Digitale Bilder sind fluid. Sie sind wandel-
bar, prozessual und durchlässig, trans-
zendieren und hinterfragen Identitäten,
brechen Kategorien auf oder verflüssigen
starre Raumkonzepte. Die modernen, west-
lichen Ordnungssysteme Natur, Mensch und
Kultur werden im digitalen Bild stets
neu verhandelt und dekonstruiert. Dieses
Heft nähert sich aus multiplen Perspek-
tiven dem Phänomen des fluiden digitalen
Bildes, das die analoge Welt kommentiert,
kritisiert und prägt.

Fluidität

Fluidität

Inhalt

Danksagung

Wir möchten unsere Dankbarkeit und Anerkennung für alle Beteiligten am vorliegenden Heft „Fluidität" zum Ausdruck bringen. Ohne deren wertvolle Beiträge, Engagement und Expertise wäre dieses Projekt nicht möglich gewesen. Ein besonderer Dank geht an Tenuh Arte, Sofia Crespo, Ilgin Eke, Entangled Others, Rainer Hörmann, Ben Kamis, Hubertus Kohle, Moritz Niederschweiberer und Ricarda Vollmer.
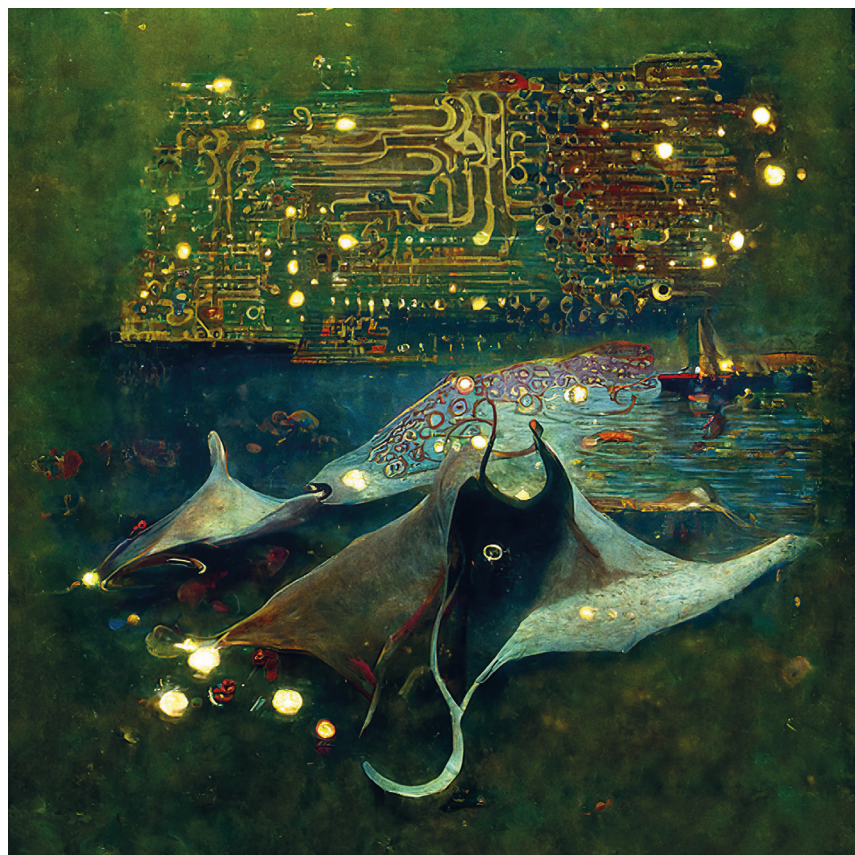
On Bias and Interconnectedness – a Conversation about Fluidity with Entangled Others Studio

Fluidity informs and shapes artistic practices, either by reflecting fluid societal and cultural practices or by incorporating techniques that embrace fluidity in the digital sphere. So, to compliment this issue with an artist's perspective, we talked with the artist duo Entangled Others about the term 'fluidity', their artistic practices with digital media and how fluidity can conceptually overcome borders between the digital and the physical and between different species of living and non-living entities. Entangled Others consists of Sofia Crespo and Feileacan McCormick, who work together closely on projects that are exhibited worldwide, including at Times Square in New York and the NVIDIA AI Art Gallery. Sofia also appears in the discussion about fluid creatures in this issue's essay "Fluide Ordnung: Neuronale Netze als künstlerische Werkzeuge der De-Klassifikation" by Julian Stalter. In this interview with the duo, he and Hanni Geiger sought their views about the interconnections of the technical and socio-philosophical side of the fluid digital images and how they handle artificial systems of order.

Julian Stalter: Let's jump in medias res: what connects you to the term 'fluidity'? Is it something that you have encountered in your artistic work?

Feileacan McCormick: As an artist duo, we primarily use AI techniques to generate visuals. We create generative art by using tools like GANs (eds: generative adversarial networks) – to distil the essence of a dataset. If you train a GAN on jelly-

fish, for example, the resulting model will be a sort of visual essence, as understood by the algorithms. And these GANs can produce single images as well as videos. In these videos, we have often experienced a kind of fluid morphing between different states and qualities. There is a kind of indeterminism to them. You recognise the jellyfish, but if you look closely, you understand it is not a jellyfish. It exists in a different space where things start to fall apart, but when you take a step back and look at it as a whole, it retains some kind of coherence.

Sofia Crespo: When I think about fluidity, I think of a different thing. I think about physics immediately. And I start thinking about fluid dynamics, simulations; I also start to think about how we use physics and science in general to build models of what's happening in the natural world. And in that process, information is lost about what reality and that distilled simulation of ours are like. So, I think of fluidity as reality, and at the same time there is a kind of simulation that we're building on top of that reality.

Hanni Geiger: Let me ask about the aquatic quality of the term. Why do you choose to morph organisms in an aquatic environment? You could also create new forms of terrestrial pets. What connects these ocean creatures to fluidity?

SC: The aquatic environment is not an environment where we humans can live, so we experience things differently underwater. And personally, I am interested in exploring the lifeforms that live there. Also, it is a way of understanding the environment and what is happening in the oceans.

FM: It is also a way of expanding our empathy. We depend on life underwater in one way or another. But we have very little sympathy for some beings like jellyfish, as they have neither eyes, mouths, nor eyebrows. We often struggle to value things that fail to evoke our empathy or attraction.

JS: I would like to add another definition of fluidity with a more biological bent. In biology, fluidity is a measure of cell permeability. A liquid that goes through the cell membrane has a certain degree of fluidity. And I really like this metaphor of crossing boundaries and enabling exchange among cells. So, one can take this metaphor further and ask what it might mean for species to flow together and form new kinds of amalgamated animals? So, my question would be whether species flowing together adds an artistic idea or value to your work?

SC: As you were talking about fluidity in biological terms, as crossing a membrane, I was thinking about how we translate data, which is discrete. We render the world into binary values. And maybe fluidity can break this idea into something that can exist on a wider spectrum and with values that don't have to be binary, as with gender. But coming back to my work, I see the value of these creatures merging together rather than existing as discrete beings.

JS: You could also add that you worked with data of images from the 17th, 18th and 19th centuries in your series *Artificial Natural History* – a time when researchers focused on differentiating species into rigid taxonomies.

FM: Yes, you mean the 19th-century point of view, which is this protoscientific movement of categorising visible individual specimens and cataloguing them by apparent similarity – breaking down ecosystems into units. What is also very interesting about Sofia's series is that it touches upon something that we have almost ingrained into our ideas: breaking things into discrete units. From there, you can study the pieces comparatively and build up a body of knowledge. And there is an aesthetic to it: collecting, sorting, and structuring information.

SC: But coming back to this idea of the membrane, I also think of our own cognition as a kind of membrane that filters what can enter. And simultaneously, a computer is a kind of membrane through which reality is slowly incorporating itself into a digital format.

FM: This also touches on the topic of the digital-physical divide. And from an artistic point of view, this relates to how we perceive nature in reality but also in digital space.

HG: Your works bring to mind how transcorporeality and posthumanism pertain to a fluidity between material and theoretical bodies that challenges traditional dualities and brings forward an interconnectedness between humans and other beings, as in the research of Donna Haraway. She advocates the kinship principle in relation to interconnectedness and interwovenness. Connections to non-human species in the digital world are especially significant to her. How do you relate to that?

FM: We're very interested in the work of Donna Haraway, and she has been absolutely relevant to our work. Because our work also reflects the dichotomy between us as humans and the computer we work with. And we have, for example, the task of representing nature by creating a dataset of the natural world, finding digital representations of cephalopods and octopi, for example. But what's interesting is that what we find does not represent nature as much as our own aesthetic perception of it. And this is not just the usual bias; rather, we map the contours of our everyday imagination, including associations and cultural contexts. Our goal is to represent many diverse approaches and voices, connecting to this idea of kinship, but without forgetting that humans are biased and subjective, as is AI. The narrative around AI is often one of objectivity, but it is artificial, not objective – there are no objective datasets out there. So we can never get to objectivity, and it is perfectly okay to acknowledge this. What's important for us is to encourage dialogue and interaction starting from the point of subjectivity.

An example that demonstrates the power of bias, but also the possibility of overcoming it, would be the artwork Beneath the Neural Waves. As data to train a neural network to create the 3D coral specimens was lacking, we integrated genetic algorithms of the artist Joel Simon. The interesting thing is that these new species come from our own subjective choices and are then introduced into this digital ecosystem, where they evolve and gain autonomy from our intervention.

SC: Aside from all the discussion of AI as an evil tool, there is also something fascinating in using a black box beyond our interference – a kind of mystery and magic. And, coming back to the topic of bias, in our work we try to embrace that every

thing is biased because there is no such thing as an unbiased dataset. When we look at the world, we constantly filter it in several ways, creating a biased representation through our own perception. Similarly, when we curate a dataset or choose the outputs of a neural network, we are also deciding based on what we think.

FM: In relation to Donna Haraway and her wonderful texts, it is important to me to explore how we work with issues of kinship – not going out into nature, sitting under a tree and communing with nature – but how do we connect with nature in our messy lives with iPhones? That's why we have been conducting a lot of experiments, testing augmented reality and all different kinds of platforms and tools. A lot of experiments fail, but this space for experimental intervention where we have to work differently is more important. You cannot take everyone to the coral reef, which would destroy them, but you can provide another, digital form of experience.

HG: You mentioned the term "ecosystem" several times. How do you define it relative to your digital species?

FM: Whether you perceive it or not, humans exist in relationship to trees, animals, and even to the plants in our rooms, cells, and bacteria. There is constant interaction, like chemical processes, the oxygen and carbon dioxide exchange, so all beings in an ecosystem depend on each other.

SC: It is about relationships without boundaries, and there is no way we can grasp everything at once.

FM: Yes, we need to break all these interconnections down into individual species and units to understand the world better. But, at the same time, the closer we look at all these species, the more complex it gets. And we also want people to perceive the ecosystem as a contemporary manifestation, one including digital technology.

JS: I have a technical question regarding digital images. Do you think GANs benefit fluid images and inform your artistic practice?

FM: What's interesting in using all these different tools is randomness, as made famous by Vera Molnar, the pioneer of generative arts in the 1960s even before access to computers. Instead of producing a lot of drawings by hand, you can use generative tools, such as AI. With them, you can generate hundreds of thousands of image outputs. In the next step, you identify the ones that resonate with you. So even though we constantly change the tools, one of the benefits of working digitally is, on the one hand, the ability to change the implementations constantly, the forms and architectures, but also to work more intuitively. It is interesting to think about digital fluidity on a technical as well as a philosophical level. Either way, AI and GANs are all tools for us, like different kinds of pencils, which allow us to work on different scales, augment creativity and expand what we can.

HG: Let's stay with the technical quality of the digital image. Beside the fact that you use digital images as a contemporary way to work and produce new species to expand the imagination of our human-dominated ecosystem, are you also interested in its processuality, how your artwork can appear unfinished, in a constant state of transformation and flux?

Fig.2, ⊘ Entangled Others, 2022, Series: Sediment Nodes,
Title: Abyssal Interface

SC: The process is never finished because it exists in others' imaginations. Symbols and meanings connected to the artworks will never stay the same. They will change. What the sea represents now hopefully will not be the same in 20 years. The work is in constant flux as well.

FM: We can step away from the idea of one creation, one work, and rather look at art and things as evolving. There is no one perfect way or world. This allows us more empathy. When we think of the fluidity of gender compared to a binary system of identities, we need to start with ourselves in order to be empathic with each other, like connecting to a tree or insects. Working digitally also means that you never work alone; part of the process includes dialogue, feedback, interactions and constant changes, which is unlike physical space, where you might never meet anyone, explaining instead from your own fixed perspective. And digital images are fleeting, because it is very hard to keep things running for strictly technical reasons. For example, artists that worked with flash as a medium have lost all original experience of their work, as browsers no longer are able to display it. So, in a few years, some art and storytelling will be lost. Digital space is ephemeral.

SC: But as long as people keep talking about works that have vanished, they do still exist. This reflects the performative nature of digital art: you start the action and then the elements take over, and no one knows how things are going to shape and evolve in an artwork.

HG: How do you see computer-generated environments, such as virtual reality (VR) or augmented reality (AR), that make the user feel immersed in their surroundings? Can these tech-

niques bring people even closer to the species and experiences of otherness and plurality, even induce them to question orders and systems established in the modern era, such as society, nature and technology?

FM: We are interested in accessibility, so, on the one hand, working digitally means reaching a lot of people, but at the same time excluding a large percentage of the world that does not have access to this infrastructure. We've so far focused on augmented reality (AR) for two reasons. It is a far more democratic, open and inclusive technology that in these days, as everyone has a smartphone, can use to have an AR experience. VR can exclude due to the cost of the requisite hardware. Also, AR is interesting because, instead of being transported into a totally new world, it is the human world, what's around us, which we use and then add some new elements that become part of the physical-digital visual interaction, an artificial life performance walking around your living room. It is possible to expand and think about all the possible beings that could live amongst us, not only physically, but also digitally. That is a different way to use imagination – one especially important for insects, which we don't see as equals. AR helps paying them more attention by creating a link between the digital and the physical, ourselves and the 'other'. It establishes connectivity.

Editorial notice: This interview has been edited for legibility.

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.

DAS DIGITALE BILD