Plotting the Course

When I created my first plotter drawing in 2015, it was a personal revelation. Fifteen years earlier, when I had just started translating my code systems into drawings on paper, I didn't even know what a plotter was. In 2006, I saw my first historical plotter drawings at the Sonic Acts: The Anthology of Computer Art exhibition in Amsterdam and I was shocked by the material quality of the drawings. The wide range of papers and colors felt nothing like the generative drawings I had seen before. At that moment, I felt the constraints of relying on the limited papers prepared for printing and the pigments required for contemporary printers. Compared to the deep world of inks, paints, and the huge variety of papers that can be used with plotters, most printers require inks and papers that are only available in a very narrow range.

A plotter drawing is a physical drawing created with a mechanical drawing machine. Plotters were created by industry to automate precise technical drawings, but were soon co-opted by artists in order to explore new ways of creating drawings. They range from a two-ton ZUSE Graphomat Z64 from the 1960s to a four-feet tall HP 7580 from the 1980s to an AxiDraw from the 2000s, which is compact enough to fit nicely on a small table. Before high-resolution printers and computers with screens, plotters were the primary way that code became drawings.

When the endeavor of creating drawings with plotters began over 50 years ago, computers were incredibly different from today. Artists would start coding by making diagrams on paper, then they would encode their instructions onto physical cards that would be inserted into a room-sized computing machine. Today, we get immediate visual feedback by typing directly into a text editor and seeing the result on screen as we work. Back then, the first time the artist saw the result of their code, their drawing, was after it had been plotted by a large, mechanical drawing machine.

In 1965, the first plotter drawings were shown in exhibitions at the Howard Wise Gallery in New York and Galerie Wendelin Niedlich in Stuttgart. These exhibitions had little international impact at the time, but new artists continued to discover and use plotters for their work throughout the 1970s and 1980s, until new kinds of printers took over. Artists working with plotters never went away, and in recent years there's been a renewed interest in the practice.

In the years that followed my own introduction to plotters, I was fortunate to meet some of the pioneer artists working with code and plotters while we shared walls in group exhibitions. It was through meeting artists like Manfred Mohr, Frieder Nake, Jean-Pierre Hébert, Mark Wilson, and Colette Bangert, and spending time with their drawings, that I learned the craft. I was in Roman Verostko's studio in Minneapolis in 2015 when I discovered more about the material possibilities of working with plotters. Rather than working with colors "out of the bottle," Roman mixes his own colors to create his vibrant work.

{Image}
Bottles of ink in Roman Verostko's studio in Minneapolis in 2015. Photo by Casey Reas.

When I made my first plotter drawings, I can say without exaggeration that it completely transformed my understanding of the history of computer-generated drawings. Before, I had vaguely understood how they were created, but now I felt their production in detail. This method of creation is fundamentally different from anything that I had done. Each drawing is truly unique and is often the result of careful physical adjustments and extreme patience. In contrast to a software "undo," twelve hours of work with a plotter can be destroyed by a pen leak or errant line. In my personal experience, this often happens!

Unlike at the origins of artists working with plotters, using a plotter to create images from code today is one decision to make among many others. Making plotter drawings is difficult and wonderful, and the artists in –GRAPH are passionate about this medium. These artists all share the love of working with visual systems and writing code, and with transforming how the code is rendered through drawing machines. Each of the six artists in –GRAPH have created one software artwork that creates 30 unique physical drawings. Each drawing in this exhibition is a 1/1 artwork, meaning only one will ever be created. Along with each of these unique drawings, there are millions of other compositions that are embedded in the software that can be viewed through an interface created by each artist.

— Casey Reas, November 2021

Umwelt

Julien Gachadoat's "Umwelt" relies on the combination of a subdivision algorithm and a curved-line-drawing algorithm to produce a set of minimalist compositions. Each image in the series is the result of partitioning a square into a series of smaller areas and then filling those areas with a dense group of curved lines. The spacing of these lines, their orientation, and their precise curvature are defined by harmonic functions that create rhythms within a spatial geometric melody.

"Umwelt" is a software NFT, but the first collector of each edition will receive the corresponding plotter drawing shipped directly from the artist's studio. Each software NFT includes millions of other images beyond the primary image for each edition. Each artist in –GRAPH has added an interface to explore the other possibilities generated through different random seed values. The software NFT and the plotter drawing aren't linked together; the NFT can continue to be collected on a secondary market without the drawing.

The image you see on the main artwork page on Feral File is the plotter drawing for the artist-proof (AP). Compare this image of the drawing to the corresponding software version of the AP to see how the software image and the plotted drawing are related. Because the artists are using a range of papers and inks, the software and physical drawings are delightfully different.

The "Umwelt" drawings are 42 × 29.7 cm (16.5 × 11.7 inches) on Fedrigoni Sirio White 700 gsm or Fedrigoni Sirio Ultra Black 680 gsm paper. They are drawn with Rotring Isograph Black 0.2 to 0.6 mm or Uni-Ball Signo White pens.

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