Huang, Banyi. “Negotiating Gender, Labor, and Authorship:Thinking Machines: Art and Design in the Computer Age, 1959–1989,” *Brooklyn Rail,* February 7, 2018.

THE BROOKLYN RAIL
CRITICAL PERSPECTIVES ON ARTS, POLITICS, AND CULTURE

Negotiating Gender, Labor, and Authorship: Thinking Machines: Art and Design in the Computer Age, 1959–1989

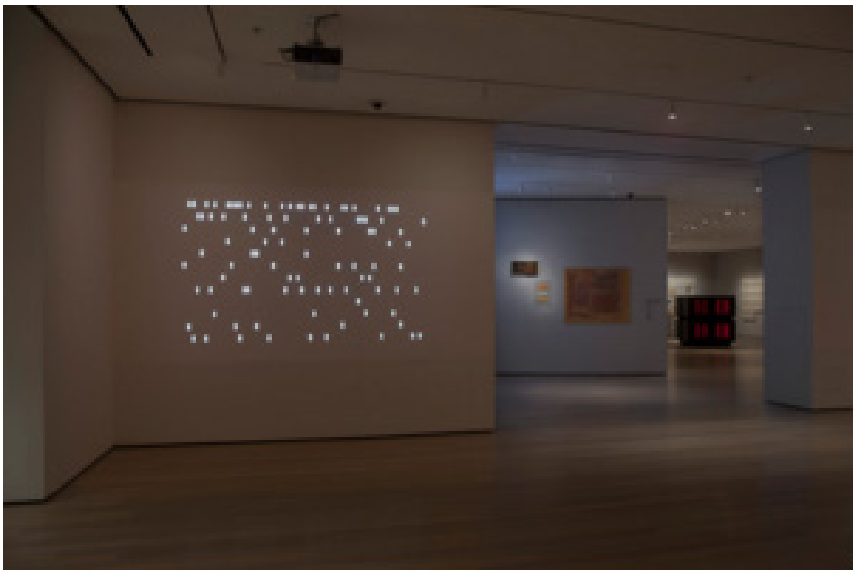
by Banyi Huang

Lee Friedlander. Boston, Massachusetts, 1985. Gelatin Silver print. The Museum of Modern Art, New York. E.T. Harmax Foundation. ©Lee Friedlander. Courtesy of Fraenkel Gallery, San Francisco.

In what ways have machines reconfigured or reconsolidated pre-existing social hierarchies, human relations, and cultural production? *Thinking Machines: Art and Design in the Computer Age, 1959–1989,* currently on view at the Museum of Modern Art, takes such pressing questions and presents them through a historical lens by bringing together a selection of artworks produced using computer programs and embodying machine-like thinking. The most thought-provoking takeaways lie in the exhibition’s critical conceptualization of gender, labor, and authorship at the forefront of technology.

Divided into historical segments, artworks are displayed alongside artifacts that epitomize stages of technological advancement: *IBM punch cards* (mid-1950s), *the Olivetti Programma 101* (1965), and Apple’s 1980s Macintosh series. While computers originated from nuclear-defense and were further developed by militaries, corporations, and hierarchical power structures, they were also adapted by artists and researchers in open and fluid ways. Thinking Machines highlights, for example, how computerized languages gave conceptual artists tools for overturning traditional notions of authorship and radically pushing chance operations in art making.

HPSCHD (1969), a collaboration between composers John Cage and Lejaren Hiller, culminated in a multi-media event featuring harpsichord solos, computer-generated tapes, and dazzling visuals. To produce the scores, Cage and Hiller sampled classical repertoires and fed them through a specialized program modeled on the I-Ching, an ancient Chinese divination text. On display are Cage’s handwritten scores along with a diagram that shows it was the program’s logic-flow that simulated chance.

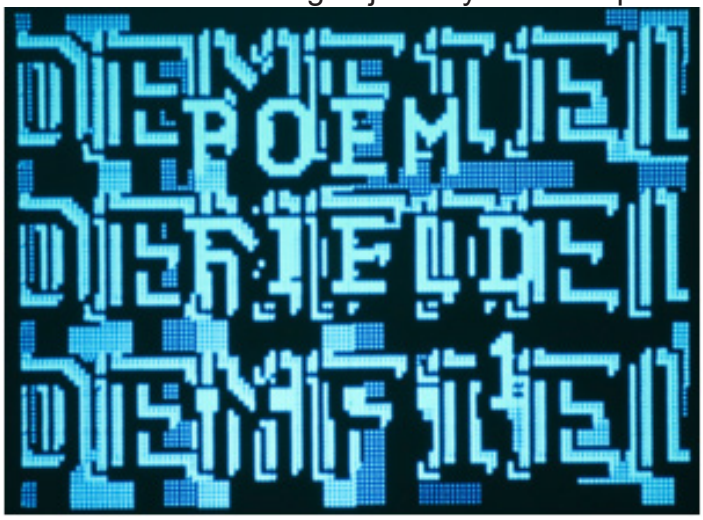


Installation view of Thinking Machines:Art and Design in the Computer Age, 1959–1989. The Museum of Modern Art, New York, November 13, 2017–April 8, 2018. ©2017 The Museum of Modern Art. Photo by Peter Butler.

Regardless of how orgiastic and immersive the final performance seemed, it was a controlled chaos. Just as Cage relied on the technical expertise of his collaborators and access to the ILLIAC supercomputer, Fluxus artist Alison Knowles worked with James Tenney to generate her poem *A House of Dust* (1967). Tenney, then a composer-in-residence at Bell Labs, used the programming language FORTRAN to generate seemingly arbitrary combinations of words. The poem, printed on flimsy graph paper, seems like a relic of a Duchampian moment in which radical improvisations were relegated to machines.The impersonal structure of the poem, however, undermines the intimate gender dynamics we often attribute to Tenney's collaborations with Carolee Schneemann.

In contrast to such an analytical presentation, Stan VanDerBeek's computer-animated films are characterized by psychedelic styles. They testify to a significant leap in the computer's emerging function as a media machine: it not only processed information, but also stored, edited, and displayed information as media. Such functionality, which began to emerge in the 1960s, offered a powerful means for artistic experimentation.

Personal computers did not hit the mass market until the 1980s, and some artists in the show did not have access to government or corporate-sponsored research facilities. Instead, they mimicked computational thinking by placing controlled restraints on the body. *Two iterations of A la Recherche de Paul Klee* (1970–71) by Hungarian-born artist Vera Molnár are hung adjacently: one is a plotter drawing, while the other was made entirely by hand. Based on a system that Molnár calls "machine imaginaire," the drawings were made following rigorous steps that aligned the artist's body with computerized inputs and outputs, in a way that anticipated the thorough coordination of the hand with digital screens in editing software like Photoshop. It is impossible not to mention the contributions of Lillian Schwartz, an important female computer artist embedded at Bell Labs from 1968 to 2002 despite lacking acknowledgement as an official employee until two decades after her arrival. She was only given a solo show (at Magenta Plains) in 2016. Her belated recognition from corporations and the art world reveals the gender bias deeply ingrained



Stan VanDerBeek, Peomfield No. 1, 1967. 16mm film transferred to video (color, silent), 4:45 minutes. Realized with Ken Knowlton. Courte -sy of Estate of Stan VanDerBeek and Andrea Rosen Gallery New York. Photo by Lance Brewer. © 2017 Estate of Stan VanDerBeek.

erroneously distinguishes design, craft, and modern art. Although VanDerBeek and Schwartz shared many stylistic traits—they both worked with programmer Ken Knowlton—the perception of their artistic labor earned them unequal recognition in art history. The former was active in avant-garde circles unhinged from corporate interests, blending genres of cinema, theater, and immersive environments; Schwartz created equally hybrid films, optical effects, and art-historical analyses, and yet she was enclosed within a computer lab where she served merely as a "computer graphics consultant."1 Schwartz's works are unexhibited, albeit acknowledged in a wall text, at MoMA's show.

The issue of gender at the intersection of computing and art-making is directly addressed by Beryl Korot's multi-media installation *Text and Commentary* (1976–77). Occupying the center of the gallery, the work features hanging tapestries, pictographic scores, and a five-channel video of the artist weaving. Korot recognized the buried connections between weaving, computing, and feminine labor. *The Jacquard Loom* (1801) based its weave on patterns automatically read from punch cards—it was the first computer prototype in human history. Similarly, Ada Lovelace, a figure both canonical and overlooked, was credited for writing the first computer algorithm for Charles Babbage's unrealized *Analytical Machine* (1830s). No less important is the role played by mid-twentieth century women programmers, whose jobs involved manually feeding information into ENIAC machines and debugging codes. Long before programming became a lucrative and desirable profession, these women's labor was deemed secondary and clerical. As one sits encased in the security of the hand-woven textiles, watching the artist's hands deftly operating the threads, it becomes apparent that to acknowledge the erasure of women from this history is to recognize the female body as the very first digital machine.

If Korot highlights the invisibility of female labor, Lee Friedlander's social-documentary series *At Work* (1985–1986) demonstrates how the computer's so-called democratization (brought by its commercial availability and software technologies) isolates subjects from the products of their labor. Commissioned by MIT, he photographed technicians working at their desktop monitors. By zooming in on the workers' blank stares—directed at screens not visible to the audience—Friedlander captures the changing social landscape defined by alienation and bored inebriation.

Thinking Machines broaches serious issues related to the history of computing and its influence on art production: long before computers became household products, artists were already negotiating problems of gender, labor, and modes of collaboration brought on by information and communication technologies. Increasingly, we perceive through machines, think programmatically like machines, and expand our horizons by reflecting on social hierarchies and limitations through them. In a way, these artists demonstrate that Donna Haraway's cyborg,2 while born out of science fiction, was always and already deeply embedded in social reality—whether visible through Korot's loom, Molnár's "machine imaginaire," or bored office workers. Yet, while the show illustrates how machines have automatized, obfuscated, or transfigured labor, it nevertheless continues the subordination of women's labor under a computer's generalized capacity for creativity. As gender and racial inequalities become especially pronounced in the age of AI and machine learning—when algorithms pick up the cultural-linguistic biases fed to them by humans—the renegotiation of women's place within this short yet complex history is a daunting yet necessary task.