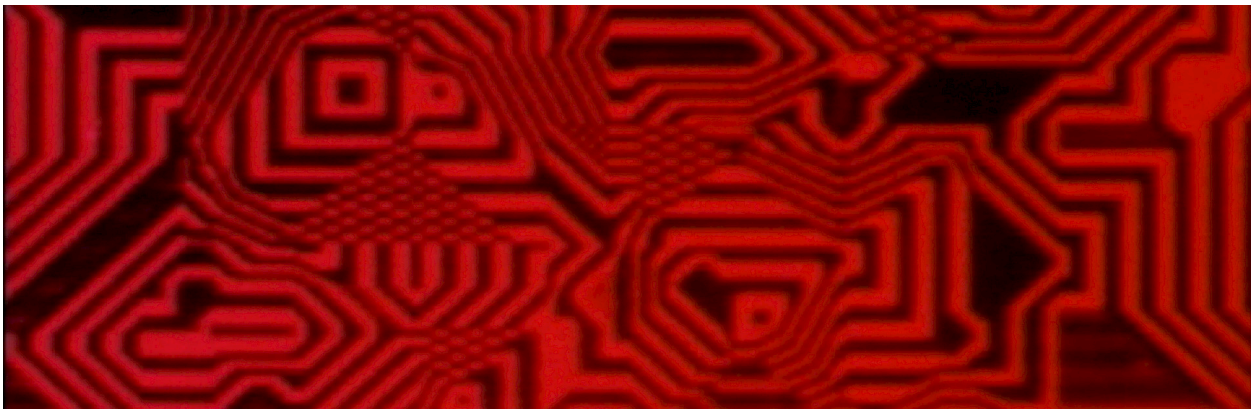
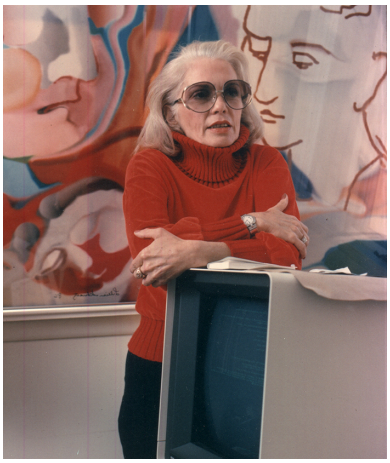


Lillian F. Schwartz



Born in 1927, Lillian F. Schwartz was a genuine pioneer of computer art. She was rethinking what art could be, not just engaging with technology. Having been trained in painting and traditional art, Schwartz brought an artist's eye to the digital world by blending innovation and cutting-edge technology in ways never before seen. Her career experienced a dramatic change in the late 1960s when she began working for Bell Labs, where she worked with scientists and engineers to design animation, video editing, and computer graphics. Digital art at that time was still in its infancy, yet Schwartz was years ahead of her time by probing the potential for machines to function as tools for artistic expression, not just for scientific computation.

The 1960s and 1970s witnessed accelerated technological advancement, and artists began using computers in new and different ways. Schwartz was influenced by the cybernetic art movement, which examined the interaction

between human creativity and machine-generated processes. Her work influenced the development of digital media, creating new possibilities for film, animation, and interactive art. She developed techniques of image manipulation such as digital overlays, pixel adjustments, and algorithmic adjustments, forming dense, active compositions that appeared futuristic but were visually attractive.

Aside from making digital art, Schwartz was interested in the ability of computers to study classical works. She used digital techniques to analyze paintings by Michelangelo and Leonardo da Vinci, including image processing and morphing algorithms to reveal hidden details and investigate the structure of important pieces like the Mona Lisa. Her research brought Renaissance art in a new light, demonstrating how technology had the ability to release centuries of artistic potential that had otherwise been lost. Schwartz's research demonstrated how computers could be possibly a whole new artistic medium, inspiring generations of digital artists to follow in her footsteps.

“Pixillation” (1970)

One of Lillian Schwartz's best works is Pixillation (1970), an experimental film that showcases her digital animation and manipulation of color approach. The artwork has a multicolored interaction of geometric shapes, flashing hues, and rhythmic movement. Pixillation was created using analog and digital processes, including video processing and computer graphics, that were innovative in those days. The painting is characterized by its abrupt changes of color, its layered compositions, and its almost hypnotic motion. Her exploration of technology was highly experimental, pushing the limits of what could be achieved with digital media in the early 1970s. Because computer systems had not yet been able to dynamically manipulate pixels, Schwartz had to work under heavy technological limitations. She programmed only a few lines of computer-generated black-and-white textures and blended them with color animation created by hand. The hybrid approach allowed her to toy with the visual eye by manipulating the alignment of the colors between the two mediums and sometimes slightly misaligning them. The result was an illusion of heightened saturation and depth, a method that prefigured many of the optical and digital effects used in later animation and design.

The film's surreal looks and employment of flashing lights and pulsing colors create a psychedelic effect, thereby making it an engaging sensory ride. The other most revolutionary aspect of Pixillation is that the film can be watched both in 2D and 3D via the use of chroma-depth glasses. The movie's audio, which has been created by Gershon Kingsley through a Moog synthesizer, suits its beautiful graphics, thus improving its rhythmic and hypnotic appeal. Thematic in style, Pixillation plays with the relationship between light, movement, and perception, pushing the boundaries of visual stimulus to create a virtual state of hypnosis in the viewer. She also explored digital imagery and fragmentation of form. What is fascinating here is how Schwartz operated within technical constraints—rather than being halted by the fact that computers were not yet capable of smooth manipulation of pixels, she operated within these constraints and combined hand-drawn animation with coded patterns to create a dramatically dynamic effect. This kind of problem-solving is what makes her work so innovative; she wasn't simply using the computer as a tool but as an active agent in the creative process. As a whole, Pixillation is a testament to Schwartz's vision as an artist and a pioneer. While it may seem abstract at first glance, the film is a masterful demonstration of how new technologies can open up new artistic possibilities.

“Lillian F. Schwartz.” *Lillian.com*, 2025, lillian.com/films.