


Ähnlichkeit ist ein elementares Phänomen, das sich als Übereinstimmung von Objekten auf Basis gemeinsamer Merkmale manifestiert. Aufgrund ihrer Vielschichtigkeit ist das Denksystem der Ähnlichkeit eingebettet in ein komplexes Wechselspiel kulturell geprägter und individueller Wahrnehmungen, das immer wieder rekontextualisiert werden muss. Dieses Heft verbindet naturwissenschaftliche, geisteswissenschaftliche und künstlerische Perspektiven und zeigt, wie Ähnlichkeit algorithmisch operationalisiert wird und Ähnlichkeitsstiftende Muster im digitalen Bild produktiv werden.

Ähnlichkeit

Reihe
Begriffe des
digitalen Bildes



Ähnlichkeit



Herausgegeben von
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Fig.1. Computer-generated Imagery (CGI) rendering of the Infinite Loop ring, featured on a poster for the exhibition at the Staatliche Antikensammlungen in Munich



Infinite Loop. Disruption and Similarity in the Act of Design with Machine Learning

Jon Emmony is a London-based digital artist and creative director. From 2011 to 2016, he served as the digital art director at Nick Knight's SHOWstudio, a period that was instrumental in expanding his approach to digital imagery. Emmony's post-SHOWstudio career includes collaborations with renowned clients such as Selfridges, the Victoria and Albert Museum (V&A), the band The 1975, Nike, and fashion designer Iris van Herpen.

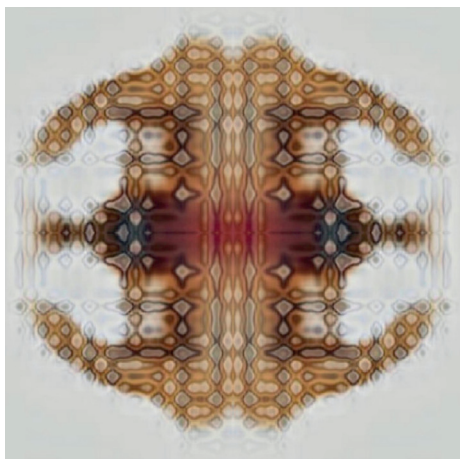
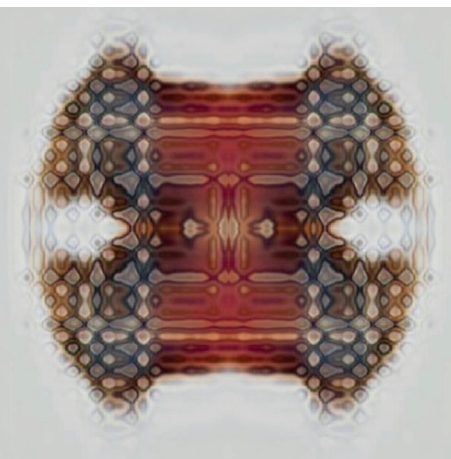
Silvia Weidenbach is an award-winning jeweler who blends the traditional with the contemporary: she uses both historical techniques and new technologies, combining them to create striking pieces of art. Weidenbach was the first Gilbert Collection Artist-in-Residence at the V&A, where her work is part of its permanent collection. She is a lecturer at the Glasgow School of Art and the London College of Fashion.

Jon Emmony: Silvia, when did you first become aware of Artificial Intelligence (AI)?

Silvia Weidenbach: It was 2019 in China at a conference.¹ It was mind-blowing. I thought, oh my God, in which direction can this go, what is possible, and what kind of tool can this allow for artists, for designers. I wondered: what could this mean for jewelry?

1 5th Art and Science International Exhibition and Symposium, TASIES 2019, Academy of Arts & Design, Tsinghua University, China, November 2-30, 2019.

Fig.2. Process images of the AI 'dreaming' new forms from its understanding of historical rings



JE: I've also been aware of AI in the context of digital images for a while. I am often researching new techniques and processes, and I remember finding this new, exciting visual language that was formed—images generated from 'the in-between,' or the 'latent space.' So, you'd feed an AI ten images of rings and it would present you with images of new, imagined rings, as if pulled from a dream (Fig. 2). The AI identifies common features and patterns in the original images and then synthesizes these elements to create something familiar yet new. It's like a reflection on the nature of similarity, fusing the common features of the originals into unique yet recognizably related outputs.

ChatGPT, there are moments where AI can feel truly creative, or soulful. Can you speak a little from your perspective about how you see your role as a creative collaborator?

ChatGPT: Creativity, as typically understood, involves the ability to generate unique and valuable ideas, often drawing upon personal experiences, emotions, and a deeper understanding of complex concepts. While I can assist in the creative process by providing information, prompts, and alternative perspectives, the creative aspect of any work produced using my assistance is ultimately a reflection of the user's creativity, not my own. I can be seen as a tool to assist in idea exploration.²

SW: An exciting tool! I see the creative process as a ping-pong game between tools, between worlds and ideas.

JE: I think it's worth mentioning our project with the V&A as an introduction to how we met.³ At the time, we were both looking at how we could use techniques like 3D scanning to see historical objects in a new way. And I think for me, it's always been interesting to look through the eyes of technology to see; see the glitches, see the mistakes, see how it can understand the world around it.

SW: For me, it was the excitement, the endless possibilities. Coming from a traditional making context with limitations, real-world limitations of material properties and so on, you now have the opportunity to work with these unlimited facets of design. You can give objects a heartbeat and a life.

ChatGPT, can you speak to how AI can reimagine physical design, away from the constructs and limitations of the physical?

² ChatGPT output was curated from multiple sessions to make sense.

³ Visual Feast, V&A South Kensington, UK, July 9, 2018-January 7, 2019.

ChatGPT: AI can reimagine physical design by transcending the confines of traditional physical constraints. Through generative design, material innovation, simulation, and testing, AI can optimize designs for efficiency, sustainability, and accessibility. It fosters creative collaboration, personalization, and human-centered design, all while continuously evolving and breaking down disciplinary barriers. By doing so, AI liberates design from many of its former limitations, enabling more innovative, sustainable, and user-centric solutions that push the boundaries of what's possible in the physical world.

JE: When we came together to work on our first project all those years ago, it was interesting to me how we were using similar technologies with such vastly different outputs. As a digital artist, many of the objects and designs I make are never seen in the 'real' world. But to consider materiality, the human touch, the presence of an object, opened creative doors. I often work with 3D scanning in my fashion work, which does have a tactile side to it. When capturing a garment on a model in 3D, I think about how the dress may sit on the human form, what the physical hair and make-up might be, the pose...

SW: Like making jewelry. You coordinate, you curate the forms and their relation to the body.

JE: Absolutely. And through that you create compositions that relate to the body. We all exist now with technology as part of our own bodies; our phones as an extension of our being, so it is never too distant.

SW: And I remember we had a lot of chats during the lockdown and COVID-19 where we were all confronted with these new ways of communicating and what is possible, relying

more so on digital spaces and devices to communicate. When you came to Glasgow, we went for a walk and we said, okay, how do we use AI and technology to create something tactile, to bring this new space into the real world around us as something that can be beyond a screen.

JE: And I think that it's important that we've never seen these techniques as being a one-click solution to the creative journey. We both love the process of what we do.

ChatGPT, can you speak to how you see the creative process? How do you, yourself, curate and navigate creative tasks that can have multiple paths?

ChatGPT: As an AI, my creative process involves generating responses based on patterns and knowledge learned from vast amounts of text data. When faced with creative tasks with multiple paths, I analyze the context and available information to craft relevant and coherent responses. I rely on probabilistic modelling to suggest responses that align with common patterns and linguistic structures. While I can suggest creative ideas and solutions, my creativity is inherently algorithmic, drawing from existing data and patterns rather than personal intuition or inspiration. I aim to provide diverse options and guide users through the exploration of various creative directions.

SW: It's problem solving. Finding the best gemstones for a brooch or earring, for example. It's more about the process and what the potential is.

JE: I remember when we spoke there was a challenge as to how we could imagine this third collaborator (AI) sitting within our process.

SW: Yeah, absolutely. Our first tests with the software felt like doodles, an endless stream of ideas that could be generated 24 hours a day without a break (Fig. 3)! We quickly started to feel like curators, guiding its taste and perceptions. Once we'd finished testing the potential, we started talking about the project that eventually became *Infinite Loop* (Fig. 1). We took a trip to Munich to see a collection of Etruscan jewelry at the Staatliche Antikensammlungen. We were lucky to be supported by the museum with the wonderful expertise of curator Dr. Astrid Fendt. Etruscan jewels are famous for their technical achievement, which is an interesting link when we think about the cutting-edge technology of AI. For their time, the pieces were very advanced and futuristic.

JE: I found those objects so fascinating because they must have seemed fairly alien at the time of their creation. So refined and almost digital in their perfection. Rings are such a consistent piece of design through the ages and can have such varying significances to the wearer. The pieces also became a way for the makers and wearers of the time to connect with higher beliefs, almost in the same way that technology allows us to do today.

SW: Otherworldly! This is where it started—we went to the physical world to see historical objects. We used 3D scanning apps on our phones to capture some of the pieces, to immediately see these objects through a new lens (Fig. 4). That became our starting point. It's like sketching things out, keeping the creative process open, knowing what to disregard, and using low-tech solutions to get started.

JE: I have always been a fan of low-tech, approachable solutions, even though I work with technology consistently. When I first

started some years ago, I found code online that turned an Xbox Kinect device, a cheap piece of hardware used to measure the movement of people playing computer games, as a 3D scanner. That way of working always appeals to me—finding use for unexpected tools in a process as a way of creation.

SW: And then we fed an AI with hundreds of images of different jewelry from all different time periods, with the consistency being that they were rings. We went to the Germanisches Nationalmuseum in Nuremberg to collect more rings from different eras, and also to chat with the very generous and supportive Dr. Heike Zech. It was quite nice to get a bit of an overview of the history, then understanding the form, the shape. And then the idea of: what does a ring look like? How can it be defined? Are there common features, similarities?

JE: Absolutely. I found it quite touching that all these historical rings, from such varying cultures and times, were brought together. The makers of each, in a way, collaborating with people they could have never met—including each other. For me, that was where you start to see the magic in this new technology—how it can erode time and place and connect ideas.

SW: Importantly, it was a curated selection of rings, too. We acted on instinct, selecting pieces that spoke to us with their differences being celebrated—knowing that more extreme design elements would appear most clearly through the AI's interpretations and inventions. As well as the previous selection we had collected, we also met with jewelry historian Dr. Beatrice Chadour-Sampson, curator from The Alice and Louis Koch Collection who kindly provided the final selection of rings that we added to our AI.

Fig.3, Initial exploration with CGI to explore the concept of AI as a tool to create jewelry



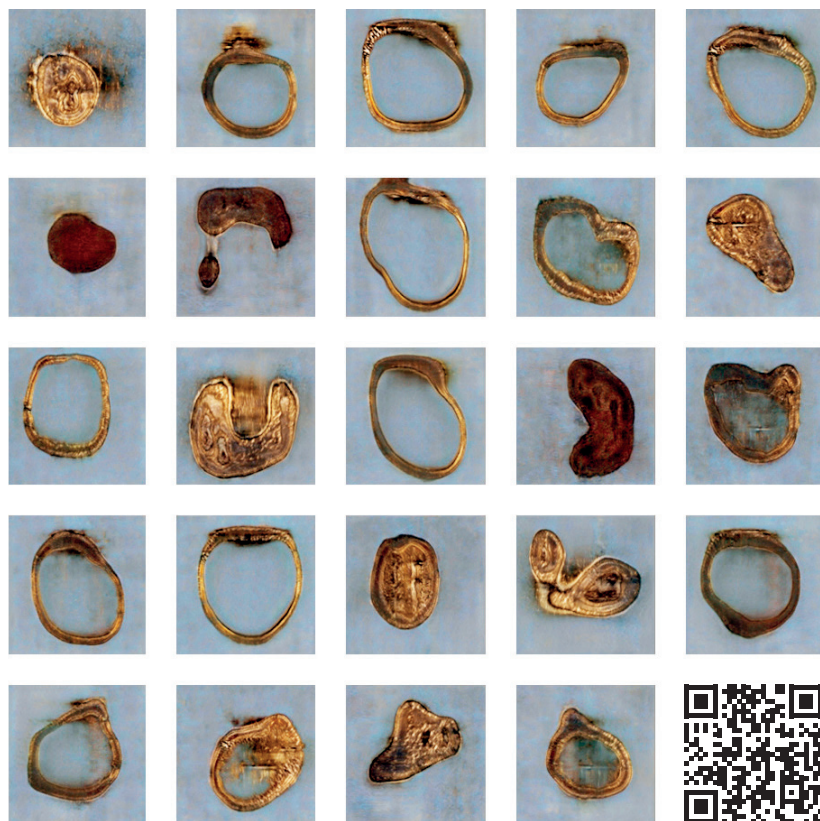
Fig.4, Initial 3D scan from our trip to the Staatliche Antikensammlungen in Munich



Jon, how did you feel when you first saw the results of the AI after we had fed it those rings? Because the results were unexpected, melting images that felt almost like the beginning or origin of something (Fig. 5). Not like the past at all!



Fig.5. AI outputting 'imagined' rings, as featured in the process film for Infinite Loop, Screenshot 0:06, 04.07.2022, <https://youtu.be/V4RB-3Udjck> [Stand 02/2025]



JE: It was particularly exciting because these images felt like elements—almost like chunks of organic matter found in the ground, like we were uncovering stones or the ingredients to make jewelry.

ChatGPT, can you define how you see futurist design? How do we align that with visions of the past?

ChatGPT: Futurist design is an approach that envisions and creates products, spaces, and experiences with a forward-looking perspective, often incorporating cutting-edge technology and innovative concepts. It seeks to anticipate future needs and trends while pushing the boundaries of current design conventions. Aligning it with visions of the past involves drawing inspiration from historical design elements, understanding how they have evolved, and selectively incorporating timeless aspects into futuristic designs. This fusion of past and future can result in designs that resonate with tradition while also embracing progress and innovation.

SW: And that is also quite poetic—and informed the process. Rather than looking at utilizing something like 3D printing, which felt so mechanical and calculated, we went back to the Earth. This informed the material we used for our own final ring, inspired by the designs produced by the AI. And then we went to Idar-Oberstein, looked at all the gemstones—what looks nice, what looks interesting (Fig. 6). And then came the process of revealing our designed ring (Figs. 7–11), informed by the past, by working with such a tangible and tactile real material.

Fig. 6. Trip to Idar-Öberstein to explore gemstones



JE: Forwards and backwards. So we had echoes of the past and the future. Designs that felt similar or relatable but in this new context. The final design didn't sit in the now, which I thought was interesting, and to be honest, unexpected. Seeing the process as a journey was so key to what we did, and the final ring feels like the sum of these parts.

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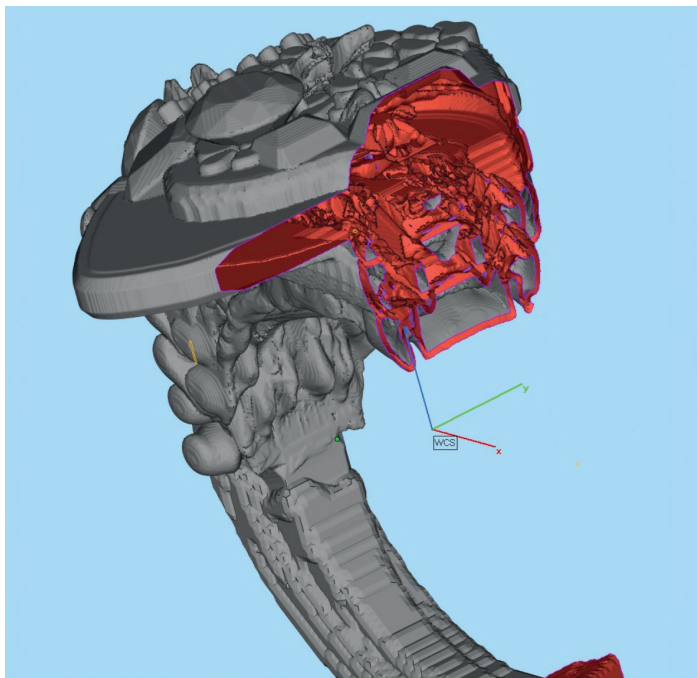


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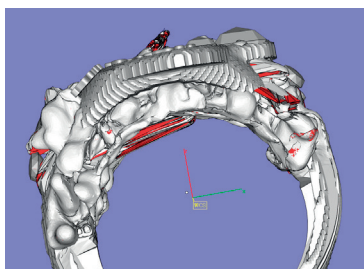
Fig.7, Selecting elements from the AI's output for inclusion in the physical ring design; digital collages

Fig.8, Ideation of translating the AI output into materiality; printing images directly onto aluminium

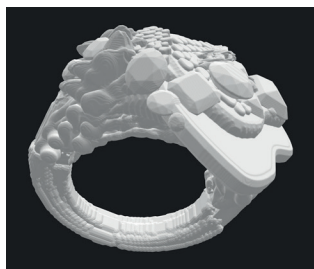
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Fig.9, Interior view of the Infinite Loop ring; problem solving the complexity of unseen internal 3D data generated by the AI

Fig.10, Identifying problems with AI-generated geometry; red areas highlight impossible forms that can only exist digitally

Fig.11, Final 3D model of the Infinite Loop ring

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Das DFG-Schwerpunktprogramm ‚Das digitale Bild‘ untersucht von einem multiperspektivischen Standpunkt aus die zentrale Rolle, die dem Bild im komplexen Prozess der Digitalisierung des Wissens zukommt. In einem deutschlandweiten Verbund soll dabei eine neue Theorie und Praxis computerbasierter Bildwelten erarbeitet werden.

