

THE  
HISTORY  
OF  
COMPUTER  
GAMES

by PETER OLSEN

# **THE HISTORY OF COMPUTER GAMES**

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Computer games are played on a personal computer (PC). Video games are connected to a television or monitor. Arcade games are placed in individual cabinets, usually in public locations. But since each of these games runs on a computer, the term computer game can also refer to all of the above.

At one time, simple computer games were designed by students and engineers seeking a fun challenge on computer equipment intended for military and university purposes. Today, powerful computer games are the driving force behind the development of state-of-the-art hardware and software such as 3D graphics accelerators and true-to-life physics engines.

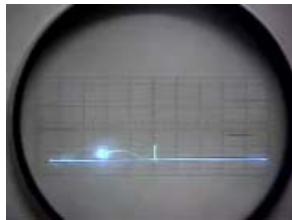
Reviewing popular computer games over the past 45 years, you will see that they have developed an amazing level of complexity especially in the last decade. Many of the newer computer games feature deep story lines and intricate details. Some modern computer games are so large that they would fill up an entire hard drive on an older computer. As technology continues to advance and consumer expectations grow more sophisticated, computer games will likely be produced more like cinematic movies. As a result, the use of motion-capture and voices of film actors will become common.

Recently, there has been increased interest in the reality of the physics engines used for computer games. Physics engines simulate and predict effects under various conditions that approximate what happens in real life. High precision physics engines at advanced processor speeds like those utilized in computer animated movies ensure increased realism. This will allow game developers to add a whole new level of game play while still creating stunning graphical environments.

# COMPUTER GAME TIMELINE

**1951** - Ralph Baer, an engineer with Loral, is instructed to “build the best television set in the world.” Baer suggests they add some kind of interactive game to distinguish it from other televisions, but management ignores the idea.

**1958** - Physicist Willy Higinbotham invents an interactive table tennis game displayed on an oscilloscope.



*Tennis for Two*

**1962** - *Spacewar* is credited as the first computer game. It was programmed by MIT students on a Digital PDP-1 microcomputer with its graphics displayed on a teletype screen. *Spacewar* was popular on university campuses.



In *Spacewar*, two ships fire torpedoes at each other until one is destroyed.

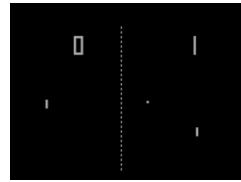
**1965** - Engineering student Nolan Bushnell got a summer job at a carnival, where he was in charge of the arcade. Bushnell envisioned an arcade filled with computer games but computers at the time were much too expensive to make his idea feasible.

**1967** - Ralph Baer, working at a different company, creates an interactive game that can be played on a television screen with a modified toy gun that can distinguish spots of light on the screen. This was the world’s first video game console.



**1972** - Magnavox began manufacturing Baer's TV game system and called it the *Odyssey*. It came with semi-transparent plastic overlays to stick on the TV screen and it was not noteworthy for its hardware or software, but the *Odyssey* proved that home gaming could be a successful industry. The *Odyssey* was distributed in Japan by the Nintendo corporation, which now has the distinction of being both the oldest intact company in the video game console market and one of the most well-known console manufacturers, as well as being dominant in the handheld console market.

**1973** - Nolan Bushnell started his own arcade game company, named it Atari, and introduced *Pong*, the first commercially available video arcade game. *Pong*'s graphics were white rectangles on a black background.



*Pong* screenshot.

**1975** - For Christmas, Atari introduced a home version of the video game *Pong*.

**1976** - The Apple I personal computer was an early limited production personal computer for electronics hobbyists.

**1977** - Atari opens the first Pizza Time Theatre, a new arcade-restaurant combination that features moving robotic animals, electronic games, and food. The mascot for the restaurant is a rat named Chuck E. Cheese.

**1977** - The Apple II microcomputer came complete with integrated keyboard, color graphics, sound, a plastic case, and eight expansion slots. The future was here.



Apple II

**1978** - The arcade game industry entered its Golden Age with the release of *Space Invaders* by Taito, and *Asteroids* by Atari. Arcades soon became popular hangouts at shopping centers and remained commonplace into the 1990's.



*Space Invaders* screenshot.

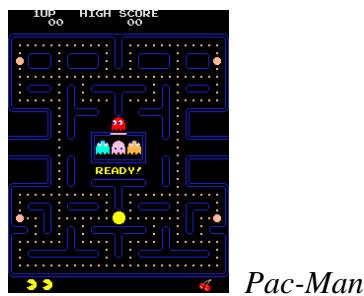


*Donkey Kong* arcade machine.

**1979** - The original text adventure game *Zork* was written in 1977 by MIT grad students Dave Lebling, Marc Blank, Tim Anderson, and Bruce Daniels on a DEC PDP-10. They founded Infocom in 1979, recognizing the potential to move these interactive fiction games to the new personal computers. When the capabilities of the average home computer increased and textual interaction was replaced by graphical interfaces, *Zork*'s popularity waned in favor of graphic adventures and action games.



**1980** - The Golden Age of arcade games reaches full steam, with many technically innovative and genre-defining games released this year. *Defender* established the scrolling shooter and was the first to have events taking place outside the player's view, displayed by a radar map of the whole playfield. *Pac-Man* was the first game to achieve widespread popularity in mainstream culture and it was also the first video game to be popular with both girls and boys. *Battlezone* used wireframe vector graphics to create the first true three-dimensional first-person game.



*Pac-Man*



*Battlezone*

**1980** - The VIC-20 computer debuted in June 1980, selling over one million units in its short lifetime and leading the home computer revolution. The Apple II may have been the first home microcomputer, but the Commodore VIC-20 was the first affordable home microcomputer. It could be connected to a television set, had good color, great sound, and was easily upgraded. Early home computers were primitive machines by today's standards and lacked good graphical capabilities. The source codes for simple games were published in computer magazines, which people then typed into their machines by

themselves. Thousands of future software developers were introduced to programming on the VIC 20. An explosion of educational and entertaining games followed.

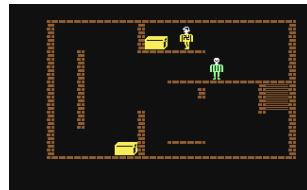


Vic-20



Commodore 64

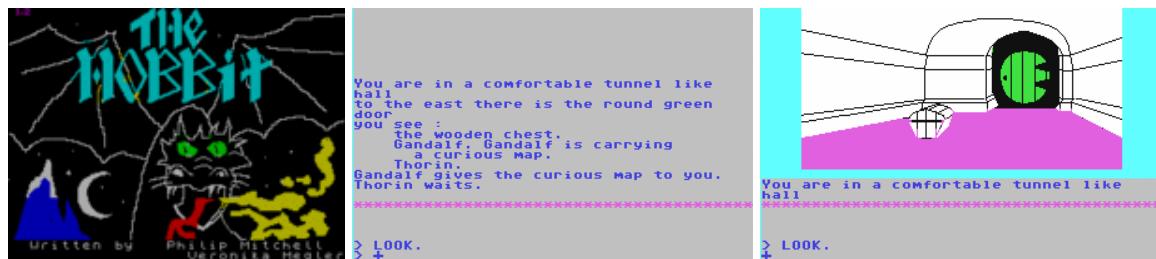
**1981** - *Castle Wolfenstein* was the first stealth-based computer game but its main drawing point was the unprecedented use of digitized voices. These voices added to the game's atmosphere and made *Castle Wolfenstein* stand out from other games released at the time.



*Castle Wolfenstein* screenshot.

**1982** - The Commodore 64 was released to the public. It was an inexpensive but powerful computer that outperformed any video game console. It used BASIC programming and had advanced graphic and sound capabilities for its time. It would become the most popular home computer of its day and the best-selling single computer model of all time.

**1982** - In the early hybrid *The Hobbit*, all interaction is done by typing and all game elements are described textually, but some locations are also represented graphically.



*The Hobbit* screenshots: both text and graphics.

**1983** - *Dragon's Lair* was the first laser-disc arcade game, and the first video game with full-motion animation (created by Don Bluth).



*Dragon's Lair* screenshot.

**1983** - The earliest modification of a game was *Castle Smurfenstein*, a take-off on *Castle Wolfenstein*. Eventually, game designers realized that custom content increased the lifespan of their games, and so began to encourage the creation of “mods.”

**1984** - The International Business Machines (IBM) computer with new 16-color display allowed its graphics to approach the quality seen in popular home computers like the Commodore 64, but it still had poor sound capabilities. The Apple Macintosh was also introduced at this time, with a much higher pixel resolution and user-friendly interface.

**1985** - The home computer gaming market took over from the arcade console market. The arrival of the Commodore Amiga was the beginning of a new era of machines with built-in sound and graphics hardware allowing technically excellent games.



Amiga computer.

**1985** - *Tetris* was a uniquely simple but aesthetically pleasing player-driven puzzle game.



Tetris screenshot.

**1987** - Advances in IBM’s open platform caused IBM-compatible PCs to become comparably powerful at less cost than their competitors. The VGA standard developed for IBM’s new PS/2 line gave the PC the potential for 256-color graphics. IBM clones still lagged behind platforms with built-in sound and graphics hardware like the Amiga, but their low cost caused an odd trend of developers designing for an inferior machine.

**1989** - The introduction of Creative Labs’ Sound Blaster card established a new standard in sound capabilities. *SimCity* by Maxis was the first in a successful series of simulation games that let the player build a whole city complete with infrastructure. Similar titles included *SimAnt*, *SimFarm*, and *SimTower*.



SimCity screenshot.

**1990** - Shareware gaming first appeared in the late 1980's, but its big successes came in the 1990's. Shareware distribution was a popular method of publishing games by smaller developers such as id Software. It gave consumers the chance to try out an episode of a game before buying the whole thing. Shareware games on single 5 1/4" and later 3.5" floppy disks were common. The increasing size of games in the mid-1990's made them impractical to fit on floppies, so shareware games were replaced by shorter demos often distributed free on CDs with gaming magazines and over the internet.

**1991** - Sid Meier's *Civilization* was a pioneer in the genre of turn-based strategy games. The game begins in 4000 BC, and players expand and develop their empires throughout the ages until modern space-age times.



*Civilization* screenshot.

**1992** - The release of *Dune II*, a real-time strategy (RTS) game, set the standard for later RTS games like *Warcraft* and *Command and Conquer* characterized by an overhead view, a mini-map, and the control of every aspect of an army.



*Warcraft* screenshot.

**1993** - The increasing computing power and decreasing cost of processors like the Intel 386, 486, and Motorola 68030 began to allow rudimentary 3D graphics and multimedia capabilities. *Doom* in particular was largely responsible for defining the genre of first-person perspective games. It spawned numerous clones and its influence is everywhere.



*Doom* screenshot.

**1993** - *Myst* was one of the first computer games to make full use of the multimedia capabilities of sound cards and the new high-capacity CD-ROM storage format. CD-ROM drives soon became standard features on all computers. *Myst* inspired a new style of adventure game by allowing the player to virtually explore a fantastic new world while solving challenging puzzles. *Myst* was the best-selling game of the decade.

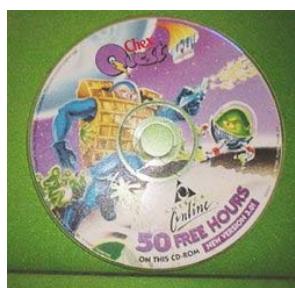


*Myst* screenshot.

**1994** - After Senators Joseph Lieberman and Herbert Kohl launch a Senate investigation into video game violence, the Entertainment Software Rating Board (ESRB) is established to rate video games and let consumers know the recommended age of players for each game. By the end of 1997, most software features ratings on its packaging.

**1995** - Sony made its debut to the video gaming scene with the PlayStation. 32-bit consoles helped home video games approach the level of 3D graphics seen in arcade games. By this time, video arcades had earned a reputation for being seedy, unsafe places. As a result, patronage of arcades declined in favor of home video games. Small arcades were replaced by large amusement centers offering clean, safe environments and expensive gaming systems not available to home users.

**1996** - *Chex Quest* was the first game to be released in boxes of cereal. It increased sales of Chex cereal by over 200%, winning awards for promotional achievement and advertising effectiveness. *Chex Quest* is a total conversion of the computer game *Doom* but without the violence. *Chex Quest* still has a small cult following of fans, some of whom continue to create new levels for the game.



Free *Chex Quest* game found in cereal boxes.



One of the newer *Chex Quest* mods.

**1996** - *Tomb Raider* was widely praised for its revolutionary state-of-the-art graphics, cinematic approach to gameplay, use of classical music, and an involving storyline which at the time were unprecedented. Meanwhile, id Software's *Quake* pioneered game play over the internet in first-person shooters, while Nintendo's 64-bit console game *Super Mario 64* became a defining title for 3D platform games with multiple camera angles and zoom features enabling more creative control by the player.



*Tomb Raider*'s Lara Croft was a female version of Indiana Jones.



*Super Mario 64* screenshot.

**1997** - MDK was one of the first games to run only on the Pentium class of processor. This impressive game combined fast action with fully 3D rendered, state-of-the art high-resolution graphics. MDK surprised the industry with the fluidity of the main character's movements, created using motion capture and sprite-based animation. MDK also featured a never-before-seen “sniper mode” that allowed players to zoom in on an enemy, as well as a symphonic movie-quality soundtrack.



MDK (1997)



MDK2 (2000)

**1998** - Unlike most action games which are structured as a single track series of levels with linear gameplay, the *Grand Theft Auto* series is notable for the large amount of freedom given to the player in deciding what to do and how to do it. *Grand Theft Auto III* and subsequent games are notable for their storylines, high quality of voice acting, and “radio stations” which simulate driving to music complete with DJs, radio personalities, commercials, talk radio, popular music, and American culture. All of this is seamlessly integrated in the realistic setting of an urban environment which parodies a real-life city.



The original *Grand Theft Auto* (1998) and the 3D *Grand Theft Auto III* (2001).

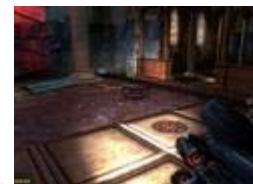
**2000** - *The Sims* was released and became the best selling computer game of all time. In this open-ended game, players create a virtual household of one or more little computer people with distinct personalities, and move them into a house and a neighborhood that is either prebuilt or built from scratch. “Sims” interact with each other and their neighbors.



*The Sims* is a “virtual dollhouse.”

**2001** - Home video game consoles such as PlayStation 2 and Xbox have become widely popular for casual group play. An Interactive Digital Software Association survey reveals that the average family spends 10-11 hours per week playing video or computer games, with 34 percent of respondents calling games “the most fun entertainment activity.”

**2004** - *Half-Life 2* is critically acclaimed for advances in computer animation, sound, lighting, narration, computer graphics, artificial intelligence (AI), and physics.



*Half-Life 2* screenshots.

**2006** - *Elder Scrolls IV: Oblivion* is an open-ended role-playing fantasy adventure game featuring intensely realistic environments. The player is free to go anywhere at any time. Even after completing the main quest, the game doesn’t have to end. In fact, walking around the countryside is one of the most appealing aspects of this game. The main quest may be delayed or completely ignored as the player goes off on side quests or simply explores sixteen square miles of beautiful scenic terrain. Stop and admire the pretty wildflowers or watch deer frolicking in the meadows. Atmospheric effects include rain, snow, wind, clouds, sunrises, sunsets, and stars. *Oblivion* allows the player to be whoever they want, customizing their face and build, and interacting with various other characters. The game features the voice talents of Patrick Stewart, Lynda Carter, and Sean Bean.



*Oblivion* screenshot showing the user interface.      Martin Septim (voiced by Sean Bean).

**2007 - *Penumbra: Overture*** is a unique new game blending the genres of first-person shooter, horror, and adventure. It has an advanced physics system which allows for a never-before-seen interaction with the environment. The player can open drawers, pull levers, pick up objects and more using natural mouse movements creating a highly interactive and immersive game world. The weapon system differs from other games, too. Swinging a weapon is done with the mouse which increases the realistic combat feel.



*Penumbra: Overture* screenshots.