

= Pong =

Pong is one of the earliest arcade video games and the very first sports arcade video game . It is a table tennis sports game featuring simple two @-@ dimensional graphics . While other arcade video games such as Computer Space came before it , Pong was one of the first video games to reach mainstream popularity . The aim is to defeat an opponent in a simulated table @-@ tennis game by earning a higher score . The game was originally manufactured by Atari , which released it in 1972 . Allan Alcorn created Pong as a training exercise assigned to him by Atari co @-@ founder Nolan Bushnell . Bushnell based the idea on an electronic ping @-@ pong game included in the Magnavox Odyssey , which later resulted in a lawsuit against Atari . Surprised by the quality of Alcorn 's work , Bushnell and Atari co @-@ founder Ted Dabney decided to manufacture the game .

Pong quickly became a success and is the first commercially successful arcade video game machine , which helped to establish the video game industry along with the first home console , the Magnavox Odyssey . Soon after its release , several companies began producing games that copied Pong 's gameplay , and eventually released new types of games . As a result , Atari encouraged its staff to produce more innovative games . The company released several sequels that built upon the original 's gameplay by adding new features . During the 1975 Christmas season , Atari released a home version of Pong exclusively through Sears retail stores . It was also a commercial success and led to numerous copies . The game has been remade on numerous home and portable platforms following its release . Pong has been referenced and parodied in multiple television shows and video games , and has been a part of several video game and cultural exhibitions .

= = Gameplay = =

Pong is a two @-@ dimensional sports game that simulates table tennis . The player controls an in @-@ game paddle by moving it vertically across the left side of the screen , and can compete against either a computer @-@ controlled opponent or another player controlling a second paddle on the opposing side . Players use the paddles to hit a ball back and forth . The aim is for each player to reach eleven points before the opponent ; points are earned when one fails to return the ball to the other .

= = Development and history = =

Pong was the first game developed by Atari . After producing Computer Space , Bushnell decided to form a company to produce more games by licensing ideas to other companies . The first contract was with Bally Manufacturing Corporation for a driving game . Soon after the founding , Bushnell hired Allan Alcorn because of his experience with electrical engineering and computer science ; Bushnell and Dabney also had previously worked with him at Ampex . Prior to working at Atari , Alcorn had no experience with video games . To acclimate Alcorn to creating games , Bushnell gave him a project secretly meant to be a warm @-@ up exercise . Bushnell told Alcorn that he had a contract with General Electric for a product , and asked Alcorn to create a simple game with one moving spot , two paddles , and digits for score keeping . In 2011 , Bushnell stated that the game was inspired by previous versions of electronic tennis he had played before ; Bushnell played a version on a PDP @-@ 1 computer in 1964 while attending college . However , Alcorn has claimed it was in direct response to Bushnell 's viewing of the Magnavox Odyssey 's Tennis game . In May 1972 , Bushnell had visited the Magnavox Profit Caravan in Burlingame , California where he played the Magnavox Odyssey demonstration , specifically the table tennis game . Though he thought the game lacked quality , seeing it prompted Bushnell to assign the project to Alcorn .

Alcorn first examined Bushnell 's schematics for Computer Space , but found them to be illegible . He went on to create his own designs based on his knowledge of transistor ? transistor logic and Bushnell 's game . Feeling the basic game was too boring , Alcorn added features to give the game more appeal . He divided the paddle into eight segments to change the ball 's angle of return . For

example , the center segments return the ball a 90 ° angle in relation to the paddle , while the outer segments return the ball at smaller angles . He also made the ball accelerate the longer it remained in play ; missing the ball reset the speed . Another feature was that the in @-@ game paddles were unable to reach the top of screen . This was caused by a simple circuit that had an inherent defect . Instead of dedicating time to fixing the defect , Alcorn decided it gave the game more difficulty and helped limit the time the game could be played ; he imagined two skilled players being able to play forever otherwise .

Three months into development , Bushnell told Alcorn he wanted the game to feature realistic sound effects and a roaring crowd . Dabney wanted the game to " boo " and " hiss " when a player lost a round . Alcorn had limited space available for the necessary electronics and was unaware of how to create such sounds with digital circuits . After inspecting the sync generator , he discovered that it could generate different tones and used those for the game 's sound effects . To construct the prototype , Alcorn purchased a \$ 75 Hitachi black @-@ and @-@ white television set from a local store , placed it into a 4 @-@ foot (1 @.@ 2 m) wooden cabinet , and soldered the wires into boards to create the necessary circuitry . The prototype impressed Bushnell and Dabney so much that they felt it could be a profitable product and decided to test its marketability .

In August 1972 , Bushnell and Alcorn installed the Pong prototype at a local bar , Andy Capp 's Tavern . They selected the bar because of their good working relation with the bar 's manager , Bill Gattis ; Atari supplied pinball machines to Gattis . Bushnell and Alcorn placed the prototype on one of the tables near the other entertainment machines : a jukebox , pinball machines , and Computer Space . The game was well received the first night and its popularity continued to grow over the next one and a half weeks . Bushnell then went on a business trip to Chicago to demonstrate Pong to executives at Bally and Midway Manufacturing ; he intended to use Pong to fulfill his contract with Bally , rather than the driving game . A few days later , the prototype began exhibiting technical issues and Gattis contacted Alcorn to fix it . Upon inspecting the machine , Alcorn discovered that the problem was the coin mechanism was overflowing with quarters .

After hearing about the game 's success , Bushnell decided there would be more profit for Atari to manufacture the game rather than license it , but the interest of Bally and Midway had already been piqued . Bushnell decided to inform each of the two groups that the other was uninterested ? Bushnell told the Bally executives that the Midway executives did not want it and vice versa ? to preserve the relationships for future dealings . Upon hearing Bushnell 's comment , the two groups declined his offer . Bushnell had difficulty finding financial backing for Pong ; banks viewed it as a variant of pinball , which at the time the general public associated with the Mafia . Atari eventually obtained a line of credit from Wells Fargo that it used to expand its facilities to house an assembly line . The company announced Pong on 29 November 1972 . Management sought assembly workers at the local unemployment office , but was unable to keep up with demand . The first arcade cabinets produced were assembled very slowly , about ten machines a day , many of which failed quality testing . Atari eventually streamlined the process and began producing the game in greater quantities . By 1973 , they began shipping Pong to other countries with the aid of foreign partners .

= = = Home version = = =

After the success of Pong , Bushnell pushed his employees to create new products . In 1974 , Atari engineer Harold Lee proposed a home version of Pong that would connect to a television : Home Pong . The system began development under the codename Darlene , named after an attractive female employee at Atari . Alcorn worked with Lee to develop the designs and prototype , and based them on the same digital technology used in their arcade games . The two worked in shifts to save time and money ; Lee worked on the design 's logic during the day , while Alcorn debugged the designs in the evenings . After the designs were approved , fellow Atari engineer Bob Brown assisted Alcorn and Lee in building a prototype . The prototype consisted of a device attached to a wooden pedestal containing over a hundred wires , which would eventually be replaced with a single chip designed by Alcorn and Lee ; the chip had yet to be tested and built before the prototype was constructed . The chip was finished in the latter half of 1974 , and was , at the time , the highest

@-@ performing chip used in a consumer product .

Bushnell and Gene Lipkin , Atari 's vice @-@ president of sales , approached toy and electronic retailers to sell Home Pong , but were rejected . Retailers felt the product was too expensive and would not interest consumers . Atari contacted the Sears Sporting Goods department after noticing a Magnavox Odyssey advertisement in the sporting goods section of its catalog . Atari staff discussed the game with a representative , Tom Quinn , who expressed enthusiasm and offered the company an exclusive deal . Believing they could find more favorable terms elsewhere , Atari 's executives declined and continued to pursue toy retailers . In January 1975 , Atari staff set up a Home Pong booth at a toy trade fair in New York City , but was unsuccessful in soliciting orders due to the fact that they did not know that they needed a private showing .

While at the show , they met Quinn again , and , a few days later , set up a meeting with him to obtain a sales order . In order to gain approval from the Sporting Goods department , Quinn suggested Atari demonstrate the game to executives in Chicago . Alcorn and Lipkin traveled to the Sears Tower and , despite a technical complication in connection with an antenna on top of the building which broadcast on the same channel as the game , obtained approval . Bushnell told Quinn he could produce 75 @,@ 000 units in time for the Christmas season ; however , Quinn requested double the amount . Though Bushnell knew Atari lacked the capacity to manufacture 150 @,@ 000 units , he agreed . Atari acquired a new factory through funding obtained by venture capitalist Don Valentine . Supervised by Jimm Tubb , the factory fulfilled the Sears order . The first units manufactured were branded with Sears ' " Tele @-@ Games " name . Atari later released a version under its own brand in 1976 .

= = = Lawsuit from Magnavox = = =

The success of Pong attracted the attention of Ralph Baer , the inventor of the Magnavox Odyssey , and his employer , Sanders Associates . Sanders had an agreement with Magnavox to handle the Odyssey 's sublicensing , which included dealing with infringement on its exclusive rights . However , Magnavox had not pursued legal action against Atari and numerous other companies that released Pong clones . Sanders continued to apply pressure , and in April 1974 Magnavox filed suit against Atari , Bally Midway , Allied Leisure and Chicago Dynamics . Magnavox argued that Atari had infringed on Baer 's patents and his concept of electronic ping @-@ pong based on detailed records Sanders kept of the Odyssey 's design process dating back to 1966 . Other documents included depositions from witnesses and a signed guest book that demonstrated Bushnell had played the Odyssey 's table tennis game prior to releasing Pong . In response to claims that he saw the Odyssey , Bushnell later stated that , " The fact is that I absolutely did see the Odyssey game and I didn 't think it was very clever . "

After considering his options , Bushnell decided to settle with Magnavox out of court . Bushnell 's lawyer felt they could win ; however , he estimated legal costs of US \$ 1 @.@ 5 million , which would have exceeded Atari 's funds . Magnavox offered Atari an agreement to become a licensee for US \$ 700 @,@ 000 . Other companies producing " Pong clones " ? Atari 's competitors ? would have to pay royalties . In addition , Magnavox would obtain the rights to Atari products developed over the next year . Magnavox continued to pursue legal action against the other companies , and proceedings began shortly after Atari 's settlement in June 1976 . The first case took place at the district court in Chicago , with Judge John Grady presiding . To avoid Magnavox obtaining rights to its products , Atari decided to delay the release of its products for a year , and withheld information from Magnavox 's attorneys during visits to Atari facilities .

= = Impact and legacy = =

The Pong arcade games manufactured by Atari were a great success . The prototype was well received by Andy Capp 's Tavern patrons ; people came to the bar solely to play the game . Following its release , Pong consistently earned four times more revenue than other coin @-@ operated machines . Bushnell estimated that the game earned US \$ 35 ? 40 per day , which he

described as nothing he 'd ever seen before in the coin @-@ operated entertainment industry at the time . The game 's earning power resulted in an increase in the number of orders Atari received . This provided Atari with a steady source of income ; the company sold the machines at three times the cost of production . By 1973 , the company had filled 2 @,@ 500 orders , and , at the end of 1974 , sold more than 8 @,@ 000 units . The arcade cabinets have since become collector 's items with the cocktail @-@ table version being the rarest . Soon after the game 's successful testing at Andy Capp 's Tavern , other companies began visiting the bar to inspect it . Similar games appeared on the market three months later , produced by companies like Ramtek and Nutting Associates . Atari could do little against the competitors as they had not initially filed for patents on the solid state technology used in the game . When the company did file for patents , complications delayed the process . As a result , the market consisted primarily of " Pong clones " ; author Steven Kent estimated that Atari had produced less than a third of the machines . Bushnell referred to the competitors as " Jackals " because he felt they had an unfair advantage . His solution to competing against them was to produce more innovative games and concepts .

Home Pong was an instant success following its limited 1975 release through Sears ; around 150 @,@ 000 units were sold that holiday season . The game became Sears ' most successful product at the time , which earned Atari a Sears Quality Excellence Award . Similar to the arcade version , several companies released clones to capitalize on the home console 's success , many of which continued to produce new consoles and video games . Magnavox re @-@ released their Odyssey system with simplified hardware and new features , and would later release updated versions . Coleco entered the video game market with their Telstar console ; it features three Pong variants and was also succeeded by newer models . Nintendo released the Color TV Game 6 in 1977 , which plays six variations of electronic tennis . The next year , it was followed by an updated version , the Color TV Game 15 , which features fifteen variations . The systems were Nintendo 's entry into the home video game market and the first to produce themselves ? they had previously licensed the Magnavox Odyssey . The dedicated Pong consoles and the numerous clones have since become varying levels of rare ; Atari 's Pong consoles are common , while APF Electronics ' TV Fun consoles are moderately rare . Prices among collectors , however , vary with rarity ; the Sears Tele @-@ Games versions are often cheaper than those with the Atari brand .

Several publications consider Pong the game that launched the video game industry as a lucrative enterprise . Video game author David Ellis sees the game as the cornerstone of the video game industry 's success , and called the arcade game " one of the most historically significant " titles . Kent attributes the " arcade phenomenon " to Pong and Atari 's games that followed it , and considers the release of the home version the successful beginning of home video game consoles . Bill Loguidice and Matt Barton of Gamasutra referred to the game 's release as the start of a new entertainment medium , and commented that its simple , intuitive gameplay made it a success . Entertainment Weekly named Pong one of the top ten games for the Atari 2600 in 2013 . Many of the companies that produced their own versions of Pong eventually became well @-@ known within the industry . Nintendo entered the video game market with clones of Home Pong . The revenue generated from them ? each system sold over a million units ? helped the company survive a difficult financial time , and spurred them to pursue video games further . After seeing the success of Pong , Konami decided to break into the arcade game market and released its first title , Maze . Its moderate success drove the company to develop more titles . Pong has also been used in programming classrooms to teach the fundamentals of languages such as Java and C + + .

Bushnell felt that Pong was especially significant in its role as a social lubricant , since it was multiplayer @-@ only and did not require each player to use more than one hand : " It was very common to have a girl with a quarter in hand pull a guy off a bar stool and say , ' I 'd like to play Pong and there 's nobody to play . ' It was a way you could play games , you were sitting shoulder to shoulder , you could talk , you could laugh , you could challenge each other ... As you became better friends , you could put down your beer and hug . You could put your arm around the person . You could play left @-@ handed if you so desired . In fact , there are a lot of people who have come up to me over the years and said , ' I met my wife playing Pong , ' and that 's kind of a nice thing to have achieved . "

== Sequels and remakes ==

Bushnell felt the best way to compete against imitators was to create better products , leading Atari to produce sequels in the years followings the original 's release : Pong Doubles , Super Pong , Ultra Pong , Quadrapong , and Pin @-@ Pong . The sequels feature similar graphics , but include new gameplay elements ; for example , Pong Doubles allows four players to compete in pairs , while Quadrapong has them compete against each other in a four way field . Bushnell also conceptualized a free @-@ to @-@ play version of Pong to entertain children in a Doctor 's office . He initially titled it Snoopy Pong and fashioned the cabinet after Snoopy 's doghouse with the character on top , but retitled it to Puppy Pong and altered Snoopy to a generic dog to avoid legal action . Bushnell later used the game in his chain of Chuck E. Cheese 's restaurants . In 1976 , Atari released Breakout , a single @-@ player variation of Pong where the object of the game is to remove bricks from a wall by hitting them with a ball . Like Pong , Breakout was followed by numerous clones that copied the gameplay : Arkanoid , Alleyway , Break ' Em All .

Atari remade the game on numerous platforms . In 1977 , Pong and several variants of the game were featured in Video Olympics , one of the original release titles for the Atari 2600 . Pong has also been included in several Atari compilations on platforms including the Sega Mega Drive , PlayStation Portable , Nintendo DS , and personal computer . Through an agreement with Atari , Bally Gaming and Systems developed a slot machine version of the game . The Atari developed TD Overdrive includes Pong as an extra game to be played during the loading screen . In 1999 , the game was remade for home computers and the PlayStation with 3D graphics and power @-@ ups . In 2012 , Atari celebrated the 40th anniversary of Pong by releasing Pong World .

== In fantasy ==

Pong has appeared in several facets of popular culture . The game is prominently featured in episodes of television series : That ' 70s Show , King of the Hill , and Saturday Night Live . In 2006 , an American Express commercial featured Andy Roddick in a tennis match against the white , in @-@ game paddle . Other video games have also referenced and parodied Pong ; for example Neuromancer for the Commodore 64 and Banjo @-@ Kazooie : Nuts and Bolts for the Xbox 360 . The concert event Video Games Live has performed audio from Pong as part of a special retro " Classic Arcade Medley " . Frank Black 's song " Whatever Happened to Pong ? " on the album Teenager of the Year heavily references the game 's elements .

Dutch design studio Buro Vormkrijgers created a Pong @-@ themed clock as a fun project within their offices . After the studio decided to manufacture it for retail , Atari took legal action in February 2006 . The two companies eventually reached an agreement in which Buro Vormkrijgers could produce a limited number under license . In 1999 , French artist Pierre Huyghe created an installation entitled " Atari Light " , in which two people use handheld gaming devices to play Pong on an illuminated ceiling . The work was shown at the Venice Biennale in 2001 , and the Museo de Arte Contemporáneo de Castilla y León in 2007 . The game was included in the London Barbican Art Gallery 's 2002 Game On exhibition meant to showcase the various aspects of video game history , development , and culture .