

Wolf Lieser in Conversation with Marcel Schwittlick

On Computer Art, Digital Media, and Artistic Processes

This conversation took place in the context of [PAIN && PLEASURE](#) a solo exhibition of Marcel Schwittlick at DAM Projects Berlin in 2025.

Wolf Lieser: Welcome everyone! Thank you, Marcel, for taking the time to be here and give us an introduction. When we think about an artist—and this is something I often talk about—what makes a truly significant artist or someone who can establish themselves, I always speak about vision. One needs to develop their own position, but also have something they truly want to communicate. If we look at the traditional image of artists, in the very traditional sense—the painter who wants to represent something or communicate something, who takes a subject like a landscape or a person and paints it in their style—they are directly bound to the object. As I've learned in conversations with Marcel, your approach is completely different. I would be pleased if today we could share a bit about your methods and give people access to how these works were created. You were trained as a programmer?

Marcel Schwittlick: Computer scientist, exactly.

Wolf Lieser: Computer scientist, that's already a good foundation in this field. Not everyone has this background—many just learn a bit of Processing, which is a programming language they teach themselves to work with. But your background is a really solid foundation. I know that when we met, you had already engaged deeply with the pioneers of digital art, read a lot of literature, and developed a strong awareness of the evolution in this field. After your computer science education, you attended the UdK [Berlin University of the Arts], where you became an artist. The decision to become an artist probably came earlier, right? When did that happen? You were first a computer scientist—did you already want to go in the direction of art then, or was it initially the idea to build a good foundation by learning something practical, and then later...? When did this shift happen?

Marcel Schwittlick: I don't know if I ever really shifted. I wonder if it's a bit ambiguous for every artist when exactly one calls oneself an artist? For me, it was simply that as a teenager I engaged with computers and the internet. I unconsciously followed my instincts and discovered what computers were and what could be done with them. I started freelancing quite early, making websites for medical practices—just very simple websites, because I wanted to do something. I can only describe it this way in retrospect. Then it progressed naturally, and I eventually discovered that artists were working with computers and what possibilities existed. It became quite clear to me after learning about many pioneers, environments like Processing, and other artists working with them: so much is possible with computers. That's where the vision started to form about what could be done. When I was about 20, I had to decide whether to study computer science or art. It was still very clear to me that I should choose computer science because I already knew what kind of art I wanted to make.

Marcel Schwittlick: It was simply: I know what I want to do, now I need to learn how. So it was about learning programming, computer science, understanding how digital media function. I wanted to get as close to that as possible. In comparison, I knew that in art academies or universities, the engagement with technology would be rather superficial.

Wolf Lieser: Superficial with technology?

Marcel Schwittlick: Yes, I wanted to work with digital media in detail. I didn't want to make videos about technology. I wanted to understand technology, not work on the surface but really from the conceptual level.

Wolf Lieser: You know all the pioneers, and you've already met some of them here. If we look at the beginnings of computer art in the 60s and 70s, almost without exception, these were people who programmed. They had to learn programming, or they found someone to work with them—as some artists did, who had someone write the program based on their concept. But this programming approach, this concept as the foundation of art—these were really the beginnings, which is not at all a requirement nowadays. But we won't delve into that because it's a separate topic, today is about you. Looking at the early pioneers, certain systems were defined. For instance, some squares that should stand in certain dimensions, that should overlap. There were certain variables in the representation. That was all part of the program. And so certain drawings emerged, to put it very simply. Of course, this became more complex over time. But that's not your approach, as I learned yesterday; you work completely differently. That's why our topic today is the process. How do you work when, for example—let's take those two drawings back there, which have to do with cursor movements. But the final image doesn't exist as a goal for you. Can you tell us a bit about how this comes about, what fascinates you about it, and why you choose this path?

Marcel Schwittlick: We talked about this briefly yesterday in our preliminary conversation. What's ultimately important to me: I care less about the resulting image. I don't have a target vision that I want to create a red and yellow image, that the image should come out exactly like that. For me, it's more about the process that I as an artist develop. I give a bit of free rein at different levels and work with targeted randomness. My aim is to develop an aesthetic system, and the images are then examples of that system. From the individual images, one can trace back the system, reverse-engineer it, to find the beauty in the overarching idea. With the cursor lines, there are additional complexities.

Wolf Lieser: Yes, tell us about that.

Marcel Schwittlick: For 10-15 years, I've been recording everything I do with the mouse on the computer. All movements are passively recorded.

Wolf Lieser: As a cursor, you would say?

Marcel Schwittlick: Yes, simply recorded. These are coordinates, lines that consist of discrete points. Everything I do on the computer between two clicks—if I click here and then click there, the movement that happens in between—is a line for me and is saved as a series of coordinates, not as an image but as a dataset.

Wolf Lieser: That's what I meant, exactly. The dataset is saved.

Marcel Schwittlick: There's a development in it, basically a timeline. The timestamps are also included, so I have a millisecond-precise point for each location. This allows me to reconstruct the movement. You do things faster, slower, or sometimes you might leave for half an hour without clicking—that's also part of the line, simply a very long pause. I decided to work with this data. It was a kind of reaction to those pioneers you mentioned, who worked with rudimentary systems. Back then, they were plotter drawings because there were no screens—that was the output medium, resulting from the necessities of the time. Looking back, I see myself somewhat continuing the work of these pioneers, building on it and transforming it into today's world to reflect contemporary conditions. These mouse lines have, over many years, become millions and millions of lines that represent a random entropy for me. I wanted to create a human randomness that I could use as a tool, and so I built my own corpus. I find these reduced lines fascinating—you never make the same

line twice over the years. It's like a fingerprint; every single movement on the screen is unique. I've been engaged for a long time in how to reflect or play with the beauty and information contained within. The work back there is "Composition Number 99." It's a series of perhaps 60, 70, 80, 90 individual pieces. I simply counted up. Composition 1 began when I started with mouse lines, and it became a series. Next to it is, for example, "Composition 82," which is the pink work that you can't fully see right now.

Wolf Lieser: Ah yes, that's the pink one.

Marcel Schwittlick: Pink is Composition Number 82. This one here is Composition Number 86, and so on. Each composition number represents a specific series.

Wolf Lieser: And if a layperson looks at it, can they see these cursor lines?

Marcel Schwittlick: Yes, in this work here you can see these middle, darker lines. The darkest of them is the cursor line. It's just a small hook. That's a line we once drew at the bottom. In this series, it's about drawing many parallels beneath. The technique—these are luminograms. It's a positive, a photograph—drawn directly with a laser in the darkroom onto photographic paper in darkness and then developed.

Wolf Lieser: So the machine drew it for you.

Marcel Schwittlick: Yes, exactly.

Wolf Lieser: To put it in perspective: The early artists—what you've developed with the cursor lines is actually a completely personal system of randomness that you can then use. Can we say it like that?

Marcel Schwittlick: Yes. What the early artists did—they worked with random numbers. That means they worked with incredibly long chains of numbers, which gave them the ability to introduce variables into a system. What we described earlier—that they often worked with squares that related to each other in certain ways, and the variables came from the random numbers. I've now replaced that with my own system. I have a reservoir of an immense amount of randomness. There's also a quality to randomness, not just a quantity, but also a texture of randomness, if you will. Within many images of the pioneers and also in much of today's digital art where randomness is used, you see normal distributions. There are different distribution possibilities for randomness, and a normal distribution is the standard randomness. That means there's a regularity that expresses itself in the randomness. I also worked a lot with normal distribution randomness, but I wasn't satisfied with it because it didn't give me anything—it was so predictable, even though it was random. I saw no meaning in it, although in the context of the pioneers it was absolutely groundbreaking. Nowadays, a normal distribution randomness is nothing special anymore. I noticed that I used it when I was too lazy to make decisions. When I didn't know what to do in the process, I thought, "Well, let's add some randomness!" But I felt no connection to it and didn't feel I was progressing in my work when I avoided decisions everywhere through randomness. I was looking for something that would surprise me. One could create highly complex randomness through chains of different mathematical formulas, but for me that would just be an attempt to hide randomness—to make a normal distribution more complex. I wanted to find something that would truly surprise me. That's where human movement came in, bringing entropy into the world. These long pauses, for example, are a kind of random event within a line that is really radical and creates a high degree of entropy. At the beginning, it was an experiment. With "Composition Number 1," I was just exploring: What is this? It didn't lead to much initially. It was a long process to get a feeling for what this data means and how to shape it. For the green drawing here, you can imagine it one-to-one as a computer screen, and the lines are simply the recorded lines. The subtitle is "One Day of Honest Work." This was created when I was working as a programmer—I simply recorded all mouse lines for a whole day, an honest

day's work. Depending on what you do on the computer, these lines look different. I rarely presented the lines this directly. In many other series, like the Millipedes, I "recycled" the lines. From the millions of lines, I take parts that have specific characteristics—short lines, chaotic lines, depending on what I need. I classify the lines according to their properties and then select random lines to feed the algorithm for the composition. Through many examples, the concept, the idea becomes visible. That's why with these works it's always good to have two works side by side, to have a reference point.

Wolf Lieser: There are now 99 series, different concepts that you've pursued. Some you've realized, others you've started but weren't enthusiastic about. Would you give us insight into your criteria for which series you realize, what excited you, and what didn't?

Marcel Schwittlick: Although I work very scientifically and controlled as a software developer, I'm actually quite poor at mathematics. It's partly a chaotic process—I follow the motivation of whatever promises the most at that moment. Often I work on ten projects simultaneously and push everything forward a bit. As for hard criteria—perhaps I'm still afraid to commit to a fixed process. Some series I've forgotten to pursue further, with others life got in the way.

Wolf Lieser: Back to the foundation of your working method with the process. This work behind you on the screen is a good example, because it's clearly evident that it's not about achieving a specific result. What was your intention with this work?

Marcel Schwittlick: Just as an introduction: This is an e-paper, an electronic ink display. It's the largest panel you can buy, which I imported directly from China. As a technology, these are small particles floating in a liquid. They have a black side and a white side, and depending on how these particles are rotated, the image is formed. What's special about it is that you can remove the power from the display and it still stays on, because the particles remain fixed. It's not light like in a normal screen. If you turn off the light here, it has no glow of its own. This is often used for e-book readers; it's better for the eyes. I've been looking for ways to work with this technology for 4-5 years. You can't simply display a whole image on this device like in a video. It takes about 3 seconds to update a rectangle—that's technically the maximum speed of the device. I had it lying in a drawer for 3 years to find out if it burns in or how it behaves. What you see here: This is a computer with real-time software that displays different constellations of flamingo outlines that are no longer traceable. This is a different series that has nothing to do with mouse lines, but rather with another dataset. In 2003 at Caltech in California, three scientists created a dataset of 9,000 images that were used to train early AI systems. It was very rudimentary back then—today these datasets contain millions of images. I wanted to go to the roots, where the AI topic began and where the first datasets were formed. Something very special was done back then: For these 9,000 images, the three scientists outlined animals, such as a rooster, with the mouse—in very painstaking work. I found that interesting because I also work a lot with the mouse. From an information theory and technical perspective, this is a huge difference: You give the computer very specific information by showing exactly where the animal is within an image, not just saying that there's an animal somewhere in the image. After this project, they abandoned this approach, and the technology developed in a different direction. This old dataset was established for computer scientists to have a kind of common standard and to test algorithms.

Wolf Lieser: What attracted you to use these relatively simple drawings? There are at least two bodies of work to be seen that deal with this theme.

Marcel Schwittlick: For me, it's a kind of applied research or archaeology. At that point, humans showed the computer for the first time exactly what our world looks like. That was really the origin,

and I found it to be a poetic gesture in retrospect. I emphasize this because I think it's important. The contours are very rough and have something archaic about them.

Wolf Lieser: Almost like cave drawings, does that fit?

Marcel Schwittlick: Absolutely, yes. As far as digital development goes, definitely. These were the digital cave drawings. With the flamingos, for example—these are digital images, photos in super small resolution from 20 years ago. One image is simply a flamingo baby, a small fluffy blob. I've never seen a flamingo baby; it doesn't have normal feathers but a thick fluff. The scientists had the task: Where is the animal and where does the animal end? Where does the background begin? With a line. They tried as best they could, and I found that fascinating. Sometimes the images in this dataset weren't even photos but a comic of a bee, for example. But this was really the beginning. I researched extensively—this was the first dataset where these outlines were very important. It provides so much more information than just a collection of images.

Wolf Lieser: Now we've already discussed the various thematic complexes here in the exhibition. The only thing left are these two or three works. How did they come about? They seem to have nothing to do with cursors.

Marcel Schwittlick: No. They have the title "Upward Spiral." I worked almost exclusively on these for about two years. These are self-built machines, with support from Jan Bernstein, who helped me with them. The result is cylinders, for me symmetrical spirals. The process consists of very tight spirals. The drawing process takes about ten hours for one work. I did a lot of this during the COVID period, which structured my day. When a drawing was finished, my day was over and I could go home.

Wolf Lieser: With these works, another aspect of your working method comes into play: your love for how you work with plotters and the various materials you use. You don't stick to the normal ink pen, but this here is a kind of wax marker or similar.

Marcel Schwittlick: This is an industrial wax pen, more intended for road markings. The properties are excellent—it works from minus 40 to plus 60 degrees Celsius, on rusty metal, on wet rubber, on oily steel. Before I started working with plotters, I worked digitally or with sculptures, painting, always very reduced—perhaps inspired by the old pioneers or because I'm focused on structure. Drawing machines then made the most sense to get works out of the computer. For me, it didn't make sense to print things out, to produce pixel graphics from vectors. I built a large machine and specialized in old plotters from the 70s and 80s, which are wonderful machines. Back then, engineering was on a completely different level than today. I started collecting these machines and using them as they were used 40-50 years ago. You can simply connect them to computers, and as a trained computer scientist, it's simple to work with the old machines. You don't need drivers; you do everything yourself. By now I have about 50-60 plotters in different sizes. With each series, I'm also concerned with materiality. On one side is the digital, algorithmic process with many random elements. In the second step comes a material level, which is important for the aesthetic, final product. This here, for example, is also photography—a direct positive, developed in the darkroom, not a copy. A light source is placed over it, exposed and developed. The others are made with thick wax pens. It gives me great pleasure to tease out the special qualities from different media. With the spiral in the hallway, made with a ballpoint pen, there are many extremely close lines. These old machines give me control over the pressure and speed, allowing me to find exactly the "sweet spot" where the material works well. Felt-tip pens require different speeds than pencils or wax. The animals here are made with original 80s pens—water-based inks in small cartridges that were produced back then and can be installed in the plotters. I made many car trips through Germany to pick up plotters, and also got old pens—sometimes a handful of dried-out ones, sometimes

functioning ones. With felt-tip pens, they run out, especially when they're 40 years old. The process with the animal drawings is that they were drawn from the outside in, always in a circle. You can see it best with the hair—it starts on the outside and goes inward, and as the drawing progresses, the pen runs out, creating this gradient. As someone who has been drawing with machines for many years, I find this absolutely fascinating. Filling areas with lines can be done in many different ways, but such gradients, especially with the hair, I've never seen anywhere else.

Wolf Lieser: Thank you very much for the introduction.