

## Digitization &amp; AI

ARTIFICIAL INTELLIGENCE (AI)

## Mario Klingeman



Mario Klingemann, programmer and AI artist PHOTO: PRISCILLA GRUBO



by Steffen Stierle

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**Botto** is gender-neutral, has no face and little else that is human. What Botto can do better than most people: create works of art that appeal to many, are perceived as aesthetic and can be sold. **Mario Klingemann** programmed the artificial intelligence and therefore believes that he is the artist himself and not the AI. An exhibition of Botto's best works opens in London today. A **creative phase** comes to an end and a new one can begin.

So far, the AI generates 350 "paintings" per week. A **community of around 5,000 members** votes on which are the best. These can then be bid for on the **NFT cryptocurrency market**. More than 50 digital works of art have already gone over the virtual shop counter. In order for this to work, Klingemann programmed the algorithm **to create art that people like**. In order for Botto to keep getting better, the feedback from his followers is fed back into the system. In this way Botto gets a direction for his further development. He learns, for example, which color combinations or shapes are perceived as aesthetic.

**Aesthetics instead of noise**

"The **training** model contains not only art, but all kinds of images,"

explains Klingemann. It uses a large part of the internet. "The model is designed to have a high probability of producing what looks like an image, **not noise** ." The model limits the **endless possibilities of output** to always produce something that contains elements we are familiar with are, such as faces or objects.

**Klingemann was fascinated** by computers and programming from an early age . For him, this is "more natural than working with a brush," he says. The technical development constantly expanded his range of **possibilities** . First the internet, then computers got faster, and later there were ways to set images in motion. Klingemann was in advertising, programming websites and producing **trailers for early-night** television series. Around 2015, when **machine learning** , and later **deep learning** , emerged and became affordable to work with, he became enthusiastic about building systems that would take on a life of their own. "I'm curious and I like to be surprised."

For him, Botto is a logical continuation of his work over the past few years: "I write code to create images that I like and that I think others will like," he explains. "The question then was to what extent I could leave it up to the machine to decide what I **liked** ." **The process should be automated more and more in order to end up with an "art production machine"** that remains interesting. That's why Botto has to develop artistically, as a closed system he would quickly become boring. "The algorithm has to be developed and **new data is needed** so that the space of possibilities increases."

### **Does art have to be made by people?**

But is this really art? For Klingemann, the answer is of course yes - although he sees his AI more as an experiment to see whether an "**artificial artist**" can survive on the art market. "Actually, we don't just want an aesthetic image that appeals to us. To see it as art, we also want to see the artist behind it," he says. In practice, however, it rarely happens that we meet him face to face. "We have **second-hand information** and we develop an image of the artist ourselves. In this respect, **every artist is a kind of story** that is spun around him. The question is, 'can this also be done with an AI?'"

The answer is still open. Although Botto's works are in demand, Klingemann also knows: "At the moment, the AI is benefiting from the fact that it is doing things that **we would not have** thought it capable of . In the next step, she has to produce something that she plays with on the same level as a human artist." The **surprise** effect is not enough in the long run. The art needs to be admired, not the fact that it was made by an AI.

A new model – the text-to-image model **Stable Diffusion** – is intended to help the AI on this path, which, according to Klingemann, significantly expands its range of possibilities. In this respect, with

the exhibition that begins today, a phase ends in order to allow a new one to begin. Botto has been working with his current model for a year. But during this time, the technical possibilities have developed further, says Klingemann. "Botto's aesthetics almost seem **a bit old-fashioned again**." That's why the AI gets new possibilities.

Klingemann does not yet know what she will make of it: "I cannot say what the art will look like in the coming months. I'm very excited to see what Botto will do with the new model and how the **voting will behave** developed by the community."

### 1) What innovation do you want?

The brain-computer interface. Even though the consequences of such a technology will be unpredictable and probably highly dangerous, I am very curious as to what it would feel like to experience art directly in the head without having to take a detour via our sense organs.

### 2) Who from the digital scene impressed you?

Herbert W. Franke, who unfortunately recently passed away, even if he probably didn't see himself as a member of the "digital scene". Franke was at least 50 years ahead of us with his visionary ideas regarding digital art and has strongly influenced my thinking in this area.

### 3) As digital minister, I would...

... make the Chaos Computer Club a permanent part of my team, so that my decisions are not influenced by the wishful thinking of various interest groups, but by the hard realities of the digital world.

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