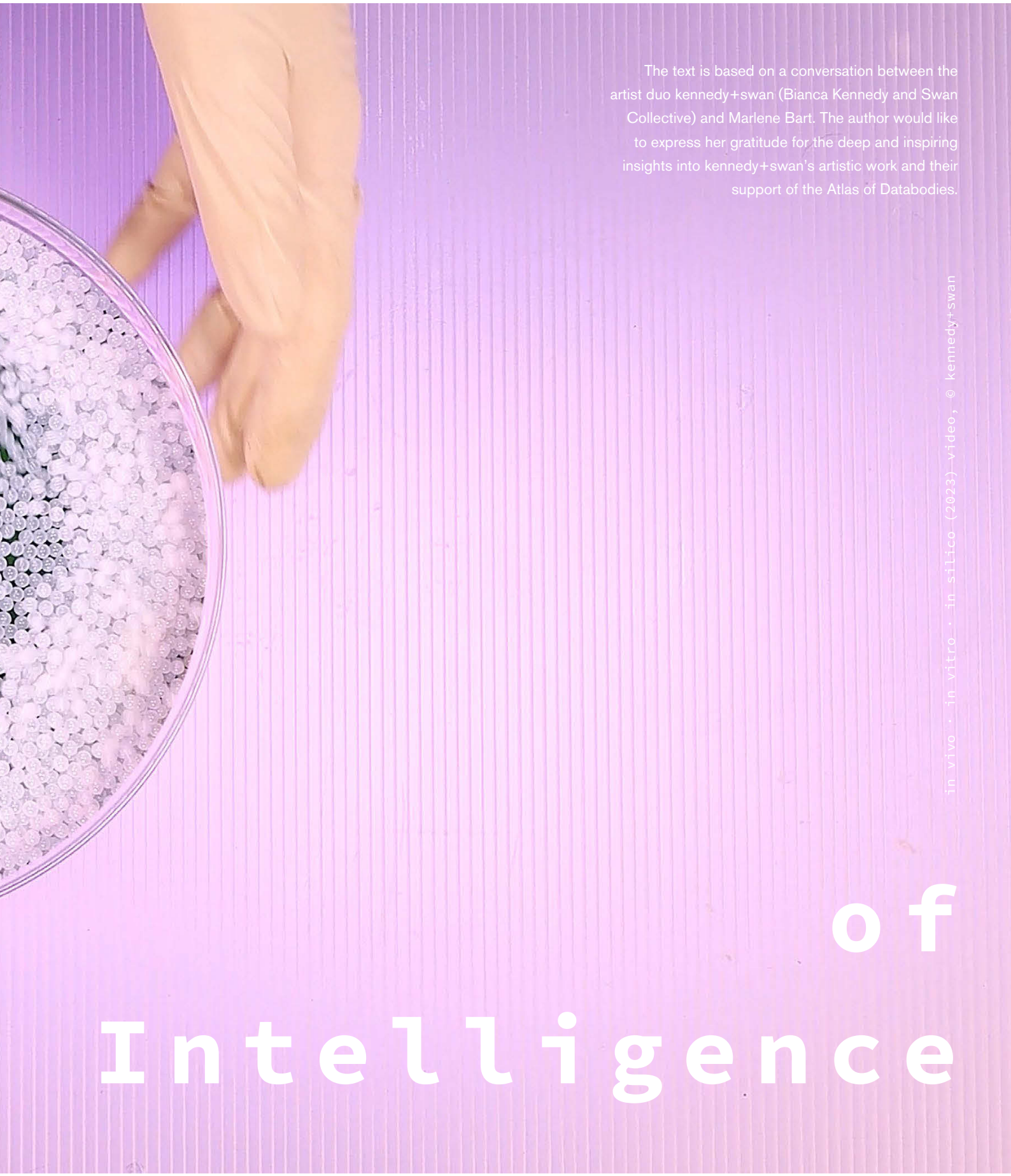
Artworks and descriptions:
kennedy+swan

Text: Marlene Bart

The Watercolours



The text is based on a conversation between the artist duo kennedy+swan (Bianca Kennedy and Swan Collective) and Marlene Bart. The author would like to express her gratitude for the deep and inspiring insights into kennedy+swan's artistic work and their support of the Atlas of Databodies.

in vivo · in vitro · in silico (2023) video, © kennedy+swan

# of Intelligence

Introduction

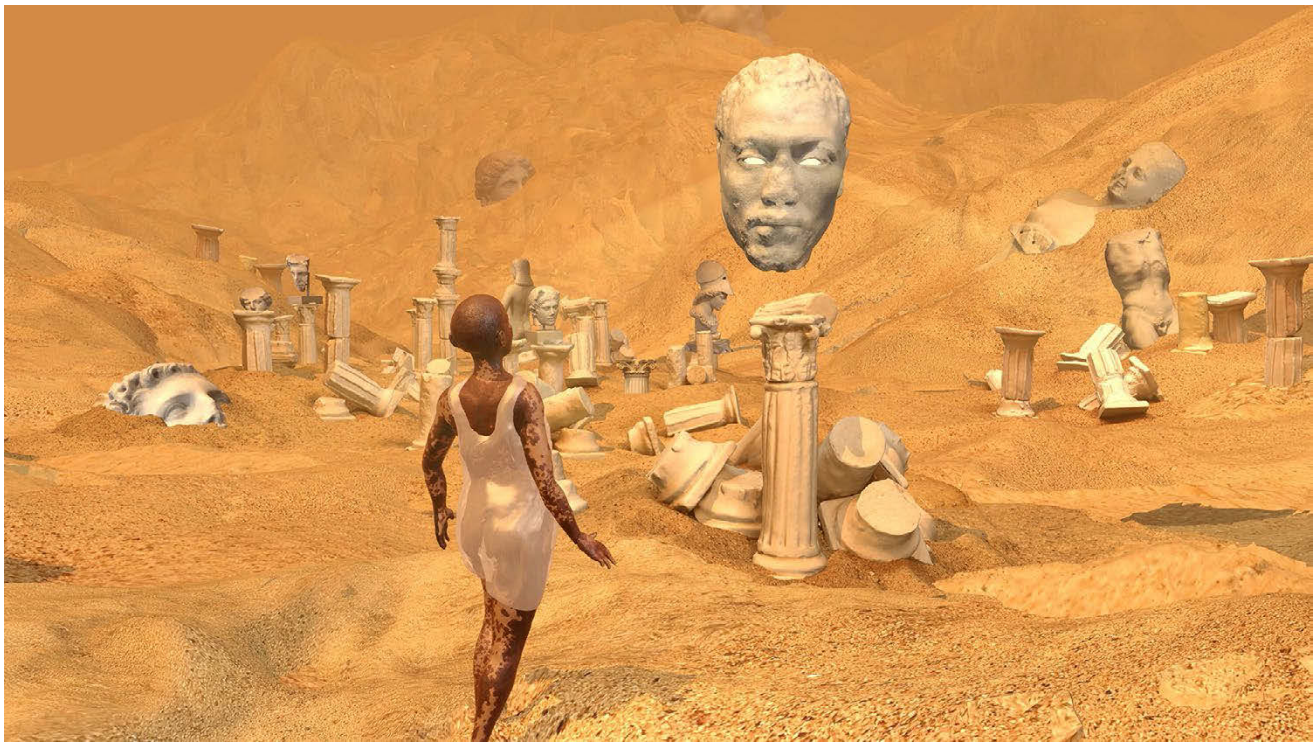
In their artistic work, *kennedy+swan* explore themes that deal with the fundamental questions of human existence and thematise the need to find one's own place in a universal system of meaning and to justify the uniqueness of the human species. At the same time, their work is an interface to a society that is increasingly permeated by the effects of digitalisation. The concept of scala naturae, i.e. that there is a natural hierarchical chain with humans as the most capable and superior species, dates back to antiquity, yet continues today with the idea that intelligence equates to the capacity for knowledge. Rather than analysing previous concepts of intelligence or evolution and making a claim to their completeness, the focus of the following discussion will be on the interfaces between intelligences, biological and technical, with *kennedy+swan*'s work as the central point of departure.

Nevertheless, as is so often the case, it helps to at least establish a basic sense of orientation by considering a more general definition of the word as a starting point. The word ›intelligence‹ comes from the Latin *intellegere* and means ›to recognise‹, ›to see‹, or ›to understand‹. Broken down into its constituent parts, ›inter‹ means ›between‹ and ›legere‹ means ›to read‹ or ›to choose‹ and could therefore also be translated as ›to choose between‹.

The practices of cognition, reasoning and decision-making, as well as the study of intelligence itself, have left their mark across the natural sciences and humanities. The most well-known forms of intelligence assessment include, for instance, intelligence tests and the Intelligence Quotient (IQ), which can be traced back to the research of French psychologists Alfred Binet and Théodore Simon (Binet & Simon 1916). Despite the widespread use of intelligence tests in various fields, there are numerous sceptical voices, which remind us that it is important to critically examine the relevance of these tests. As the author Thomas Grüter notes in a conversation with Mario Dobovisek for Deutschlandfunkkultur, »IQ alone cannot determine whether someone is suitable for a particular task or not. It essentially measures nothing more than the ability to quickly adapt to new tasks.« (Dobovisek 2012). Furthermore, concepts of emotional and social intelligence are also worth mentioning (Goleman 1995). Based on these concepts, other approaches have emerged, such as aesthetic intelligence (Sievert-Staudte 1980). Additionally, there have been investigations into the application of intelligence concepts in zoological and botanical contexts (see Gardner 1983).

Regardless of the discipline, it is nevertheless the human species that dominates the history of the intelligence narrative. But what happens to this narrative in view of the spread and accessibility of artificial intelligence? And what new perspectives on this complex assemblage can artistic practice reveal?

In their videos, augmented and virtual reality works, installations and artist's books, *kennedy+swan* take a daring look at this issue outside an anthropocentric comfort zone. Metaphorically speaking, they create artistic evolutionary diagrams that allow us to think about the relationship between plants, animals, humans, and machines in both utopian and dystopian terms. *kennedy+swan* themselves take an artistically critical position from which they address the great philosophical questions of our time, without making them any more abstract than they already are, but by making their many facets visible, tangible and accessible through visualisation practices. In this text, the concept of intelligence is used as an emblematic object and as a travelling companion when immersing oneself in the fantastic, surreal, and all-encompassing visual world of kennedy+swan. This reflection, based on a dialogue with the artists, explores central aspects of the duo's work through a reference to the concept of ›databodies‹, links to aspects of ›body mysticism‹ and a detailed examination of two artistic works, *in vivo · in vitro · in silico* and *Mixed Signals*.



Delphi Demons: Circe (2022) stereoscopic video, © kennedy+swan

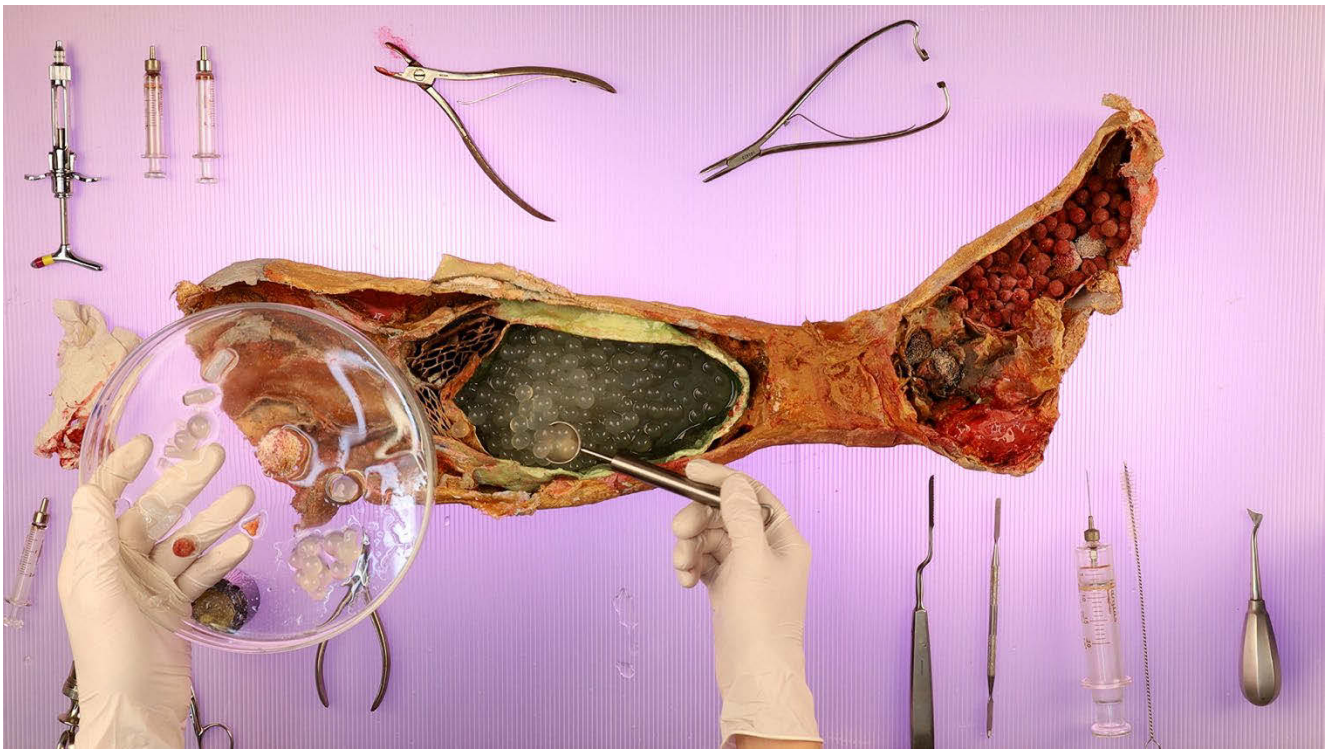
Databodies

The use of a variety of materials and techniques supports *kennedy+swan* in building bridges between analogue and digital databodies, creating dialogue and synthesis. In more concrete terms, this means that the development process of their film projects also incorporates modelling techniques, which are used for the development of props, for example, as well as the use of motion capture processes. In this way, physical materials and movements can be used as a starting point but then, through 3D scanning, re-emerge embedded in new visual and virtual contexts. Regardless of whether it is the creation of watercolours, props, stop motion elements, or working with programmes or even coding on their own in the creation of virtual worlds, *kennedy+swan* conduct all stages of the work themselves in a symbiotic co-production. The exploration of these numerous processual levels testifies to a databodies concept that is not constituted from discrete, empirical measurements and numerical values, but from components of a hybridisation process between analogue and digital modes of artistic practice. In this sense, *kennedy+swan* expand the understanding of a cartography of databodies to incorporate the self-empowerment of techno-imagination (cf. Flusser 1995) motivated by the driving desire for artistic autonomy.

kennedy+swan have deliberately focussed on a playful aesthetic that is extremely accessible and yet artistically virtuosic. The prevalence of established visual codes in art and science, which can be a part of the exclusion of many potential recipients from these media through their codified appearance, are the subject of an ironic commentary by kennedy+swan. Instead of presupposing specific prior knowledge on the part of the viewer, *kennedy+swan* boldly invite a democratic dialogue.

Body Mysticism

It is also this powerful urge for artistic freedom that allows the two artists to pose both macrocosmic and microcosmic questions. Whereas *kennedy+swan* immerse themselves in experimentation and come up with unexpected and fascinating images, many humans turn to technology such as commercial applications and devices to find answers to their questions. In addition to search engines, artificial intelligence in particular is used to help us with this. The way we use these interfaces to formulate questions has some similarities to consulting an ancient oracle to gain insight through its mystical power. In their stereoscopic film Delphi Demons (2022), *kennedy+swan* challenge the concept of human intelligence and its distinction from arti-



in vivo · in vitro · in silico (2023) video, © kennedy+swan

ficial intelligence in three episodic segments. The three parts are characterised by different visual languages. From watercolours to real film segments to 3D animation. In the concluding third episode, the episode's protagonist, Circe, questions her own existence. In a desert-like landscape, she encounters a mysterious, seemingly omniscient oracle and begins to ask it questions. Behind the oracle is the popular AI app Wombo, which distorts Circe's reality rather than providing actual answers.

In our conversation, the artists emphasise their interest in initiating a discourse on the forms of expression of intelligence. In their work, they are discussing how humans, who see themselves as more intelligent beings, behave towards animals, for example, and project their own intelligence and its categorisation systems onto them. *kennedy+swan* also observe a repetition of this hierarchical behaviour in the context of artificial intelligence. By combining the question of the intelligence of man and machine with elements of mysticism, the artists highlight the disparity of our time. While knowledge is more easily accessible today, there is a growing tendency to invoke higher powers when dealing with machines. The creator complex of the human species seems to revolve around itself in a vivid way, much like a cat chasing its own tail. The paradoxical structure of the two desires, the one for humans to create technology that functions autonomously, thinks, and feels, and the other to continue being superior to this intelligent technology, is inevitably conveyed by *kennedy+swan* through an intricate, multifaceted, and playful visual language.

in vivo · in vitro · in silico

kennedy+swan's work *in vivo · in vitro · in silico* (2023) takes the viewer on a journey of discovery on a cellular level. The video work is a visual narrative about the creation and speculative future of xenobots. Real film footage, scientific found footage and the artist's own 3D material are interwoven to create the characteristic *kennedy+swan* aesthetic. An important point of reference for this work was the research of scientists at Tufts University on xenobots, named after the African clawed frog (xenopus laevis), whose cells were used for the development of the xenobots (Simon 2020).

Following the publication of initial research results in 2021, numerous articles appeared with headlines such as *Team builds first living robots – that can reproduce* (Brown 2021), *Xenobots: Living Robots that Make Science Fiction a Reality* (Manuel 2023) or *Meet xenobots, tiny machines made out of living parts* (Hu 2023).

»As *kennedy+swan* stress, it is crucial to address the social and economic impacts of this technology, particularly in terms of its affordability for the broader population.«

These headlines alone evoke a certain, clean scientific aesthetic in our minds. Xenobots can be imagined as sleek high-tech super machines: slim, sophisticated, and exceptionally efficient. In *in vivo · in vitro · in silico*, however, *kennedy+swan* defy these possible visual expectations.

While some might expect polished surfaces and clinical environments, the artists instead present handmade props, fragmented scanned environments, and a mashup of images from popular culture and medicine. The appearance of the xenobots, which metaphorically speaking, produce futuristic music, surprises and contradicts our expectations. Composed of frog cells and equipped with oversized tools, their form is amorphous and pliable rather than meticulously defined and elegant.

kennedy+swan invite us to explore this perhaps slightly clumsy but charming and thought-provoking representation of xenobots in *in vivo · in vitro · in silico*. Through a playful approach, they introduce the viewer to complicated and probing questions with effortless ease.

Considering evolutionary processes is a fundamental aspect of *kennedy+swan's* work. The artists explain that they subject xenobots to millions of evolutionary cycles. *A scalable pipeline for designing reconfigurable organisms* (Kriegman, Blackiston, Levin, and Bongard 2020) outlines a process that utilizes artificial intelligence for the computer modelling and simulation of xenobots. This approach involves obtaining stem cells, using AI-driven predictions for the behaviour and design of the xenobots, and physically assembling them based on the AI models. In view of this artificial evolution, who is actually the intelligent part? This becomes particularly interestingly clear in *in vivo · in vitro · in silico*, when we see a human in a frog costume indulging in chaotic movements in a petri dish surrounded by egg cells.

What interests the artists in particular are the future prospects that can be imagined on the basis of the bio-robots and their supposedly intelligent behaviour. At present, these robots can already survive for seven days without food and degrade themselves, but the question of their further use remains unavoidable. In the conversation, the artists emphasised the importance of discussing not only the current debates about the potential use of xenobots to treat diseases like cancer but also the integration of this innovative health data collection into our society. This raises further questions about data control, including who has access to the data and who controls the bio-robots. As *kennedy+swan* stress, it is crucial to address the social and economic impacts of this technology, particularly in terms of its affordability for the broader population.

Mixed Signals

As part of the 2023 Gropius Bau Berlin programme and exhibition on artificial intelligence *(Ether's Bloom)*, *kennedy+swan's* contribution, titled *Mixed Signals*, stands out as the culmination of their years of work on the subject, marking them as pioneers of critical artistic engagement with AI. They observed a prevailing negativity in the art world's perceptions of AI, prompting them to create a space in *Mixed Signals* for positive speculation about AI's potential. Simultaneously, they delve into a distinctly human apprehension, which, within the context

of this text, is defined as the fear of technological singularity (Cadwalladr 2014). This term refers to theories addressing a hypothetical moment when AI surpasses human intelligence, instigating innovations autonomously.

kennedy+swan also address the discrepancy of transferring humanly constructed concepts of intelligence to other species such as animals and plants. For example, are animals less intelligent than humans simply because they would not pass human-made intelligence tests? In her book *Animals in Translation*, Temple Grandin draws upon her extensive career as an animal scientist and her personal experience as an individual with autism, as she explains how animals and autistic individuals process the world differently. She argues that ›normal people‹ tend to convert their experiences into words and abstractions, whereas animals and people with autism perceive the world primarily as sensory information—specific pictures, sights, and sounds. This unique perspective is the key to understanding how animals see, think, and feel (Gardin & Johnson 2005).

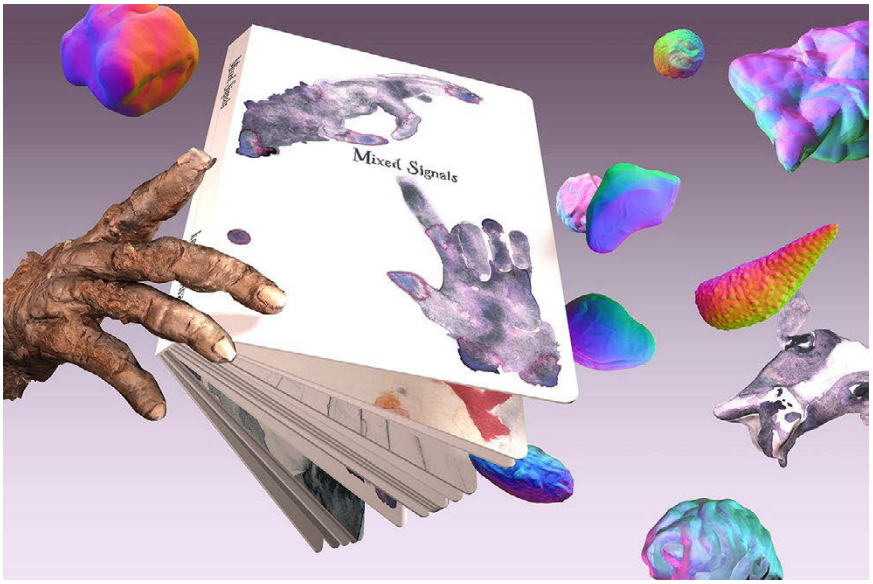
So what lies behind the recurring tendency to relegate artificial intelligence, much like that of plants and animals, to a subservient position beneath humanity? Building upon Aristotelian thought and the hierarchical structure in nature, are we currently in the process of crafting *a scala technologia?* Does humanity hold a monopoly on consciousness, and might this be denied to us as we enter the technological singularity? These questions are deliberately provocative and uncomfortable, yet the act of formulating them offers at least a glimmer of insight into the realm of transhuman intelligence concepts, even as they challenge our hierarchy-infused knowledge paradigms.

The supposed denial of intelligence is also echoed in *Mixed Signals*. The artists display a total of 18 watercolour paintings in the exhibition. They explain their choice of watercolour as a medium often derided in the art world, perhaps deemed less serious than forms such as canvas painting, sculpture, or other new media prevalent in collections and museums. Watercolour implies a childlike quality, yet it also exudes a sense of playfulness, experimentation, and accessibility. Upon entering the exhibition, visitors encounter what appears to be solely ›analogue‹ art. However, appearances can be deceiving. The watercolours are augmented, given dimension through a specially designed AR component. The 18 watercolours depict diverse scenes, inviting interaction within the augmented space. Here, a virtual realm unfolds where artificial, human, and animal intelligences converge, addressing emotional and social aspects of intelligence.

Interwoven with the exhibition's concept is an artist's book bearing the same title, *Mixed Signals*. This book represents a unique transformation of the exhibition's content, as *kenne-*

Exhibition views of Mixed Signals in the Gropius Bau: Ether's Bloom: A Programme on Artificial Intelligence, kennedy+swan (2023) © the artists

Mixed Signals (2023) augmented book, © kennedy+swan



Mixed Signals (2023) augmented book, © kennedy+swan

dy+swan leverage the book's attributes as a historically established and portable repository of knowledge. The book, like the exhibition, is augmented. This technologically artistic expansion of the traditional book space marks a significant milestone in artist book production and the definition of the artist's book concept. *Mixed Signals* is unquestionably a book. It is bound in codex form, with thick pages evoking memories of childhood books, often the initial sources of visual and linguistic knowledge for humans. Yet, from these pages emerge entities, they move, and they invite interaction. The book evolves into a multimedia information and data carrier, transforming the watercolours into explorations of intelligence concepts. *kennedy+swan* seem to effortlessly and casually establish their own artistic reference system that accompanies you everywhere. In the context of this text, *Mixed Signals* can also be described as an ambitious endeavour in which *kennedy+swan* collaboratively worked to extend their exhibition experience far beyond its physical space. *Mixed Signals*, as both an exhibition and an ongoing artist's book, represents a truly unique collection of databodies – or, within the context of this text, a watercolour of intelligence.

kennedy+swan vividly illustrate the importance of overcoming rigid thought patterns and binary thinking. Their artistic practice encourages reflection on the evolution of the concept of intelligence and emphasises that there need be no clear winners or losers in these developmental processes, as has become established in common parlance on the subject of evolution. What's particularly intriguing is that both art and science can facilitate a shared discourse through such approaches, as is evident in Paul B. Rainey's work *Major evolutionary transitions in individuality between humans and AI*. Rainey suggests the potential for humans and AI devices, for instance, to collaborate in a symbiotic partnership and evolve in unison (Rainey 2023). This necessitates flexible thinking and the capacity to comprehend evolutionary processes at a collective level without prematurely jumping to conclusions.

The contributions of *kennedy+swan* and the ongoing dialogue about the evolution of intelligence within the partnership between plants, animals, humans, and AI underscore the importance of adopting an integrative and nuanced perspective in our swiftly changing world, where collaboration between biological and technological species is becoming increasingly crucial. They emphasize that such developments can offer a wide range of possibilities when approached comprehensively and collaboratively.

Binet, Alfred, & Théodore Simon (1916): The development of intelligence in children: The Binet-Simon Scale. Baltimore: Williams & Wilkins.

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Sievert-Staudte, Adelheid (1980): Ästhetische Erziehung 1–4. München: Urban & Schwarzenberg.

kennedy+swan (founded in 2013) comprises the work of the artists Bianca Kennedy and Swan Collective. When working together, they explore the future of non-human intelligence and its impact on plants, animals, machines, and humans. For their videos and XR installations, the duo employs various animation techniques: drawings, stereoscopic film footage, 3D-scanned landscapes, and self-built characters. Recent works reflect upon the exponential rise of Artificial Intelligence and its impact on biology.

Marlene Bart is an artist and researcher who completed her PhD at the Bauhaus University Weimar. Her work combines elements of natural history, anatomy and the visual arts. Bart explores how a common visual language can be used in art and science to address broad themes such as the importance of systems of order. She uses a variety of multimedia techniques, including printmaking, artists' books, sculpture, taxidermy, installation, and XR technologies. In addition to her publishing activities, Bart exhibits in international solo and group exhibitions.