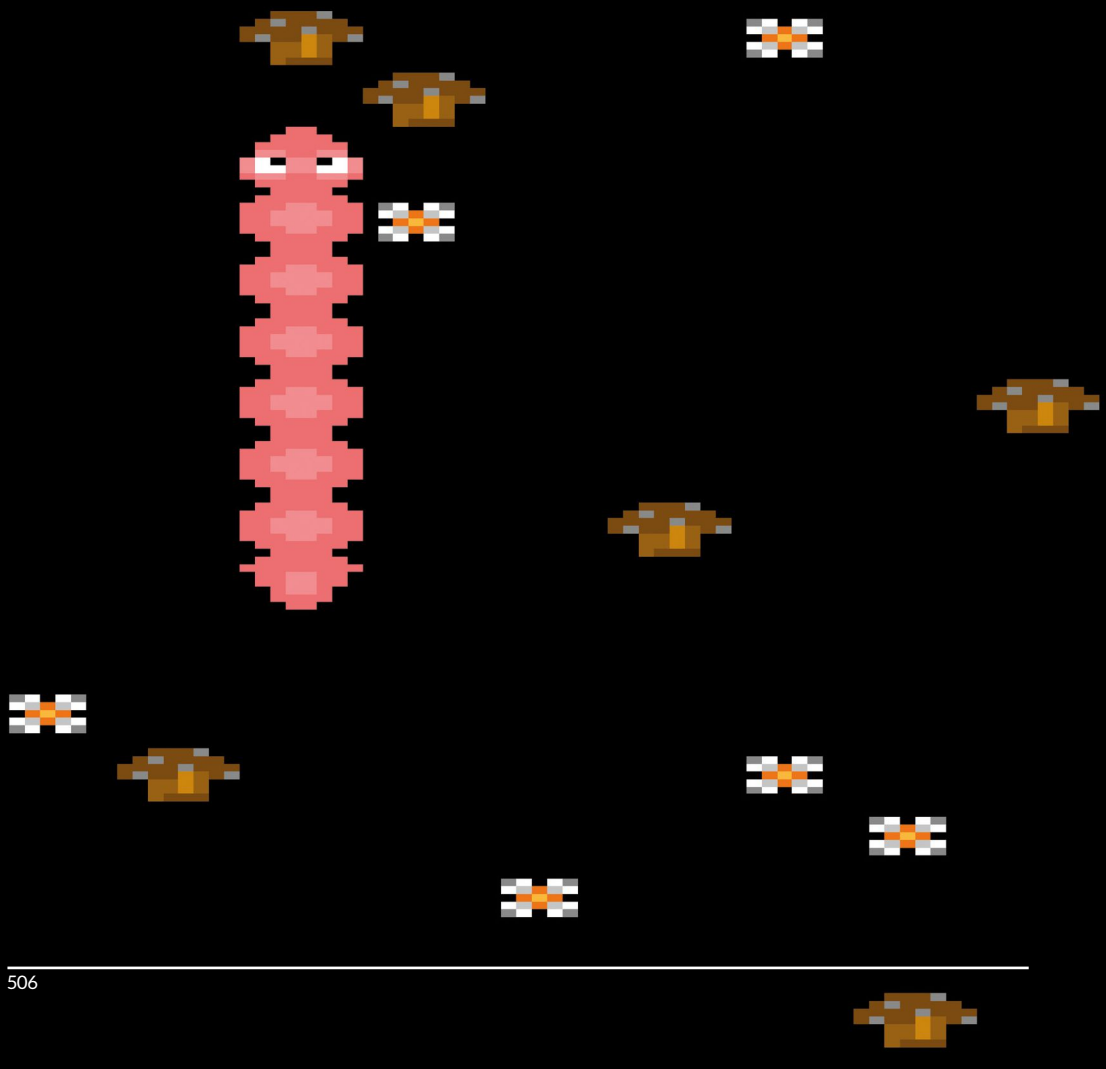
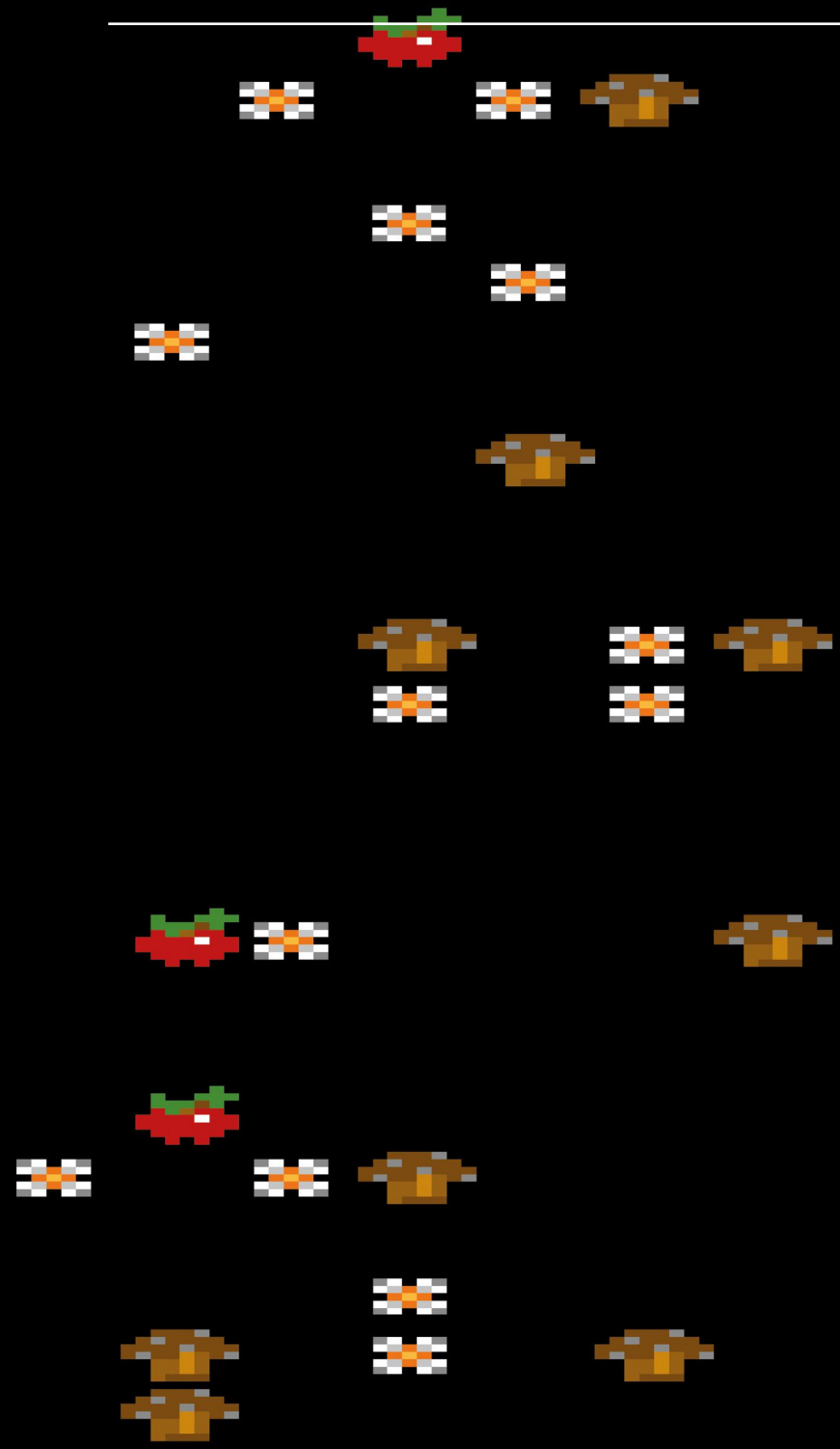
Pushing the limits

Homebrew software exists in some shape or form for many vintage systems, and the Atari 2600 and 7800 are no exception. Here, we've pulled together some of the most notable homebrew titles for these two Atari systems – titles that defy the odds and push the hardware to new limits.



HOMEBREW



Worm! / *7800 / 2010*

Lady Bug

"Back in 1983, I was a big fan of Atari and loved playing my 2600. That summer, my friend let me borrow his ColecoVision for a week with all his games, including *Lady Bug*. It was the first time I'd played *Lady Bug*, and, being a fan of *Pac-Man* and maze games, it quickly become one of my (and my mum's) favourites. When we returned the system to my friend, my mum asked me why we couldn't play *Lady Bug* on our Atari, so I explained to her that Coleco was making a version for the Atari and that we would be able to play soon. Unfortunately, that day never came, as the video game crash occurred and, along with it, Coleco and any remaining plans for a 2600 version of *Lady Bug* [disappeared].

"Fast-forward 23 years later: in January of 2006, I was inspired to start a port of *Lady Bug* for the 2600, and put together a quick demo of the maze and posted it on the AtariAge forums, asking for feedback. After some technical discussions, it was decided that, to proceed, I would have to make a concession regarding the revolving doors. Due to the limited memory and ROM space, the doors would need to be symmetrical on each side of the maze (instead of asymmetrical, like in the arcade version).

"Once that decision was made, I put my head down and got most of the game completed over the next few months. I recruited Nathan Strum to do the graphics and Bob DeCrescenzo to do the sound effects and music, and they both did amazing work! The game was completed in August of 2006, and dedicated in memory of my mum."

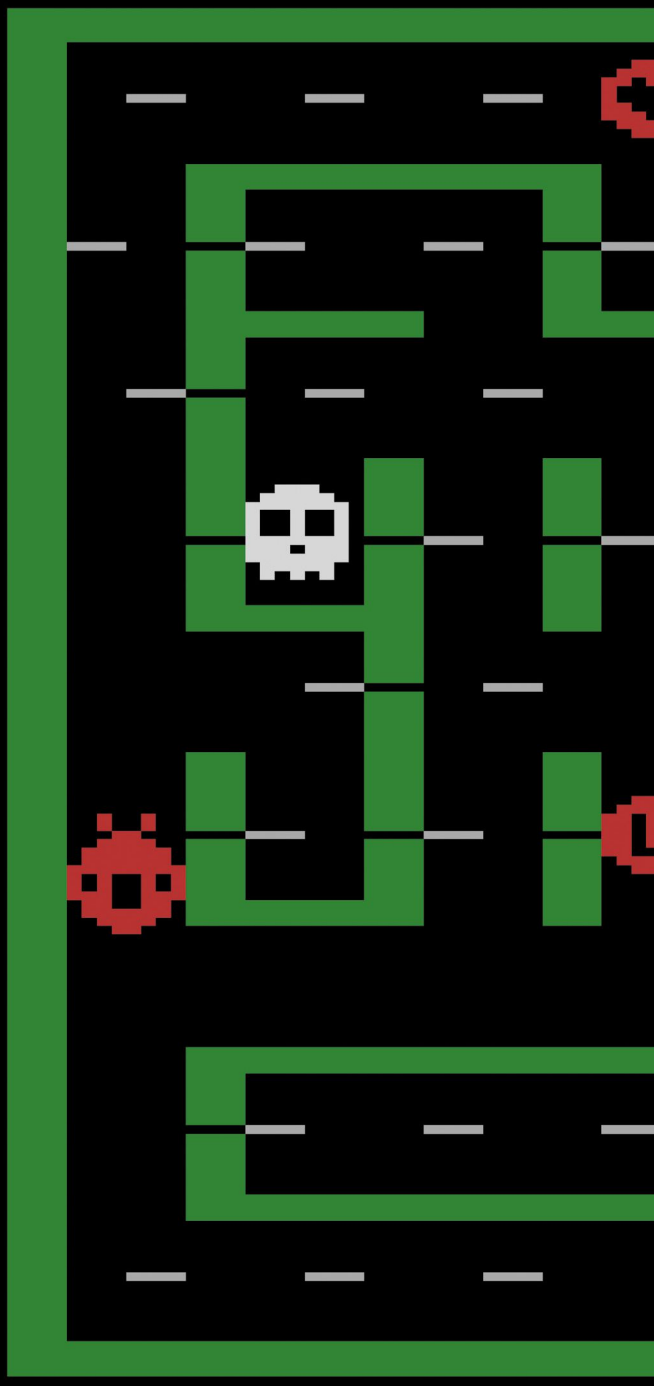
John Champeau, programmer

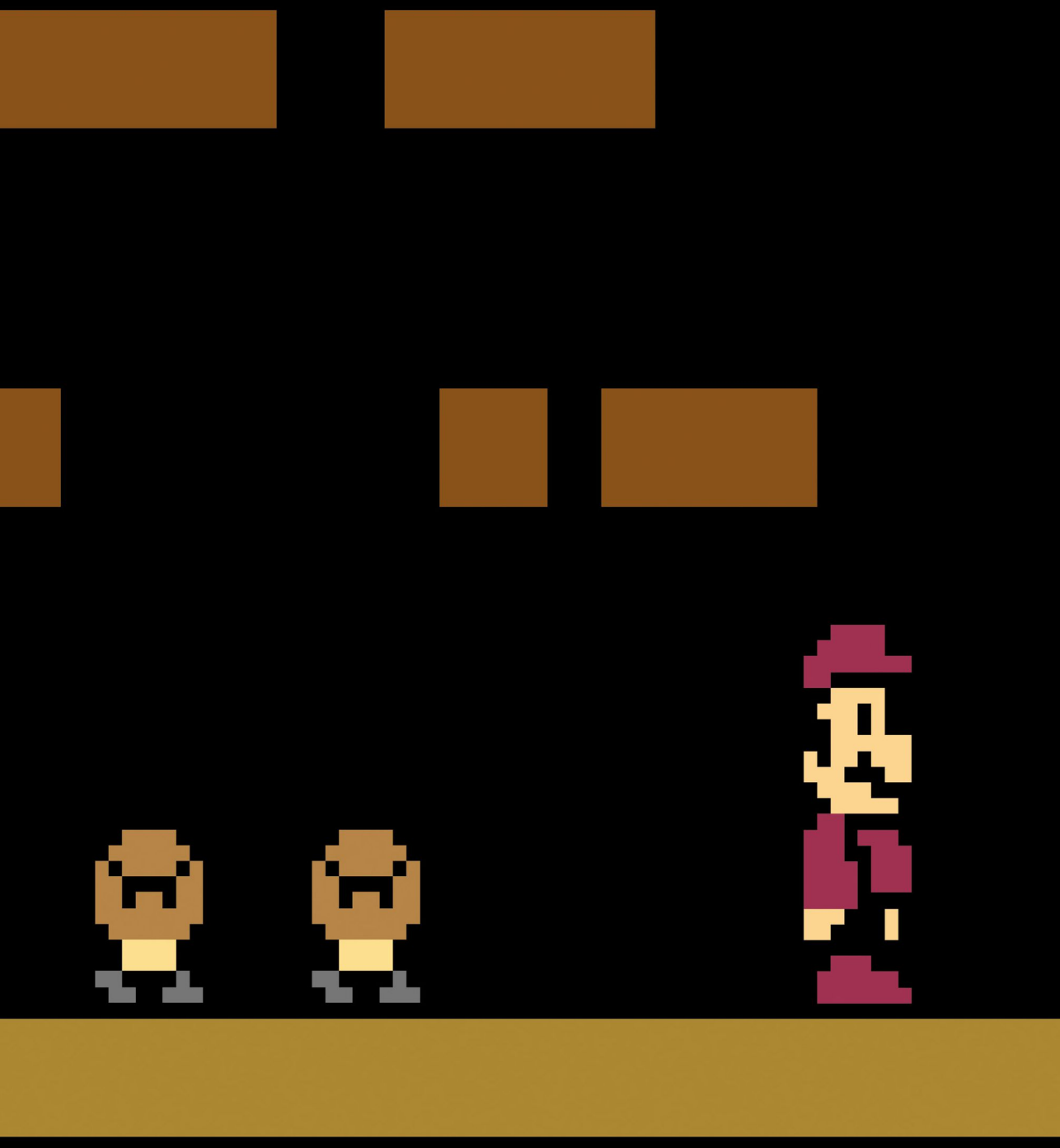
Platform
2600

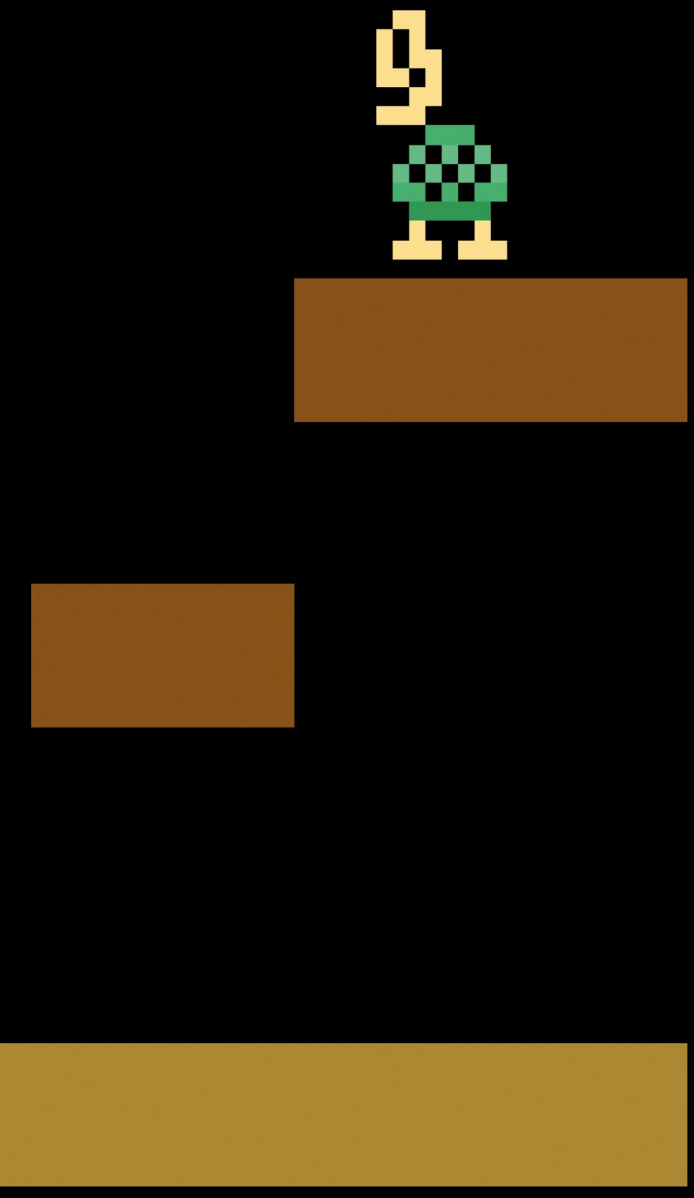
Released
2006

Genre
Arcade

Developer
John W. Champeau







Princess Rescue

"When I was a kid, I wanted to make video games. When *Super Mario Bros.* came out for the NES, I was hoping it would come out for the Atari 2600, but it never happened. I would make video games as a hobby on my Tandy Color Computer 3, and then, later, the PC.

"While attending Northwest Classic Games Enthusiasts in 2004, we were all introduced to a new programming language being developed for the Atari 2600, called Batari BASIC – it sparked my interest, but I didn't check it out until many years later. One day, I ran across a *Mega Man* demo on YouTube, done with Batari BASIC. I saw that and thought, if you can do that, I wonder what else you can do? I noticed that nobody had made a *Super Mario* game yet, and thought I would take a crack at it! I was surprised at the interest it gained over at the AtariAge forums after I posted a quick one-level demo, and I guess I wasn't the only one that wanted to see it happen! Now I had to finish it, and, several months later, I did, after a lot of trial and error and being really creative with the limitations of the system, along with the limitations of Batari BASIC. I even created a program in QB64 for the PC that would take levels I created in a text editor and convert the data over to data tables that the program could use. It would be a similar process that I would use for my next game, *Zippy the Porcupine*."

Chris Spry, programmer

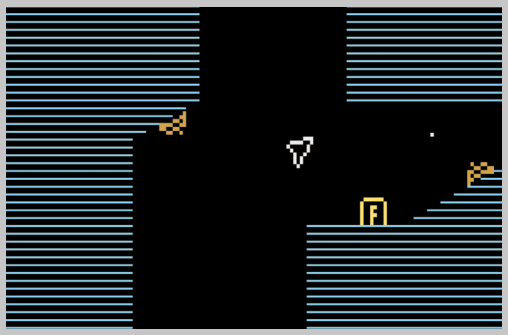
Platform
2600

Released
2013

Genre
Action

Developer
Chris Spry

Thrust



Platform *2600* / **Released** *2000* / **Genre** *Shoot 'em up* /
Developer *Thomas Jentzsch*

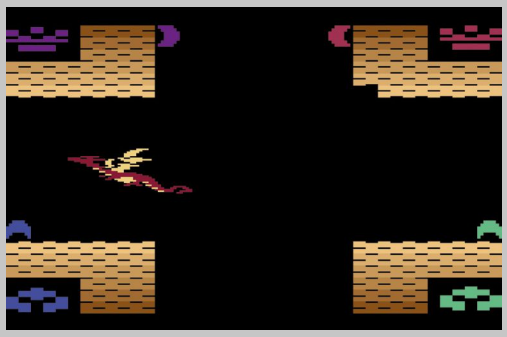
Boulder Dash

Platform *2600* / **Released** *2011* / **Genre** *Arcade* /
Developer *Andrew Davie and Thomas Jentzsch*

Juno First

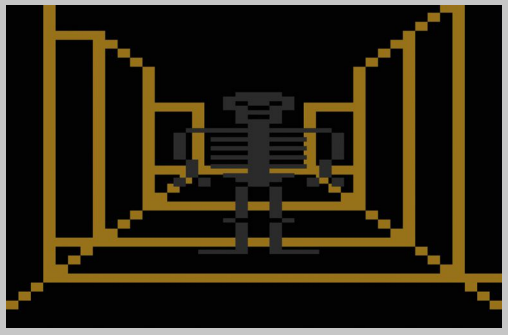
Platform *2600* / **Released** *2009* / **Genre** *Shoot 'em up* /
Developer *Chris Walton*

Medieval Mayhem



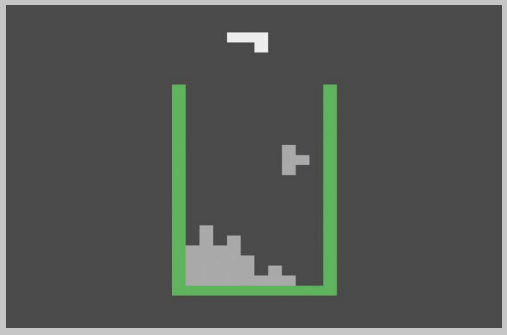
Platform *2600* / **Released** *2006* / **Genre** *Arcade* /
Developer *Darrell Spice Jr.*

Skeleton+



Platform *2600* / **Released** *2003* / **Genre** *Action* /
Developer *Eric Ball*

Edtris 2600



Platform *2600* / **Released** *1995* / **Genre** *Puzzle* /
Developer *Ed Federmeyer*

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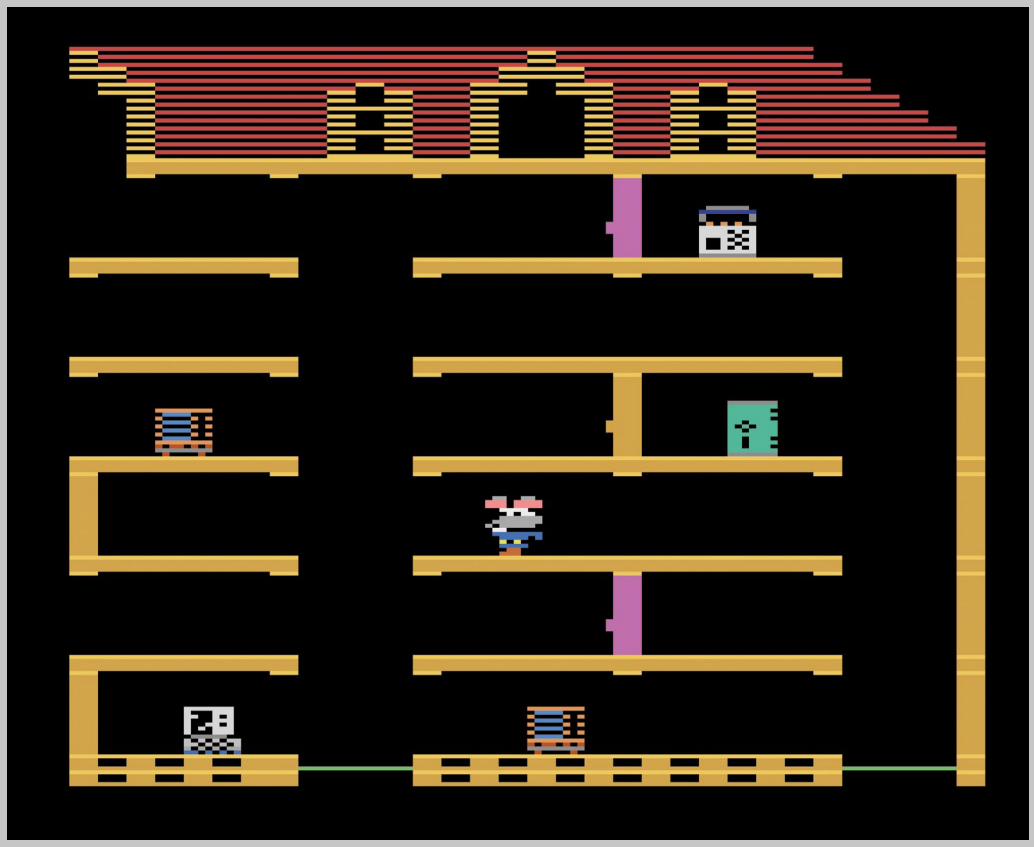

Platform *2600* / **Released** *2018* / **Genre** *Arcade* / **Developer** *John W. Champeau*

Mappy

"Interestingly enough, *Mappy* is a game that I didn't play 'back in the day'. My first exposure to this fun game was on a PlayStation in 1997 with Namco Museum Volume 2. This quickly became one of my favourites, and, as early as 1999, I was thinking about how it could be programmed on the 2600. Over the years, there were multiple discussions on AtariAge on how a proper version of a game this complex could be made for the ol' VCS, but no real projects were attempted.

"In late 2017, after releasing *Super Cobra Arcade*, I discovered that most of the music for *Mappy* had been converted to the Atari by Mike Haas, using the same technology (DPC) that was used to play the music in *Pitfall II*. It sounded amazing! This, along with the other benefits of DPC+ including the capability for more complex graphics, inspired me to finally start my port of *Mappy* to the 2600.

"It took almost a year to complete *Mappy*; it was released in October of 2018 at the Portland Retro Gaming Expo. One of the final challenges was to implement the famous five-colour *Mappy* logo with very little flicker. *Mappy* was nominated for seven Atari Awards in 2018 and won six, including Atari 2600 Homebrew of the Year."

John Champeau, programmer

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Zippy the Porcupine

"After *Princess Rescue*, I saw talk here and there at AtariAge about what *Sonic* would be like on the Atari, so I thought… why not! Now that I'd got *Princess Rescue* out the way, I had the experience and wanted to expand what I'd learned and make a bigger game based on another popular franchise that I wanted to see on the Atari 2600.

"I'd developed a way to make the levels larger using cross-reference tables to preset playfield block tables I would make, and then assemble them all in said cross-reference table for a large level. I wanted an upper and lower area to make the levels even larger, and, to make it a little more fun, I decided to add a bonus stage you had to find in every level. I also decided to have an overworld map.

"With the hardware limitations, I knew I couldn't have rings explode out of Zippy, so I changed the game mechanics a little so that, when you got hit, some of the rings were stolen from you instead. To get them back (six at the most), you had to defeat the enemy that took them from you. I was able to get six rings on the screen at the same time by making a sprite with two rings on top of each other and then using the NUSIZ registers to make two more copies. I did as much as I could possibly do with the limitations, and was happy with the results. I squeezed every little memory bit that Batari BASIC let me have. There's a reason why this game is 64K!"

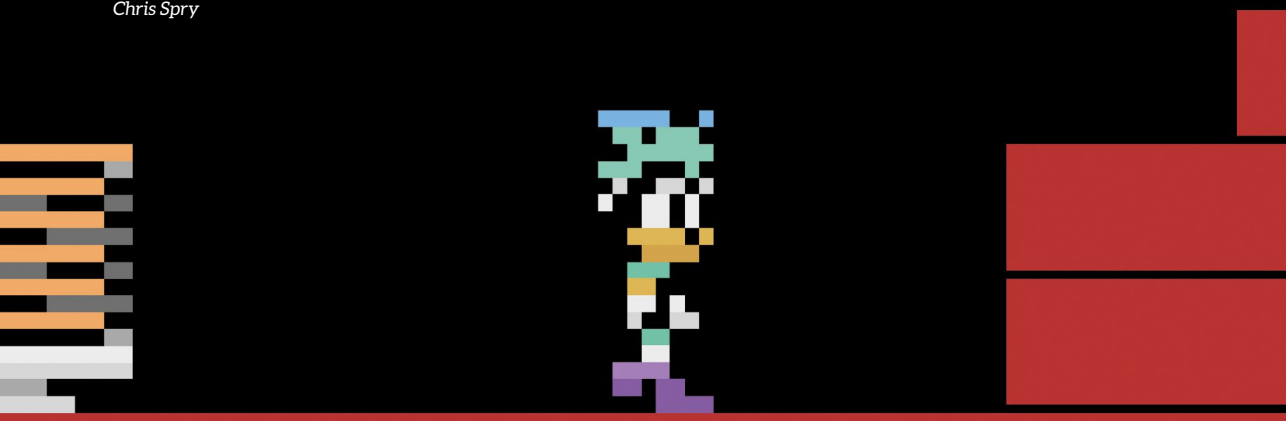
Chris Spry, programmer

Platform
2600

Released
2015

Genre
Action

Developer
Chris Spry



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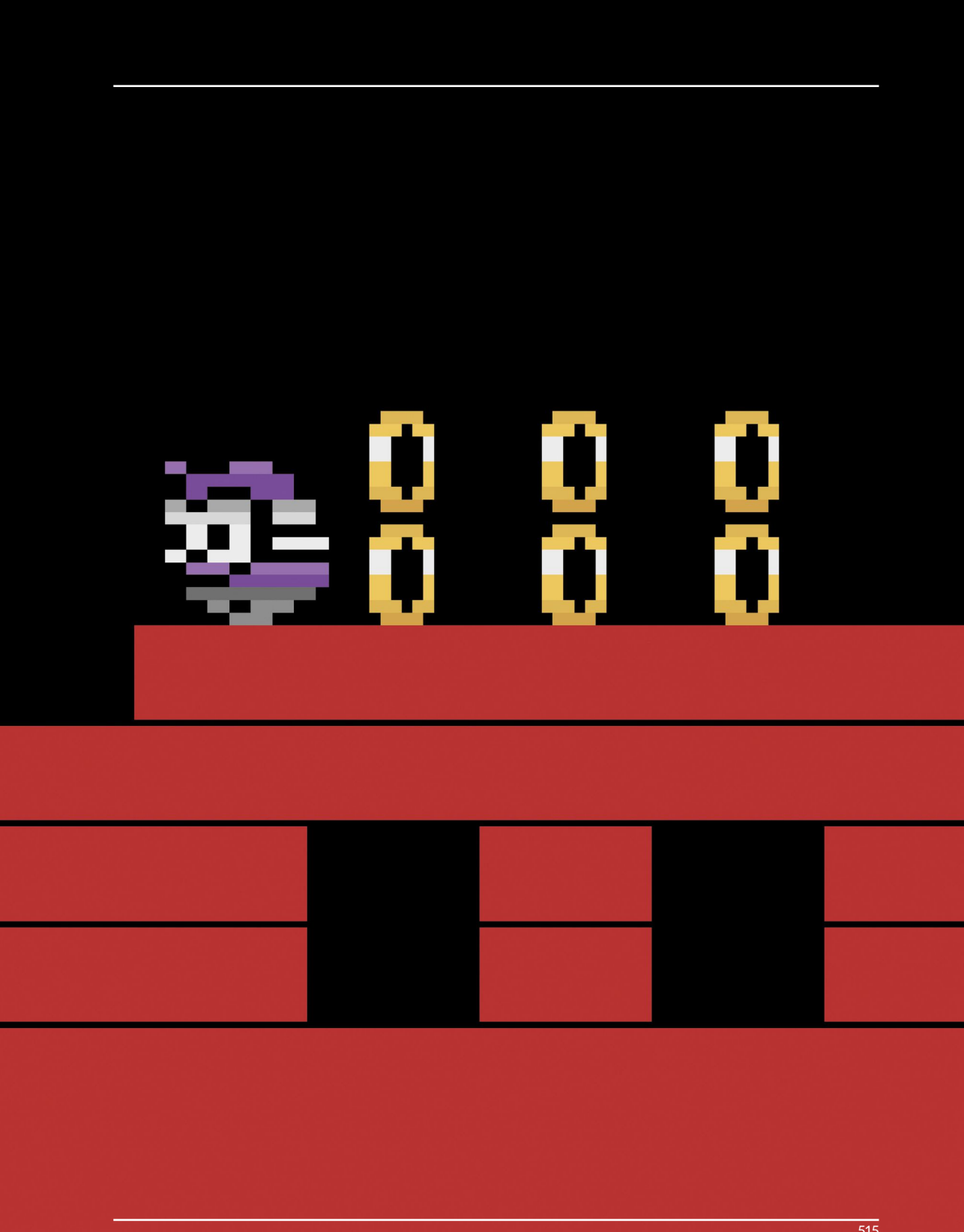

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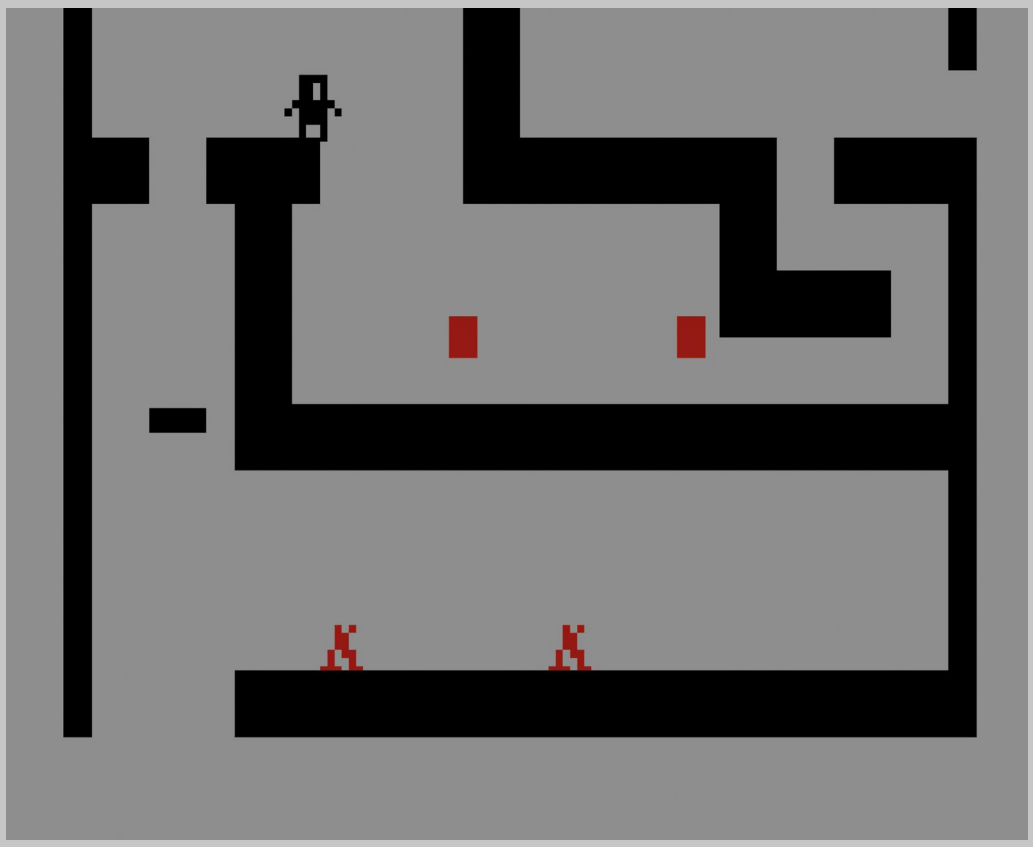

Platform *2600* / **Released** *2019* / **Genre** *Platformer* / **Developer** *Vladimir Zúñiga*

Ninjish Guy

"I had access to a 2600 clone when I was a child, and also an Atari 8-bit computer, so this is where my love for Atari started. For my real job, I develop business SAS software that runs on huge servers, so developing on such a small system as the 2600 is a fresh change and something I'd always wanted to try. I started to program for the 2600 using Atari Basic with the idea of creating at least a platformer and a shoot 'em up. To learn the basics of the language, I programmed a shmup called *Drako*, which was my first game. Later, to create the mechanics needed for a platformer, I wrote *Knight Guy in Low Res World – Ninjish Guy* is kind of a sequel or improved version of that game using the experience I gained during this time.

Ninjish Guy wasn't based on any previous 2600 games, but I tried to add to the 2600 games library some type of games I think are absent or not too much represented.

"The most challenging aspect is always the limited hardware; to have enough elements to create fluid animation and playability without screen jittering using a vanilla kernel. I really wanted more sprites as, using animated sprites, you run out of storage space very quickly. The best part has been seeing the positive reception *Ninjish Guy* has received."

Vladimir Zúñiga, designer and programmer

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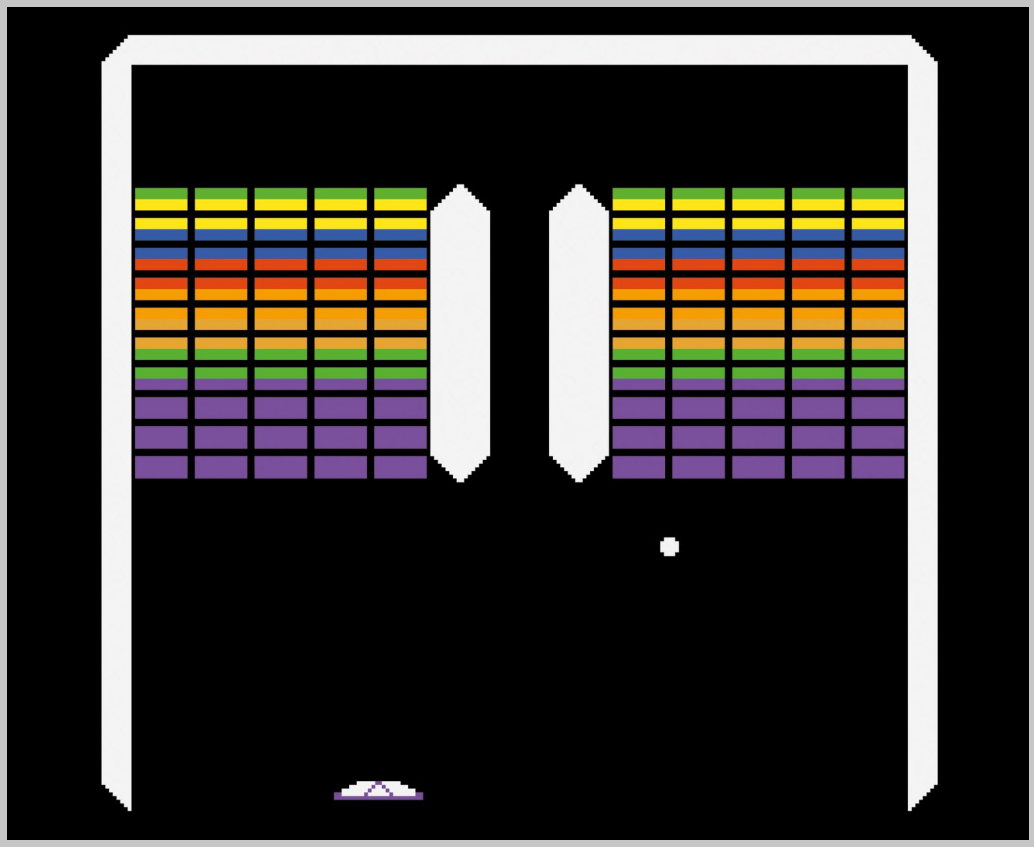

Platform *7800* / **Released** *2011* / **Genre** *Arcade* / **Developer** *Bob DeCrescenzo*

Crazy Brix

"*Crazy Brix* started out as a port of *BombBee* (I still have it somewhere), but I was having difficulty on a few things. It then turned into *Pin-Out* (a Pinball and *Breakout* hybrid), which then turned into *Crazy Brix*. It was something I started because I wanted to make another paddle game for the 7800, having just worked on *Super Circus* AtariAge. I used the code from my initial port of *Bomb Bee* and modified it a bit.

"One of the things I liked about this game was the fact that you started with multi-ball, and, while you were in multi-ball mode, bricks were 100 points more than if you only had a single ball out. I borrowed a few things from other *Breakout*-type games: the different sounds, depending on the height of the brick you hit, were borrowed from Atari's *Super Breakout*, and the different layouts of the levels were borrowed from *Arkanoid*. I then added the colour gradient for the bricks in some levels, and the levels with walls 'missing' so the ball wraps around the screen. After you beat all 32 levels, they are then chosen randomly, and the ball(s) get faster. This was a fun one to work on, and I've always thought about doing a 'part II.'"

Bob DeCrescenzo, programmer

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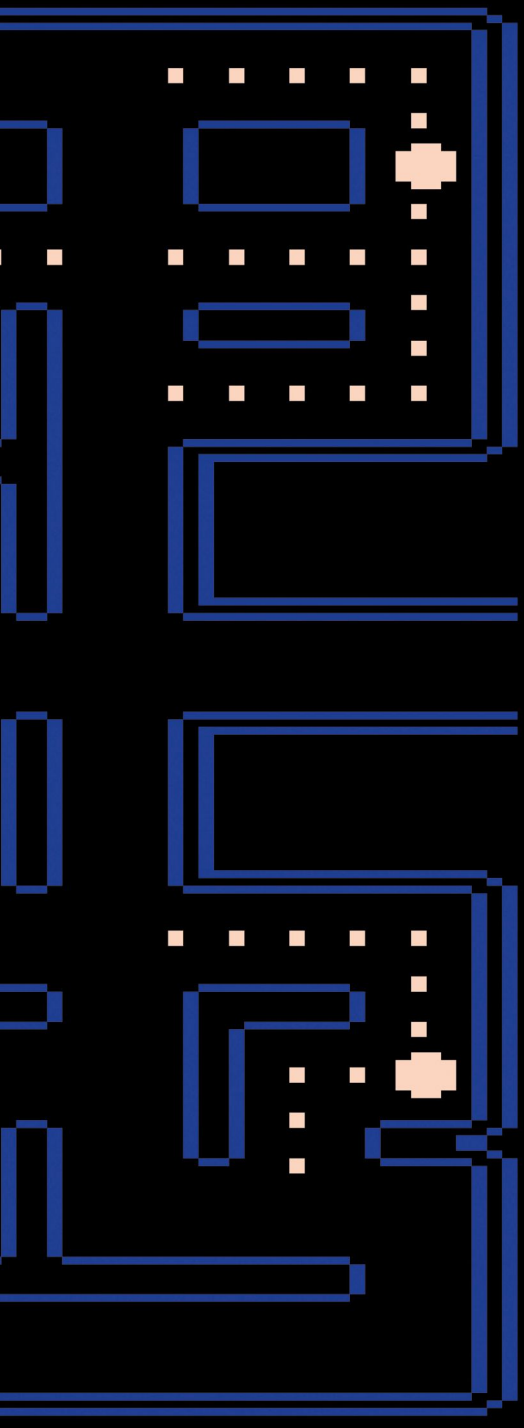


Pac-Man Collection

"This one started it all! After doing some hacks on the 2600 and the 5200, I noticed that the 7800 had a glaring omission: no *Pac-Man*. Around that same time, a few things happened: the source code to Atari's encryption check had been found, and Curt Vendel had found the source code to some games within the Atari archives. I initially made a few hacks of *Ms. Pac-Man* into *Pac-Man*, *Pac-Man Plus*, *Hangly-Man* and others. By this time, I had been around the source code enough to understand how the 7800 worked. Someone suggested putting all of the different *Pac* variations into one cart. I thought that was a wonderful idea, and, as the mazes themselves didn't take up much ROM space, proceeded to put all of it into one cart: *Pac-Man Collection*.

"It evolved over the years, modifying some graphics, adding POKEY sound (thank you, Perry!), and another option that allows the opposite player (in a two-player game) to somewhat control Blinky. It basically has all of the arcade bootlegs and hacks that were done off the original *Pac-Man* code that was available in the early '80s."

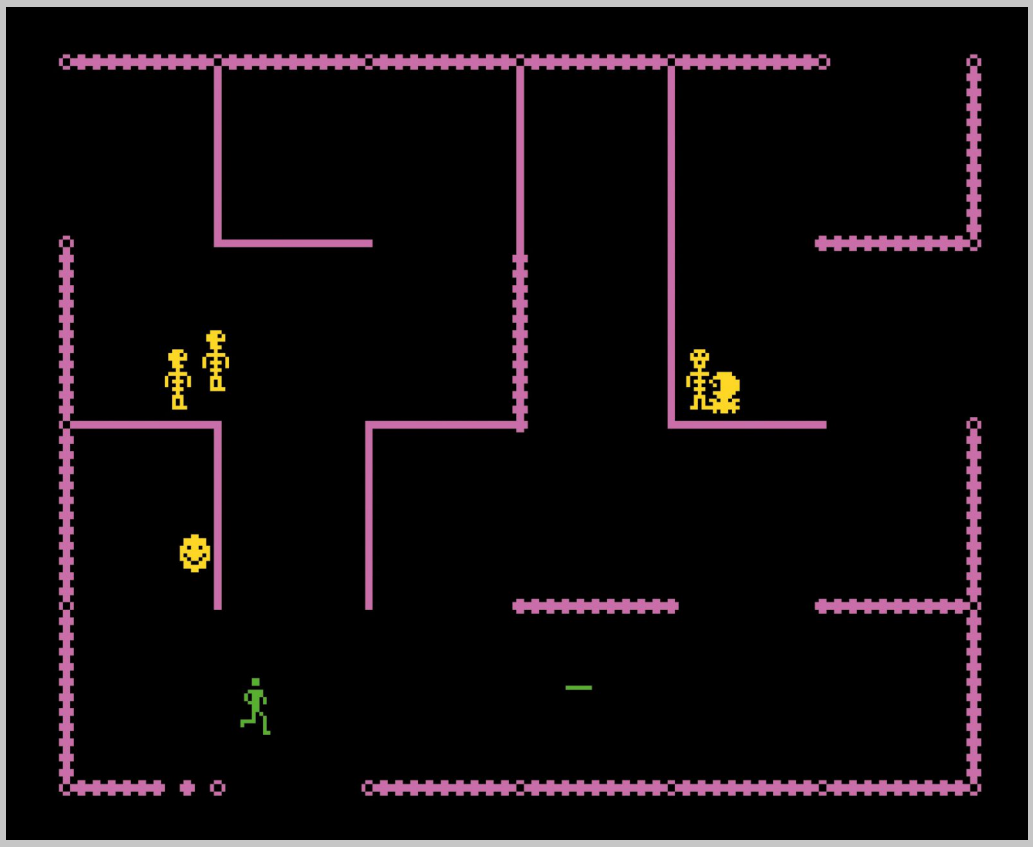
Bob DeCrescenzo, programmer

Platform
7800

Released
2006

Genre
Arcade

Developer
Bob DeCrescenzo



Platform *7800* / **Released** *2013* / **Genre** *Shoot 'em up* / **Developer** *Bob DeCrescenzo*

Frenzy

"This was an interesting one. I happened to come across the algorithm for the maze generation to *Berzerk* online one day. It stated that it was also used for *Frenzy*. I always liked *Frenzy* better than *Berzerk*, so I coded the maze generator and started work on it. I also happened to find the source code to the arcade game online, but I have a somewhat difficult time reading Z80 source code, so I just worked on it from what I knew. I did, however, take the graphics directly from the arcade game.

"I also found out that Alan McNeil had designed and programmed the arcade game, so I went to look him up. I was lucky before, having Owen Ruben give me a few pointers for *Space Duel*, so I figured I'd try it again. It turned out Alan was a really nice person, and agreed to help me port this game over to the 7800. He even joined the AtariAge message boards and posted in the *Frenzy* development thread! I won't lie; it felt good to have the backing of the arcade author. I ended up giving him a boxed version of the game when it was finished. It took a long time to complete – and I even abandoned it at one point – but I'm glad I finally completed it."

Bob DeCrescenzo, programmer

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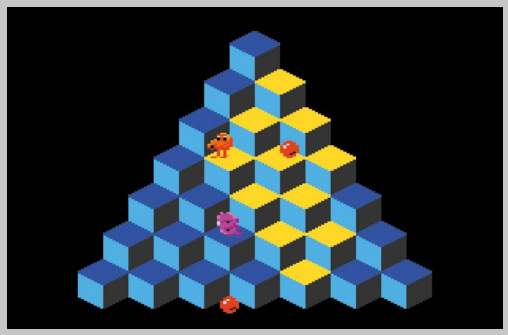
Astro Blaster

Platform *7800* / **Released** *2015* / **Genre** *Shoot 'em up* / **Developer** *Bob DeCrescenzo*

BonQ

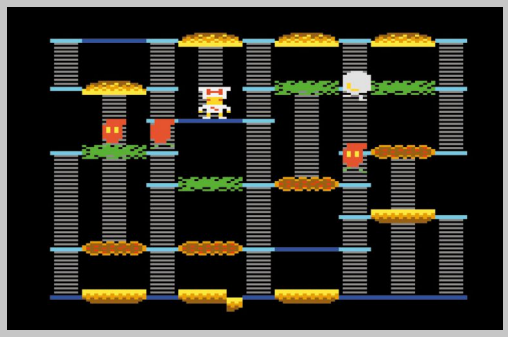


Platform *7800* / **Released** *2007* / **Genre** *Arcade* / **Developer** *Ken Siders*

Rip Off

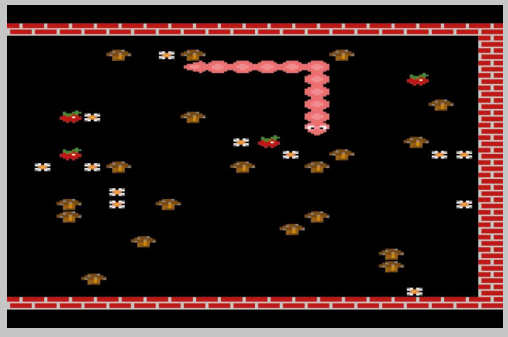
Platform *7800* / **Released** *2012* / **Genre** *Shoot 'em up* / **Developer** *Bob DeCrescenzo*

Beef Drop



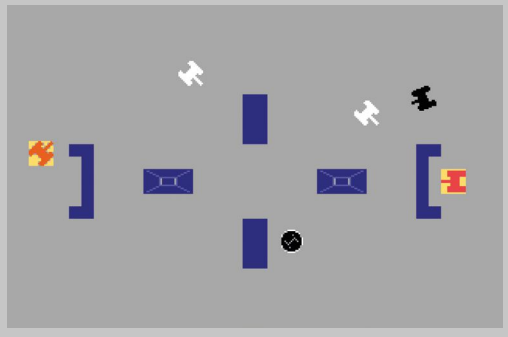
Platform *7800* / **Released** *2006* / **Genre** *Action* / **Developer** *Ken Siders*

Worm!



Platform *7800* / **Released** *2010* / **Genre** *Arcade* / **Developer** *Mark Ball*

Combat 1990



Platform *7800* / **Released** *2005* / **Genre** *Shoot 'em up* / **Developer** *Harry Dodgson*

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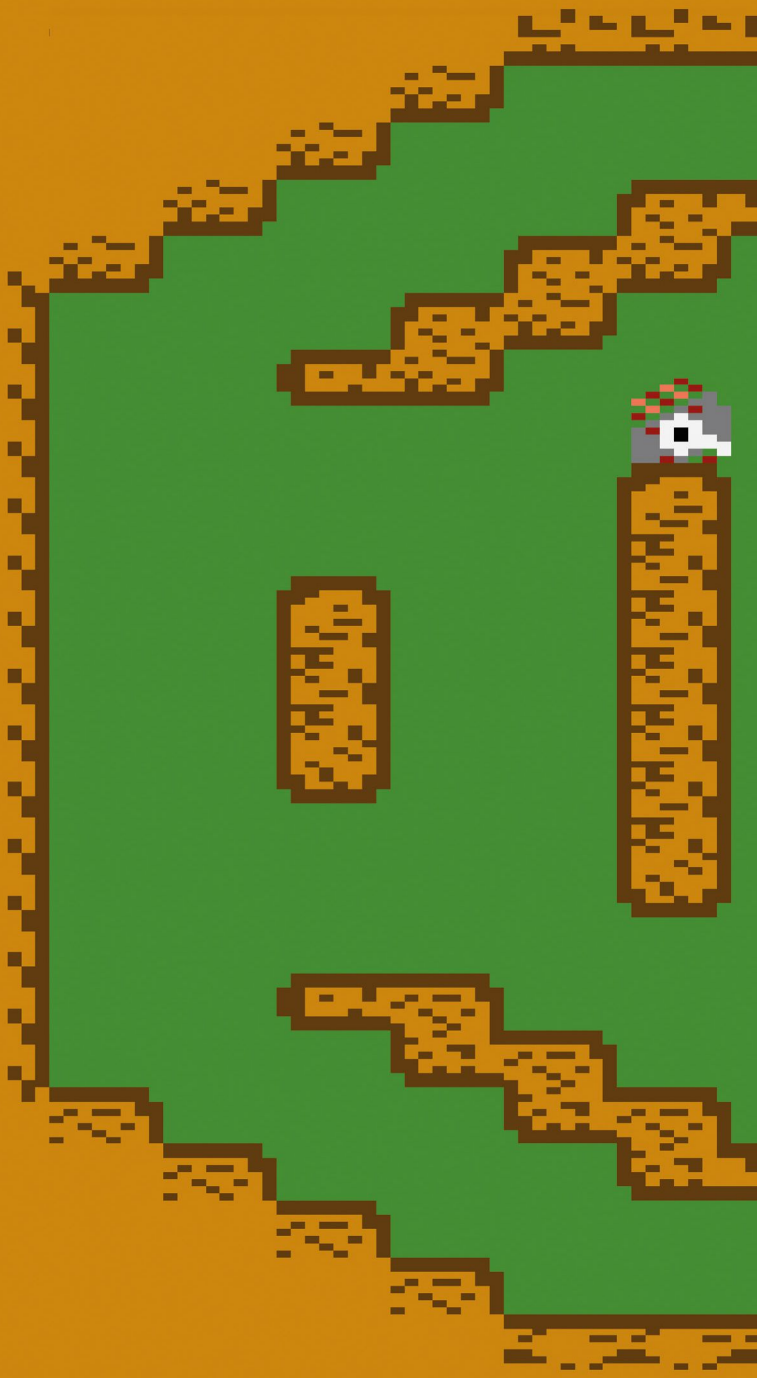
Armor Attack II

"Another one that started out as a straight port, but, again, took on a life of its own – hence the sequel. I actually started this port very early, like, while I was working on *Pac-Man Collection*. I then left it for quite a long time. Years later, I revived it and continued work on it.

"I realised that I didn't like that there was only one terrain map throughout the entire game. So I started creating other terrains, which I decided would get randomly chosen at the start of each wave. One of them was modelled after one of the mazes from *Combat* for the Atari 2600. At some point, I also added a second helicopter, once you got quite far into the game. The only thing I don't like is that there can be 'hiding' spots. You couldn't really do that with the original arcade game for too long, but you could here.

"This is one of those games which I feel is much better with two simultaneous players. That's something I try to incorporate into all of my games, by the way – even if it's a port where the original doesn't have this mode, such as *Frenzy* or *Berzerk*, for example."

Bob DeCrescenzo, programmer



Platform
7800

Released
2013

Genre
Shoot 'em up

Developer
Bob DeCrescenzo

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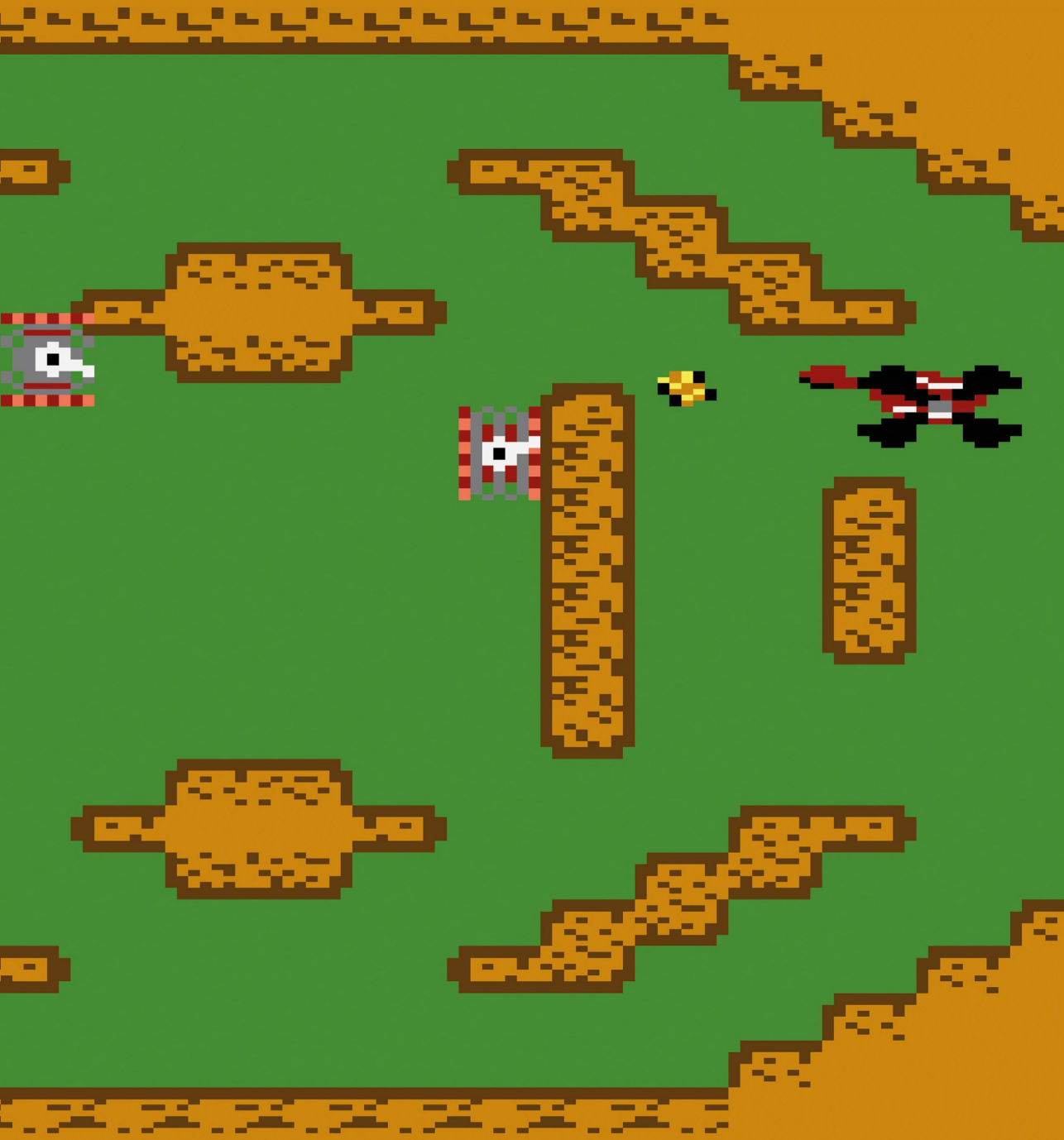

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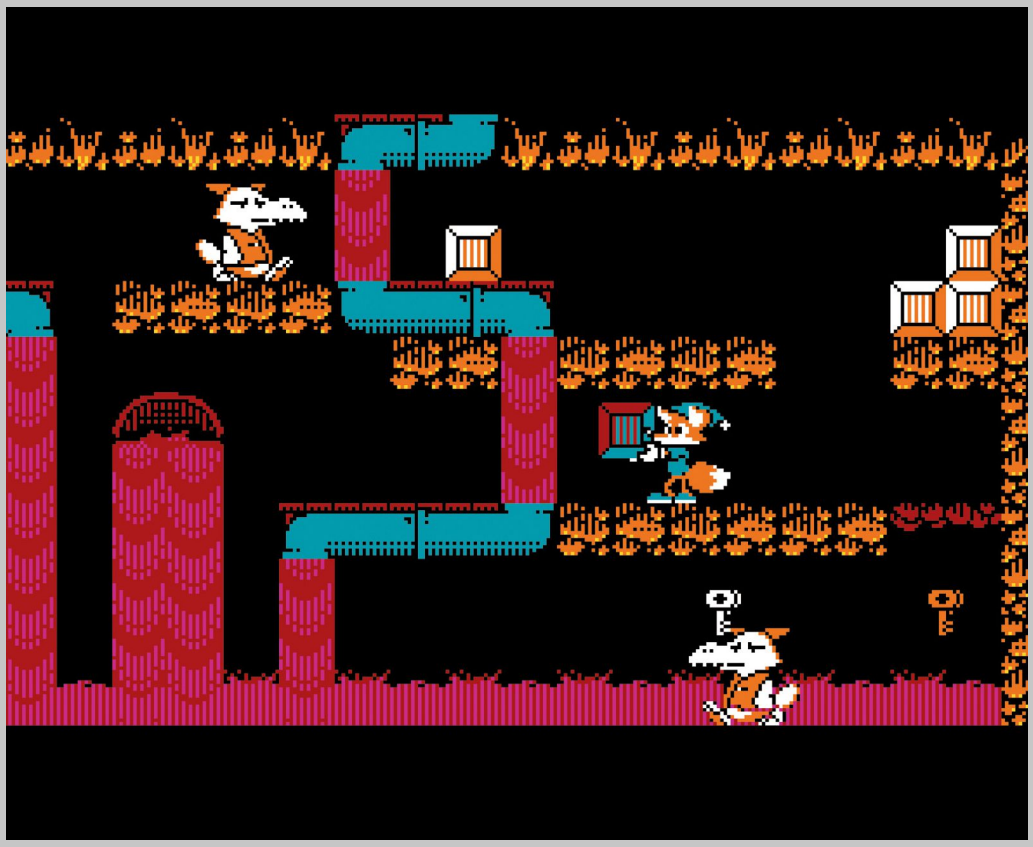

Platform *7800* / **Released** *2019* / **Genre** *Platformer* / **Developer** *PenguiNet*

Rikki & Vikki

"I had become very interested in true co-op designs in late 2014, where the second player's presence carries real weight. Both players must work together, or they will not succeed. *Rikki & Vikki* was the result. The game's mechanics were designed to function identically, alone or with a friend, but offer unique situations in both modes of play. A hybrid of puzzles and traditional arcade action was chosen to experiment and observe what aspects worked with one or two players participating. It seemed appropriate to offer separate adventures built around this. Another focus was to incorporate stage objects and enemies into the puzzle solutions rather than just having players defeat them.

"Layouts had to be very sparse to accommodate the bandwidth requirements of Maria's high-resolution mode. This nudged the visuals towards giving good movement and clear visibility rather than detail. It was my goal to have many of the restrictions become appealing parts of the graphic design. The greatest challenge during development was ensuring that *Rikki & Vikki* offered a good reason to play; such that the game's appeal would be its content rather than the hardware it was running on. We were always very concerned about how it measured up to offerings on modern platforms, yet had to work within the constraints of ancient technology and a limited budget. Despite some rough edges, I think this was achieved."

Osman Celimli, game designer, graphic artist and programmer

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Platform *7800* / **Released** *2015* / **Genre** *Platformer* / **Developer** *Bob DeCrescenzo*

Bentley Bear's Crystal Quest

"This began life as me wanting to try and do a platformer. I was going to go in the direction of a '*Pitfall III*', so to speak. Then I stumbled across a thread asking if *Wonder Boy* could be done for the 7800. Someone in that thread suggested that Atari have a mascot in the same way as Nintendo had Mario, and SEGA had Sonic. Bentley Bear was brought up, and having him in a game similar to *Adventure Island*. I immediately loved the idea, and started working.

"Luckily, an artist on the AtariAge message boards had already started to work on the graphics, so I began work on the first few levels. Another coder on the AtariAge message boards created a level editor for me so that the level creation/enemy placement would go quicker.

"This game actually began life as an isometric-view game, but I quickly discarded that because I didn't like the way it was coming out. Originally, there was no parallax scrolling in the game, but, when the artist showed me the forest scene complete with varying distance trees, I had to figure out how to do parallax scrolling. It actually wasn't as difficult as I thought it was going to be!"

Bob DeCrescenzo, programmer

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Credits and thanks...
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