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Reflection 02: Frieder Nake

Frieder Nake, born in Stuttgart, Germany, is often referred to as one of the founding fathers of computer art. Studying as a mathematician and computer scientist, he began his artistic work in the 1960s. After his first encounter with a computer in 1959 during his internship with IBM, he worked on developing the graphics software for the University of Stuttgart's first drawing automata. In 1965, he exhibited his own computer art for the first time. As he explains, his works were based on "the mathematical concept of "information" as in the theory of Claude E. Shannon and others."[1] However, due to conflicting political beliefs, mainly that computer art could not be divorced from capitalism while he himself was anti-capitalist, he halted work in 1971 during which he returned to teaching as a professor in British Columbia, briefly, and in the University of Bremen. The 1980s marked his unexpected return to computer art, with 1999 marking the start of his project *CompArt: a space for computer art,* which also saw his return to writing and practice as a creative theorist. His creative pieces manifest mainly as prints, which were created using his self-written computer program which would control the Zuse Graphomat, a grid-based drawing machine. The resulting works are abstract, yet obviously mathematical in their compositions, the figures on the pages consisting of perfect squares, lines and other such simple shapes, many of which express bright colors. Nake is often remembered to have said

[1] "Frieder Nake | Database of Digital Art."

about his drawings that “The drawings were not very exciting. But the ‘principle’ was!,”[2] expressing an interest in the ‘back end,’of the production of his works, meaning the processes and code utilized and developed in order to create, rather than the final product. Nake taught at the University of Bremen until 2024, when he retired after teaching 103 semesters at the university.

After a viewing of Nake’s work, one series of images stood out to me for its particularly bright, appealing color scheme and captivating patterns. The artwork is called Matrizenmultiplikation Serie 29 or, in english, Matrix Multiplication #29. It is indicated that the work was created in 1967, therefore is one of Nake’s earlier pieces, and its medium is described as a ZUSE Graphomat Z64 plotter drawing on paper.[3] Typical of Nake’s work, it was created by inputting mathematical algorithms into the Graphomat, which is then processed into a code which directs the drawing machine. As the artist himself describes “In order to create the picture, some of the matrix powers are selected. So that the matrices selected for the picture are no longer number schemes but become visible picture components, the numbers matrix must be translated into colours. In concrete terms, colours are assigned to intervals of numbers. This is done as follows. If, for example, six colours are to be used, the number interval from 0 to 1 is divided into six intervals.[4]” The result is four square compositions on the page, with each composed of a series of pixel-like components, each a spot of ink making up a square or half-circle. The last square in the series is my personal favorite, as the colors are most varied, and each seems to flow from a separate corner, creating a vibrant array at its center. It is interesting to think about how

[2] “Frieder Nake | the Anne + Michael Spalter Digital Art Collection,” n.d. https://spalterdigital.com/artists/frieder-nake/.
[3] “Frieder Nake | the Anne + Michael Spalter Digital Art Collection,” n.d. https://spalterdigital.com/artists/frieder-nake/.
[4] “Frieder Nake | the Anne + Michael Spalter Digital Art Collection,” n.d. https://spalterdigital.com/artists/frieder-nake/.

this early form of computer art is similar to more modern forms. Especially when drawing with code, we can imagine the crossovers being made from Nake's work to, for example, a modern JavaScript project which also utilizes systematic uses of code in order to draw a piece to a digital page. However, in Nake's piece one aspect that intrigues me is that the drawing machine creates the software based artwork on an analog medium, printing the final product with paper and ink. The result, while mathematically perfect, is subjected to the imperfection of ink bleeding and the slight discolorations on the paper, softening the final piece.

Bibliography

"Frieder Nake | Database of Digital Art," n.d. http://dada.compart-bremen.de/item/agent/68.

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