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You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. Making the impossible... possible Form of digital art[This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed.Find sources: "Pixel art" news newspapers books scholar JSTOR (May 2025) (Learn how and when to remove this template)From a hardware point of view, both of these images are made of pixels as they are electronic images. But in the image on the left, the individual squares that make up the character are so large that they can be easily distinguished by the naked eye. The image on the left is therefore considered pixel art. The image on the right is a form of digital art drawn with graphical software where images are built using pixels as the only building block[2] It is widely associated with the low-resolution graphics seen on 8-bit and 16-bit era computers, arcade machines and video game consoles, in addition to other limited systems such as LED displays and grating calculators, which have a limited number of pixels and colors available.[3] The art form is still employed to this day by pixel artists and game studios, even though the technological limitations have since been surpassed.[3][4]Most works of pixel art are also restrictive both in file size and the number of colors used in their color palette for reasons such as software limitations, to achieve a certain aesthetic, or to reduce the perceived noise. Older forms of pixel art tend to employ smaller palettes, with some video games being made using just two colors (1-bit color depth). Because of these self-imposed restrictions, pixel art presents strong similarities with many traditional restrictive art forms such as mosaics, cross-stitch, and fuse beads.[2] There is no precise classification for pixel art, but an artwork is usually considered as such if deliberate thought was put into each individual pixel of the image. Standard digital artworks or low-resolution photographs are also composed of pixels, but they would only be considered pixel art if the individual pixels were placed with artistic intent, even if the pixels are clearly visible or prominent.The phrases "dot art" and "pixel pushing" are sometimes used as synonyms for pixel art, particularly by Japanese artists. The term spriting sometimes refers to the activity of making pixel art elements for video games specifically. The concept most likely originated from the word sprite, which is used in computer graphics to describe a two-dimensional bitmap that can be used as a building block in the construction of larger scenes.Pixel art is commonly differentiated from other digital imagery when the pixels used play an important individual role in the composition of the artwork, usually requiring deliberate control over the placement of each individual pixel. When purposefully editing in this way, changing the position of a few pixels can have a large effect on the image.A common characteristic in pixel art is the low overall color count in the image. Pixel art as a medium mimics a lot of traits found in older video game graphics, rendered by machines capable of only outputting a limited number of colors at once. As images get higher in resolution, pixels get harder to distinguish from each other, and the importance of their careful placement is diminished. The exact point at which this occurs and the conditions under which pixel art is considered as a distinct art form is still debated.Main article: Computer graphics historyTraditional cross-stitch embroidery consists of a forms, like counted cross embroidery (including cross-stitch) and some kinds of mosaic and beadwork, are very similar to pixel art and could be considered as non-digital counterparts or predecessors.[2] These art forms construct pictures out of small colored units similar to the pixels of modern digital computing.Some of the earliest examples of pixel art could be found in analog electronic advertising displays, such as the ones from New York City during the early 20th century, with simple monochromatic light bulb matrix displays extant circa 1937.[5] Pixel art as it is known today largely originates from the golden age of arcade video games, with games such as Space Invaders (1978) and Pac-Man (1980), and 8-bit consoles such as the Nintendo Entertainment System (1983) and Master System (1985).The term pixel art was first published in a journal letter by Adele Goldberg and Robert Flegal of Xerox Palo Alto Research Center in 1982.[6] The practice, however, goes back at least 11 years before that, for example in Richard Shoup's SuperPaint system in 1972, also at Xerox PARC.[7]Because of the severe restrictions of early graphics, the first instances of pixel art in video games were relatively abstract. The low resolution of computers and game consoles forced game designers to carefully design game assets by deliberate placement of individual pixels, to form recognizable symbols, characters, or items. Simple function-based avatars (or player-surrogates) such as spaceships, cars, or tanks required a minimum of animation and computing power, while enemies, terrain, and power-ups were often represented by symbols or simple designs.[8] Due to the limited hardware of the 1970s, abstraction, as in the case of Pong's relatively simple design, sometimes led to better game readability and commercial success than attempting more detailed representational art.Although computers had been used to create art since the 1960s and microcomputers were used in the late 1970s[9] and there are examples of digital art utilizing a more pixelated aesthetic,[10] there is no well-known tradition of pixel art from the 1970s that differentiated between the deliberate placement of pixels or the aestheticization of individual pixels in contrast to other forms of digital painting or digital art. For this reason, one could argue that pixel art was not a recognized medium or artform in the 1970s.Maniac Mansion (1987) on Commodore 64In what is sometimes referred to as the golden age of video games or golden age of arcade video games, the 1980s saw a period of innovation in video games, both as a new artform and a form of entertainment. During the early 1980s, video game creators were mainly programmers and not graphic designers. Technological innovation led to market pressure for more representational and "realistic" graphics in games.[8] As graphics improved, it became possible to replace hand-drawn game assets with imported pictures or 3D polygons, which contributed to pixel art developing as a separate art form.Gradually, professional artists and graphic designers had a bigger impact in the video game industry. Sierra Entertainment released Mystery House, pixelled by Roberta Williams, and the King's Quest series; and Lucasfilm Games released games such as Maniac Mansion, Zak McKracken and the Alien Mindbenders, and Indiana Jones and the Last Crusade: The Graphic Adventure. Mark J. Ferrar, an artist at Lucasfilm Games, later said:[11]When I was first hired by Lucasfilm Games in 1987 to do artwork for their computer games, pixel graphics was not thought of by anyone as an 'art form'. The use of pixels was not an aesthetic choice as it certainly is now. If anything, pixels were an unavoidable and very irksome obstacle to the creation of any 'real art' for use in the exciting but bewildering new realm of computer entertainment. There were no pixel artists then at all! There were only traditional artists.Laser Squad (1988) screenshot, ZX SpectrumNevertheless, the aesthetic of 1980s video games had a major impact on contemporary and future pixel art, both in video games, the demoscene graphics and among independent artists. As computers became more affordable in the 1980s, software such as DEGAS Elite (1986) for the Atari ST, Deluxe Paint (1985) and Deluxe Paint 2 (1986) for the Commodore Amiga, and Paint Magic for the Commodore 64, inspired many later pixel artists to create digital art by careful placement of pixels. In the case of the Commodore 64 and the Amstrad CPC, some early pixel artists used joysticks and keyboards to create pixel art, inspiring widely shared frustration and arguably contributing to a new paradigm that was different from the pixel art of the 1990s.[21] A major concern was the Commodore 64 and ZX Spectrum or 16-bit computers like the Atari ST began to publish their games for consoles. 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