



GAME DESIGN AND HISTORY

UNIVERSITY OF WALES
TRINITY ST DAVID





Arcade Games (Part 1)

- Baffle Ball and Pinball
- Electromechanical Games
- Videos and Ping Pong
- Mid to Late 1970's
- The Golden Age of Arcades
- Alternatives and New Standards
- Mid to Late 1980s



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BAFFLE BALL AND PINBALL



“You can’t say that video games grew out of pinball, but you can assume that video games wouldn’t have happened without it. It’s like bicycles and automobiles. One industry leads to the other and then they exist side by side. But you had to have bicycles to one day have motor cars.”

- Steven Baxter, former producer, The CNN Computer Connection





David Gottlieb, founder of D. Gottlieb and Company, created *Baffle Ball* in 1931.

The game used **no electricity** and only had one moving part.

Unlike later pinball machines, *Baffle Ball* had **no bumpers, flippers or scoring device** - players had to keep track of score themselves!





Animecrash2 (2008). *1931 Gottlieb Baffle Ball Pinball* [YouTube]



Because early machines like *Baffle Ball* had no player interaction after launching the ball, their gameplay mechanisms were largely down to **chance**, not **skill**.

Pinball machines break the sin barrier

By Jon Van

LEANING INTO the glow of colored lights, transfixed by the progress of a silver sphere traveling to the accompaniment of cacophonous chiming and buzzing, has long been taboo in Chicago, which, ironically, is pinball purveyor to the world.

The suburbs, of course, are another case entirely.

Evanston recently dropped its long-standing pinball ban. Oak Park permits it, but under strict limitations. Bolingbrook and Waukegan and other communities are finding modern arcades are prosperous attractions at shopping centers.

Now, Chicago could be about to join in embracing pinball as a legitimate pastime. Ald. Christopher Cohen (46th) says he plans to propose an ordinance to legalize pinball — after he completes a study of how the machines should be controlled.

"WE'RE IN A DIFFERENT era today than in the 1930s, when pinball gambling was more in vogue," Cohen says. "Pinball now is more a recreation device than gambling. I can't see any reason Chicago residents shouldn't enjoy it."

And anyhow, many do, he says, despite the city ban.

"There are some machines in my ward," he says, "and I know these machines are scattered throughout the city. But no one complains, and the police, fortunately, spend their time with things other than looking for pinball machines."

Evanston's decision to lift the pinball ban was part of an overall effort to control coin-operated machines in that city. Over the years, Evanston City Attorney James Murray says, technology had rendered the pinball ban useless

contests played on television screens. In one game, players smash cars into each other as quickly as possible. In another, they drive tanks, shooting at each other and dodging land mines. The third tests control in trying to drive a race car over a track without mishap.

IN MANY WAYS, Muchuck says, the electronic games are superior to the mechanical ones related to pinball. One of the few new machines that failed to attract play was tested more than a year ago in some Aladdin outlets, he says.

"We bombed out with it," he says. "It was called 'U-Boat.' You had submarines shooting torpedoes at ships.

He suspects the game failed because its mechanical workings confused players and tended to malfunction.

"A TV version of that same game would be fabulous," he says.

Despite the success of TV screen games, pinball makers cannot keep up with demand, Bally's Jones says.

"The fact is, people are spending more time playing all of these games," he says. "In times when the economy isn't so prosperous, our business does well. Pinball machines got started during the Depression.

"They give people a cheap form of entertainment. When unemployment is high, people have time on their hands. A lot of people want to kill time cheaply, and that's what we provide."

DESPITE THE NEW wholesome image of the shopping center arcades, anti-pinball laws persist across the nation.

Jones notes that Los Angeles only recently lifted its ban, and New York City still outlaws pinball games.

A feature most players enjoy is the awarding of free games to those scoring high totals. Yet fully half the states in the nation ban such awards, he says.

In such places, Jones says, the games



Tribune Photo by Ray Gera

Once banned in many communities, pinball machines are coming to be viewed as welcome

attractions in suburban shopping centers, where modern arcades can provide a place for young

people to find recreation. These youths are at the Town Arcade in Bolingbrook's Old Chicago.

Pinball addict, 15, calls it 'fun vice'

Coupled with operators offering **prizes** or free games for high scores, this was perceived by some to be more along the lines of **gambling**.



This led to pinball being **banned in a number of US states in the early 1940s**, with machines being seized and destroyed.

New York City Mayor Fiorello LaGuardia was among those who believed that pinball bred **crime** and **juvenile delinquency**.

STATE TROOPERS GRAB 150 PINBALL MACHINES



CHECK THE HAUL—Troopers Ted Maywalt, (left), and Robert Wood, load a State Police truck with part of the 150 pinball machines and the hundreds of

thousands of lottery tickets seized in raid on a Weedsport warehouse.



The pinball prohibition lasted until the mid 1970s in California and New York — by which point, **videogames** were in existence!

STATE TROOPERS GRAB 150 PINBALL MACHINES



CHECK THE HAUL—Troopers Ted Maywalt, (left), and Robert Wood, load a State Police truck with part of the 150 pinball machines and the hundreds of

thousands of lottery tickets seized in raid on a Weedsport warehouse.

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ELECTROMECHANICAL GAMES



Electromechanical games were early coin-operated games that had no microprocessors or monitors.

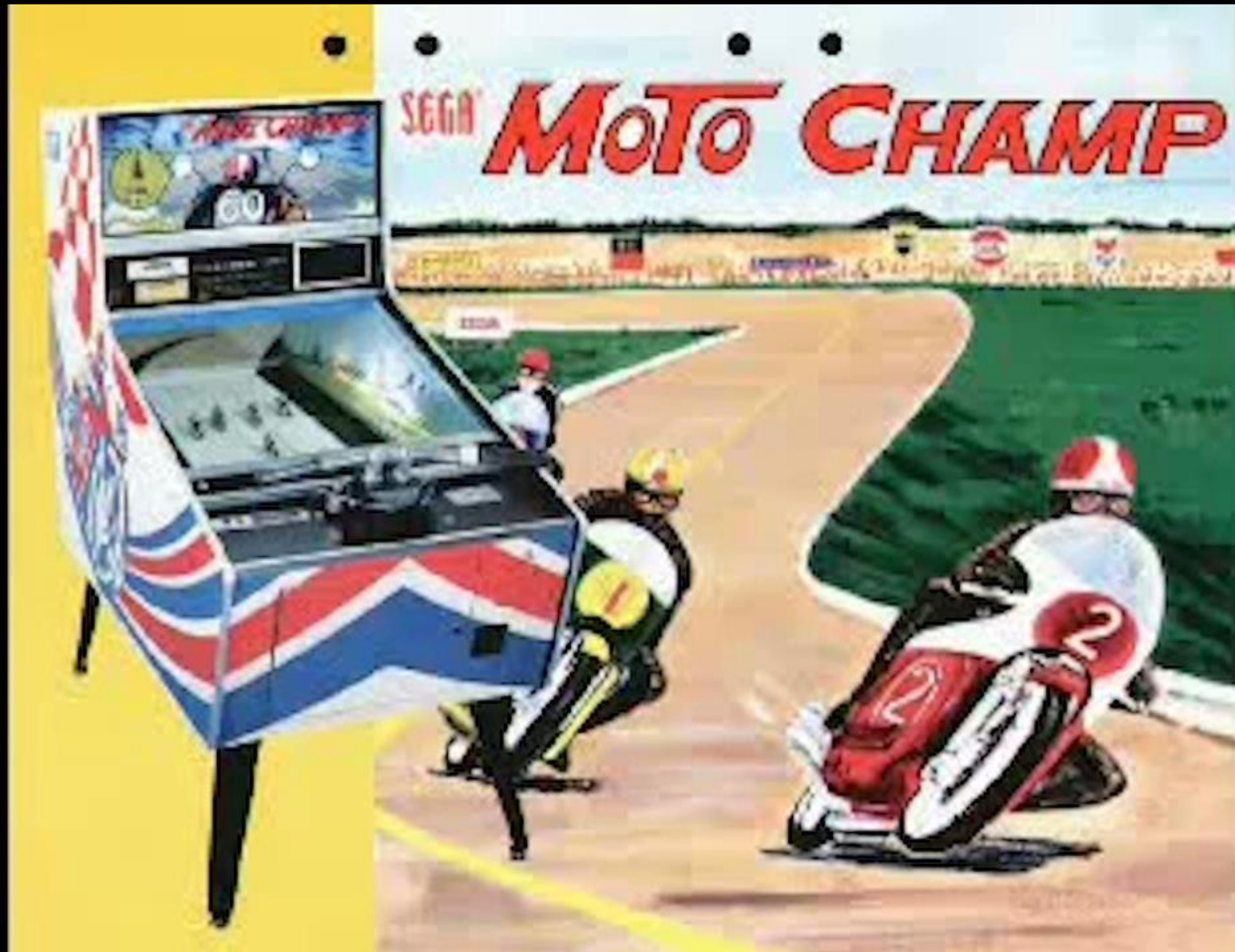




Companies such as **Gottlieb**, **Bally**, **Midway**, **Sega** and **Williams** made pinball and electromechanical games before becoming involved in the production of video games.







Kevin Keinert (2008). *SEGA Moto Champ* – 1973 Arcade Game [YouTube]

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VIDEOS AND PING PONG



In 1971 *Computer Space*, the first commercially-sold coin-operated video game, was produced by **Nutting Associates**.

It was developed by **Nolan Bushnell** and **Ted Dabney** and inspired by Steve Russell's 1961 non-commercial game *Spacewar!*.



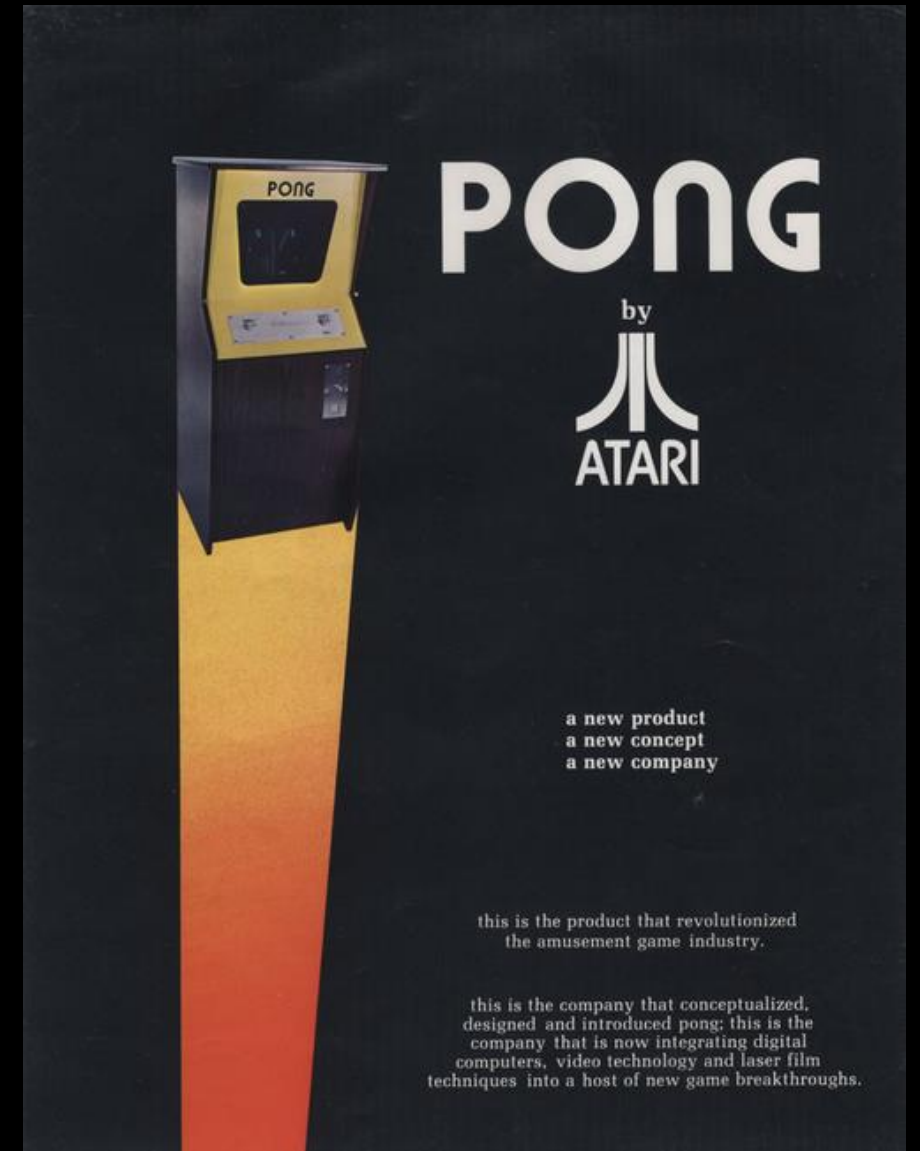
However, *Computer Space* was **not** a commercial success.

Many players found the concept and controls **too complicated** to grasp quickly.



In 1972, **Nolan Bushnell**, engineer **Al Alcorn** and Bushnell's new company, Atari, released *PONG*.

PONG was the first **mass-market** commercial arcade game.





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PONG's success spawned a whole host of **ball-and-paddle** games that remained popular over the next few years.

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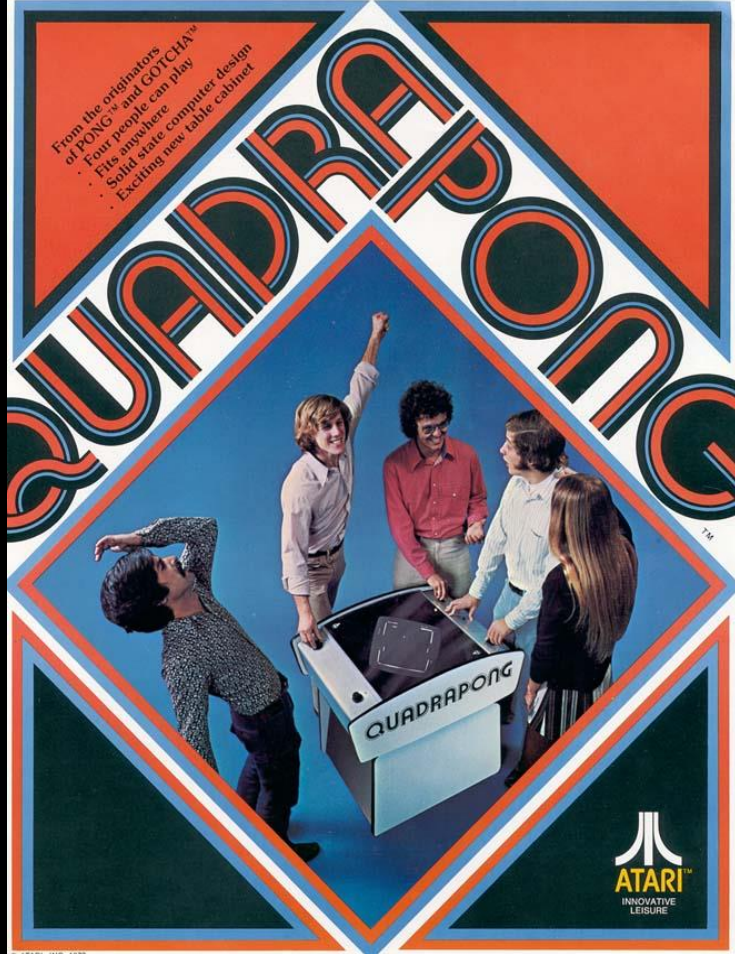


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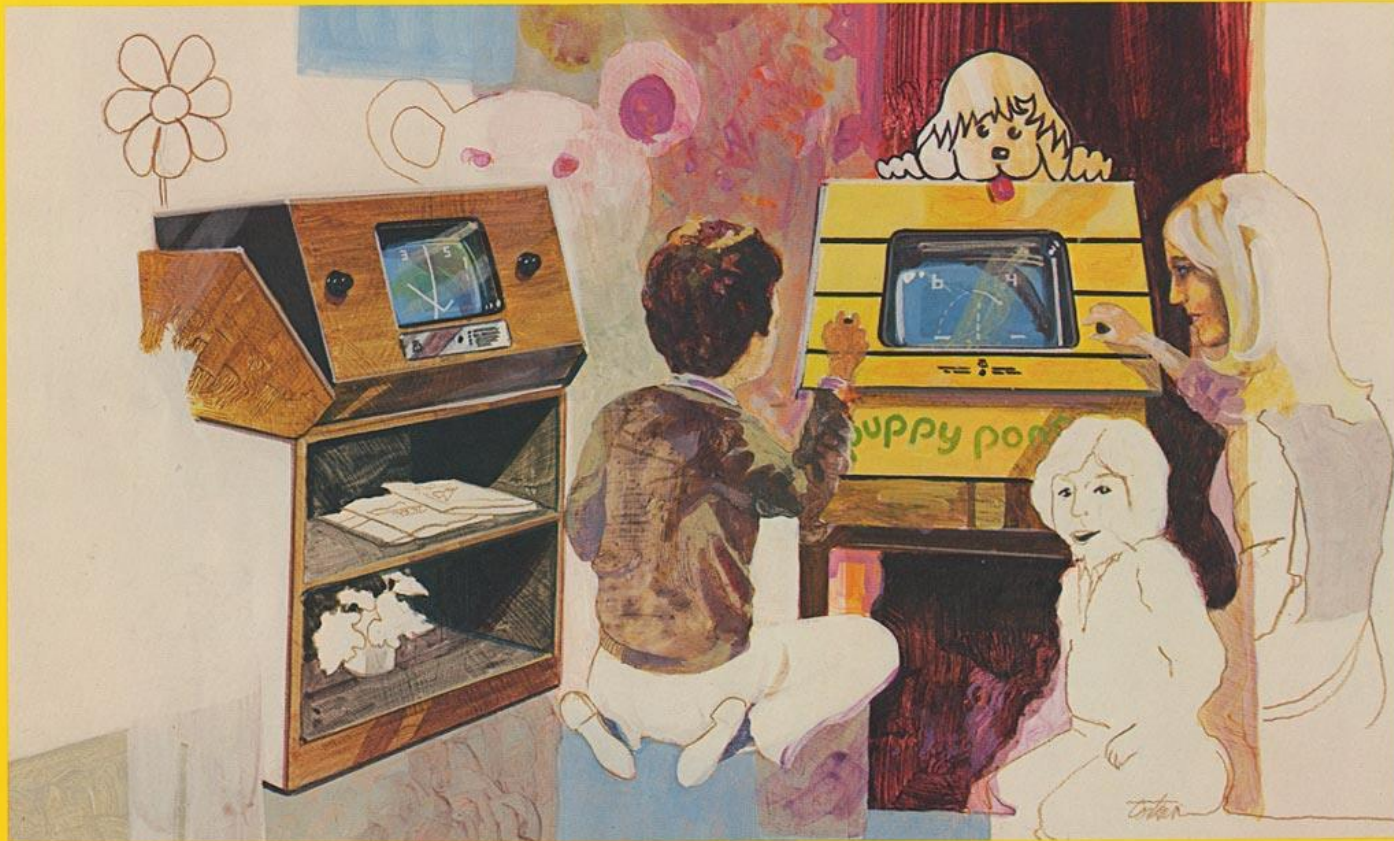
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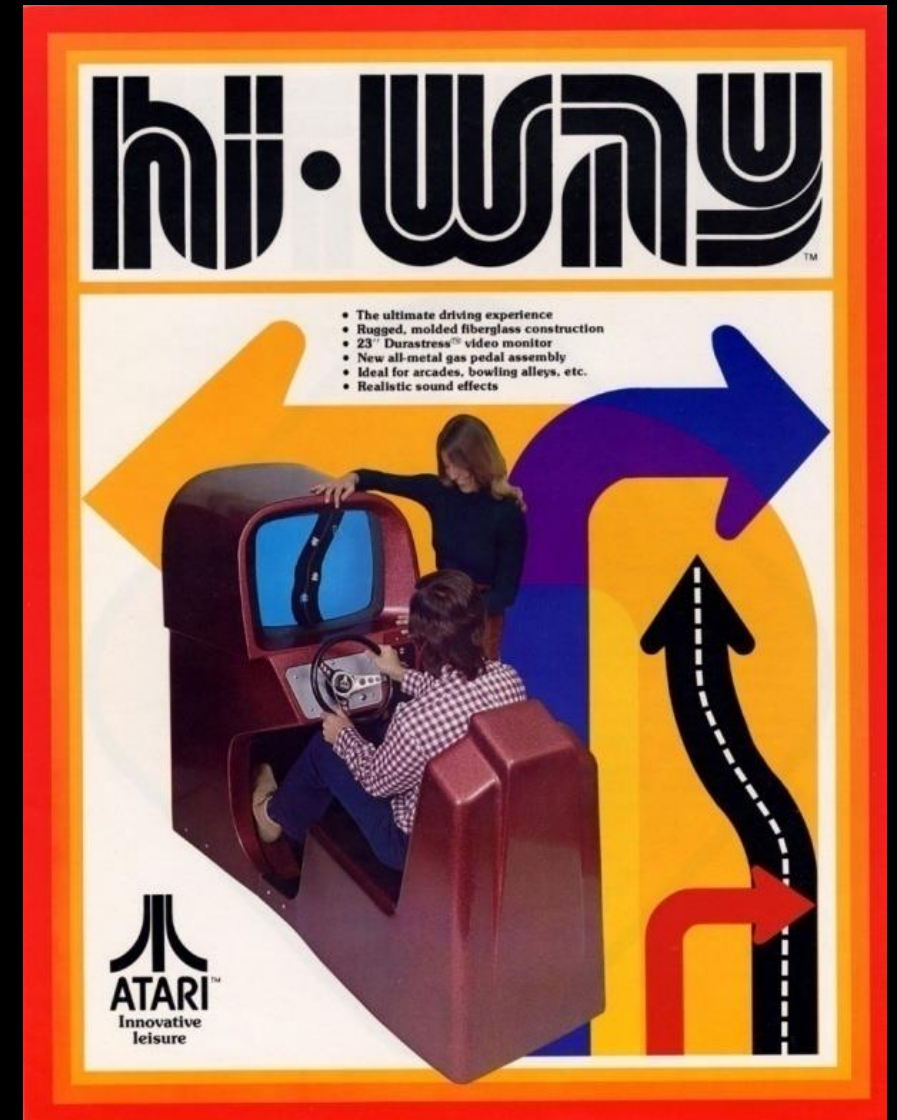
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MID TO LATE 1970'S



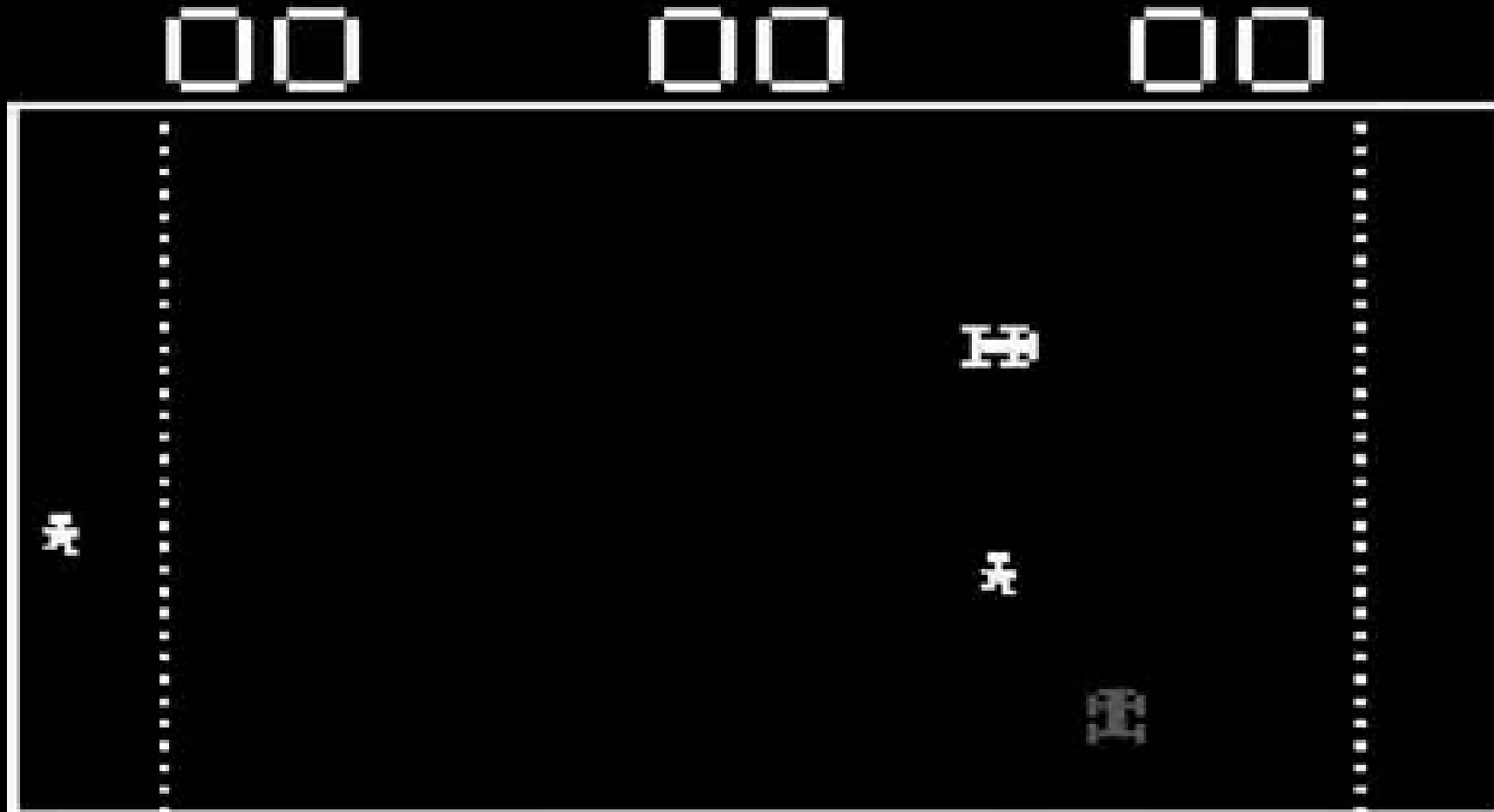
By 1975, interest in ball-and-paddle games was waning. **Sports-themed** titles were very popular during this period.

Driving and racing games had also surpassed pong-style games in popularity.





Exidy's *Death Race* caused controversy with its depiction of **violence** – to earn points, players had to run over pedestrians.





GAME DESIGN AND HISTORY

MID TO LATE 1970'S

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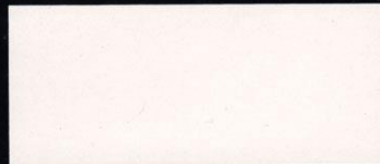
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In 1977 another graphical advance occurred as **vector video games** appeared in arcades.

Cinematronic's *Space Wars* and Vectorbeam's *Space War* were early examples of vector games, and were both copies of the original *Spacewar!* For the PDP-1 by Steve Russell.

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THE GOLDEN AGE OF ARCADES



Space Invaders was released in 1978 by Taito, and was licensed to **Bally Midway** in the US.





Asteroids, by **Atari**, was released in 1979 and was another example of a game using **vector graphics**.

SCORE<1> HI-SCORE SCORE<2>
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PLAY PLAYER<1>

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CREDIT 04



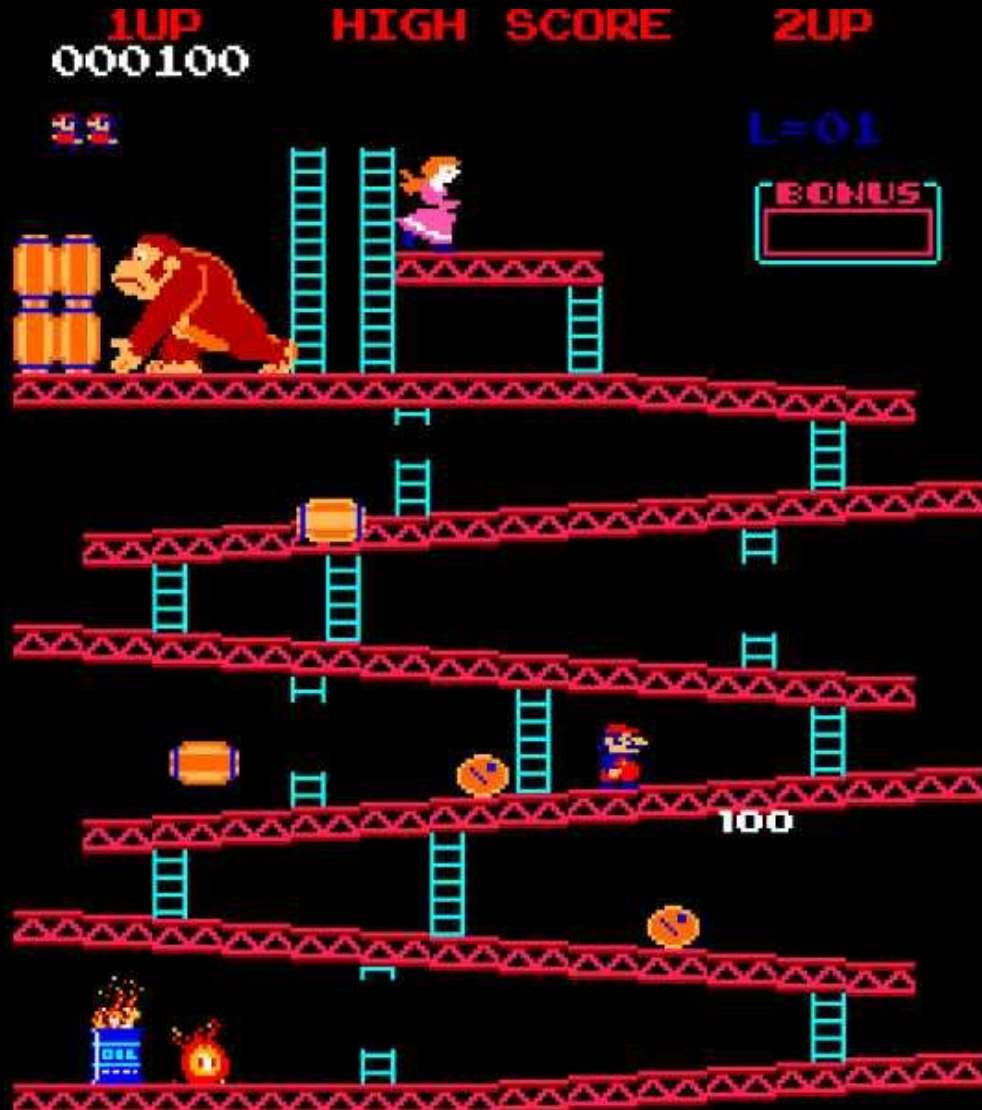
1980 was also a big year for coin-op games.

Namco employee **Toru Iwatani** developed a non-violent game with an eating theme, called *Pac-Man*.



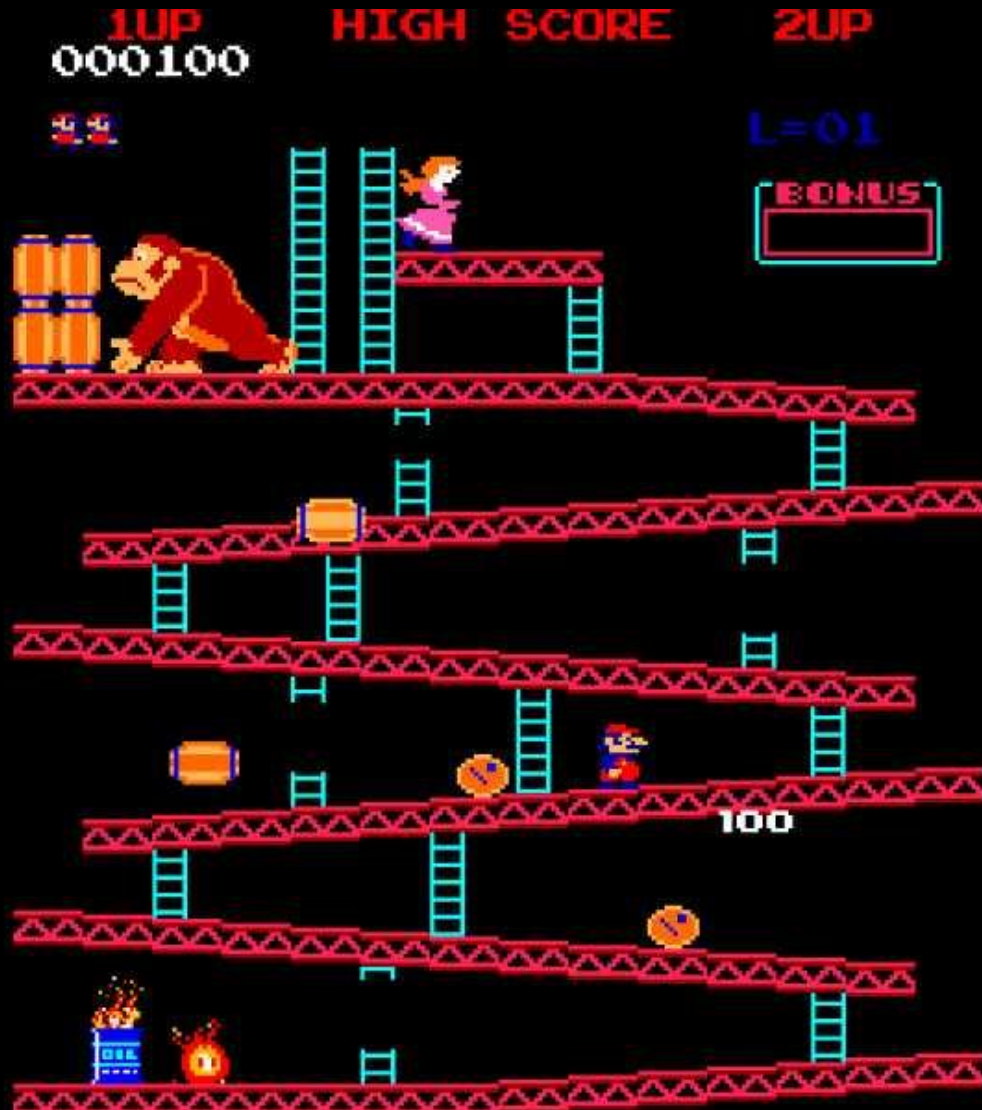
In the same year *Galaxian*, *Missile Command* and *Defender* were released.





In 1981, **Nintendo** also entered the arcade arena with **Donkey Kong** (featuring its now famous mascot Mario) with great success.

Donkey Kong was created by **Shigeru Miyamoto**, now known for *The Legend of Zelda*, *Star Fox*, *Super Mario Bros 3* and *Super Mario 64*, among other successful titles.



The game was one of the first Nintendo coin-op games sold in the US and also the most popular, selling around 67,000 arcade units.



Early 80s Arcade Games

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ALTERNATIVES AND
NEW STANDARDS



Laserdisc games also emerged in the 1980s, with one of the most well-known examples being *Dragon's Lair*, produced by **Cinematronics** in 1983.





One issue with arcade machines is that they were heavy and cumbersome, and dedicated cabinets were difficult and **expensive** to replace.





Interchangeable systems were introduced as a measure to overcome this problem, such as **Data East's DECO cassette system** and **Nintendo's Vs. System**.

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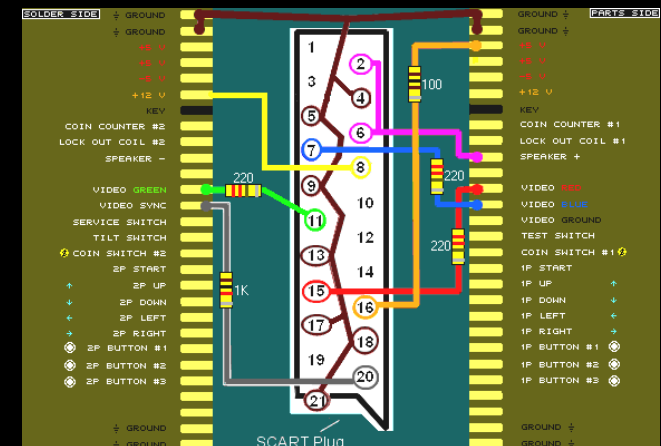


In 1982 the **Japanese Arcade Machine Manufacturers Association (JAMMA)** was founded.

Around 1985, JAMMA introduced a wiring standard for arcade machines known as the **JAMMA conversion class**.

Many American companies also conformed to this standard.

JAMMA PINOUT



MARIO
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x 3

MID TO LATE 1980'S



Mid to Late 80s Arcade Games



Hard Drivin', one of the first 3D polygon driving games, was released in 1989 by Atari.

Unlike many other racing titles, *Hard Drivin'* was advertised as a driving simulation game.



GAME DESIGN AND HISTORY

MID TO LATE 1980'S







By this time, **home console technology** was also improving and beginning to catch up to the power of arcade machines.

Consoles like the *Nintendo Entertainment System* (NES) and *Sega Mega Drive* were able to offer almost arcade-like experiences and many ports of successful arcade titles were available for the home systems.





By the end of the 1980s, the arcade's biggest competition came from **home video games**.





Arcades needed to offer a **unique experience** to maintain business and stay relevant.

Sit-in cockpits, vehicles and other elaborate designs, some with **hydraulics** and **force feedback** for players, were popular by the late 1980s.



INSERT COIN TO CONTINUE



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