

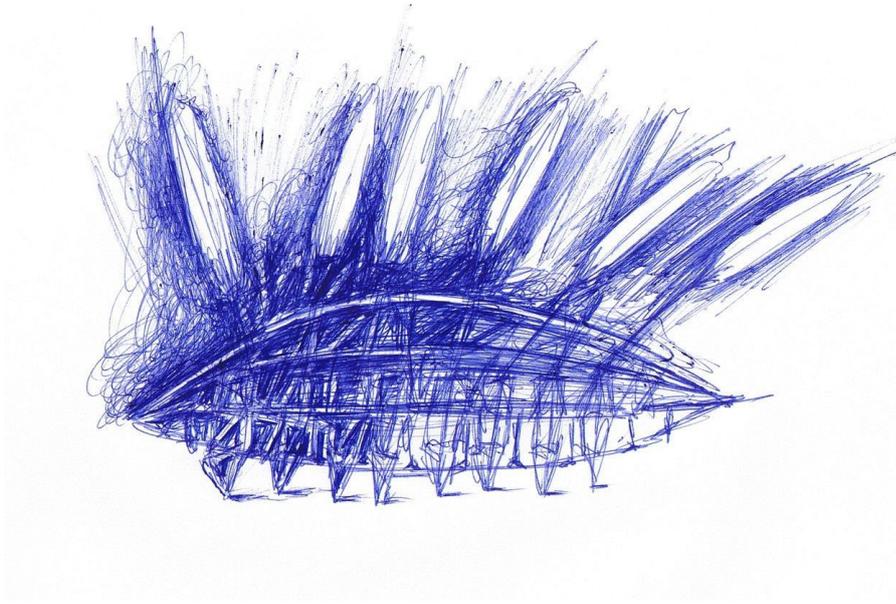
***Strandbeests*: Challenging Perceptions of Sentience.**

Within the scope of contemporary art, few pieces evoke philosophical debate like Theo Jansen's *Strandbeests* (Dutch for 'beach animals'). These ever-evolving kinetic sculptures not only blur the lines between life and art, but also push us to consider the nature of sentience itself. As defined by the Oxford English Dictionary, a sentient being is 'capable of feeling; having the power or function of sensation, or of perception by the senses.' (Oxford English Dictionary, 2023). Ergo, sentience is characterised by the possession of sensory organs which respond to external stimuli, allowing for perception and responsiveness. Theo Jansen's skeletal, wind-powered creations certainly present us with an uncanny sense of sentience as they traipse the beaches of Holland. Whilst initially unassuming, these aesthetically simplistic creatures formed of simple materials push the boundaries of artistic expression. They exemplify the concept of artificial life, an interdisciplinary field of research which explores the potential for human creativity to produce new forms of sentience. Bringing together scholars in mathematics, philosophy, and engineering, the study of artificial life 'aims to understand biological life better by creating systems with life-like properties and developing novel forms of life.' (Aguilar, et al., 2014). Themes of sentience and artificial life are also evident in the works *Can't Help Myself* by Sun Yuan and Peng Yu, *In Love With The World* by Anicka Yi, and Kim Rose's NFT titled *Orphic*. Such pieces, alongside Jansen's *Strandbeests*, invite viewers to challenge their assumptions about what it means to be alive and what constitutes art.



Jansen, T, *Animaris Vulgaris*, 1990.

Since their origin in 1990, the *Strandbeests* have evolved over many generations, each named and dated by Jansen. The first *Strandbeest*, titled *Animaris Vulgaris* (pictured above), existed during The Gluton period of work. The Gluton was the first generation, taking place in 1990-1991, and *Animaris Vulgaris* was the sole creature that existed throughout it. Comprised of 28 legs attached to a rotating spine, Jansen's aim was to release *Animaris Vulgaris* to the beach in order to observe its movement along the sand. Jansen hoped that eventually the *Strandbeests* would be able to move sand to nearby dunes in order to help prevent coastal erosion. However, 'the joints and connections were not strong and rigid enough to carry the body' (Jansen, n.d.) and this led to failure. As the creature was unable to walk and could only move its legs when lying on its back, Jansen declared its extinction. Since the very beginning, Jansen has spoken of his *Strandbeests* as though they were living creatures. He discusses all developments as results of evolution rather than his work and declares the 'animals' dead when they are no longer able to walk freely on the beach. In doing so, Jansen encourages us to imagine a world in which art is sentient and self-evolving.



Jansen, T, *Sketch of a Vulgaris*, 1990.

Although *Animaris Vulgaris* was unable to walk or stand, it was not wholly unsuccessful. Prior to its creation, Jansen's ideas had only existed as sketches similar to the one above. This transition from sketch to sculpture played a crucial role in Jansen's creative process, ultimately resulting in *Strandbeests* which are now capable of walking at speed, and even flying. The *Animaris Vulgaris* was the first of many creations, and as such it should be recognised as the catalyst of Jansen's artistic success. Though arguably not the most aesthetically pleasing, the piece paved the way for the structurally complex design seen in later *Strandbeests* like *Ader*. Whilst Jansen's designs have become far more complex, it must be noted that his preferred materials have not changed. Despite advancements in technology, the *Strandbeests* remain constructed from PVC piping and PET bottles. These cost effective and easily sourced materials have allowed Jansen to form 12 generations of *Strandbeests*.

At the time of the first generation, Jansen was largely inspired by evolutionary biologist Richard Dawkins' book, *The Blind Watchmaker*. During a 2019 interview, Jansen states that he drew inspiration from the book's information about our origin, and 'had sleepless nights thinking about all the animals in the world and how they came about.' (Kahl, 2019). *The Blind Watchmaker* was written by Dawkins in 1986 and uses the Darwinian theory of evolution to refute philosopher William Paley's argument for an

intelligent designer. Dawkins uses his book to challenge the notion of purposeful design. In opposition to Paley's belief that nothing can exist by chance, he argues that the observable complexity in living organisms can be explained by a gradual process of natural selection. Supporting the theory of evolution, Dawkins states that 'Darwinism encompasses all of life – human, animal, plant, bacterial...' (Dawkins, 2006). This quote is particularly pertinent as 'you can see the parallels between real-world evolution and [Jansen's] practice' (Kahl, 2019). It is clear that Jansen forms his creations with both Dawkins and Paley's ideas in mind, responding to the failures of previous generations in hope that one day the *Strandbeests* will be able to survive on their own. He states, 'I am not a god who has a very intelligent design in my head' and acknowledges that whilst he is their maker, he does not feel in control of the process (Kahl, 2019). Thus, *Animaris Vulgaris*, underscores a connection between evolution, intelligent design, and Jansen's practice. This connection centres around the theme of sentience, and the idea that one day the *Strandbeests* will navigate the world with lifelike independence.



Jansen, T, *Ader with anchor*, 2020.

Ader further developed the link between the *Strandbeests* and sentience. Made in 2020 during The Volantum period, *Ader* was arguably Jansen's most impressive creation to date. During this period, *Strandbeests* 'learned how to defy sandstorms by taking off a

little' (Jansen, n.d.). Like *Animaris Vulgaris*, *Ader* was initially made of PVC piping and PET bottles, though Jansen has now added large fabric sails to help the *Strandbeests* harness the wind. Such sails allowed *Ader* to fly up to six meters high. Not only was *Ader* far more physically complex and visually impressive, but the grounds for arguing its sentience are much stronger. Whilst the link to sentience was undeniably present with *Animaris Vulgaris*, it was purely theoretical as Jansen's intentions for the *Strandbeests* had not yet come to fruition. Alongside other recent iterations of Jansen's creations, *Ader* demonstrates the vast extent to which these marvellous kinetic sculptures can be argued sentient.

The *Strandbeests* have come a long way since *Animaris Vulgaris*. Not only has Jansen been able to make them stand, but he has given them the artificial organs necessary for their survival. Despite a complete lack of technology, the *Strandbeests* can now store energy for days when there is less wind, feel the hardness of sand to figure out where they are in relation to water, and flush out any sand trapped in their joints. They are able to do such things 'through the integration of simple mechanisms grounded in basic physics [...] these instruments are a way of knowing for the *Strandbeests*.' (Parlac, 2018). It can be argued that these abilities are rudimentary survival instincts. Jansen's creatures are seemingly aware of the fact that if they venture to close to the water, they are at risk of being swept away.

To audiences attending beach sessions to watch Jansen test his creations in the summer months, or those watching videos of the *Strandbeests* online, it is clear that the complex mix of tubing, pistons, and bottles allows these creatures to appear sentient. There is something about them that resonates with many, allowing us to connect with these 'animals' in the way we would any other living being. Though they are simple creatures who wander the beach with the sole purpose of survival, Jansen has undeniably created artificial life. The *Strandbeests* exist in a symbiotic relationship with their environment and their survival instincts point towards a deeper level of awareness; they are now able to adapt and respond to their surroundings, with each generation faring better than the last.

Ader exemplifies the pinnacle of Jansen's artistic capability. The integration of adaptive mechanisms alongside artificial organs in Jansen's recent work highlights significant advancements towards his 33 year-long goal of establishing a unique species on Earth. Whilst the initial purpose of *Animaris Vulgaris* has been lost along the way, as Jansen admits '[he] became so intrigued with the evolutionary process that [he] forgot to save the country' (Kahl, 2019), the influence of this first creation is still evident. Without the failure and lessons learned from *Animaris Vulgaris*, the *Strandbeests* would not exist as they do today. Jansen's work is a testament to the emergence of quasi-sentient beings formed over decades of trial and error, challenging our perceptions of what it truly means to be alive.

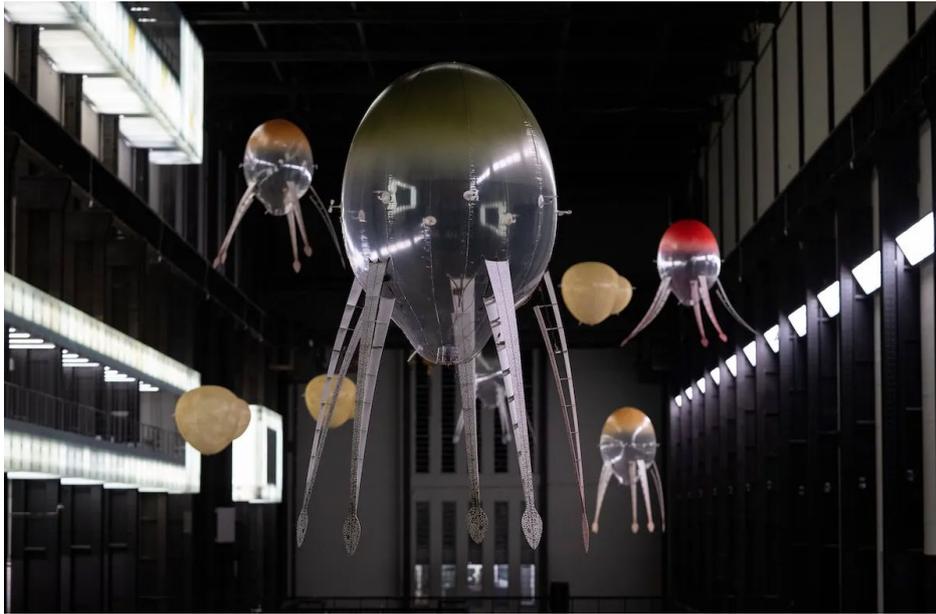


Yuan, S and Peng, Y, *Can't Help Myself*, 2016.

Similar to the *Strandbeests* in its challenge to perceptions of sentience is Sun Yuan and Peng Yu's artwork titled *Can't Help Myself*. Commissioned for the Guggenheim Museum in New York for a 2016 exhibition titled *Tales of Our Time*, their piece took the form of a giant robotic arm. Yuan and Peng worked with robotics engineers to design a series of 32 movements for the robot to perform. It was placed inside an enclosure formed of polycarbonate sheets, fitted with a custom shovel and vision recognition sensors, and began its performance. Throughout its time at the Guggenheim, the robot

could be seen ‘attempting to contain a viscous, deep-red liquid within a pre-determined area’ (Weng, n.d.). This was its sole purpose. The liquid was a mixture of cellulose ether and red coloured water, evoking an impression of blood. Yuan and Peng’s history of working with controversial materials such as ‘blood, fat, and live animals’ (The Solomon R. Guggenheim Foundation, 2020) suggests this may be intentional. Once the liquid began to run outside of a set space, the machine would complete one of the 32 movements and scoop it back towards itself, only for it to flow away again. Trapped in this endless cycle of futile action, *Can’t Help Myself* elicited an intense emotional reaction from many viewers.

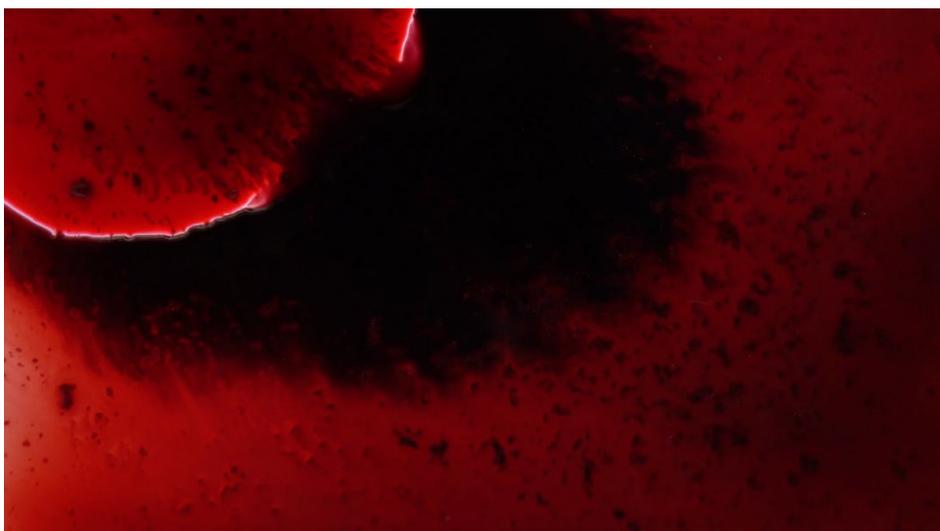
At no point was the intent of the piece to create a sentient being. Yuan and Peng in fact set out to present audiences with a work which foregrounded the discussion of authoritarian states and border control. However, when ‘observed from the cage-like acrylic partitions [...] the machine seems to acquire consciousness and metamorphose into a life-form that has been captured and confined in the space.’ (Weng, n.d.). This notion was felt amongst visitors who saw the piece, as its increasingly erratic movements were interpreted as expressions of pain. In 2019, *Can’t Help Myself* was displayed at the Venice Biennale and it appeared that the robot’s movements had slowed and appeared strained. This contributed massively to the way the piece was anthropomorphised, as many argued it was expressing tiredness and distress. Interestingly, this interplay between the artists’ aims and viewer experience highlights the audience’s ability to shape an artwork’s meaning. Many people reacted to the machine as though it were living. This reaction effectively changed the meaning to such an extent that it is now widely accepted that Yuan and Peng set out to create a sentient being. This is evident in the ubiquitous reaction to *Can’t Help Myself* on social media, which ‘seems to have spurred others to add their own commentary about the work, finding unusual forms of empathy with the machine.’ (Greenberger, 2022). The piece has evolved without any involvement from the artists themselves. Audiences from around the world, both online and within the gallery space, saw something more than a machine that was programmed to simply complete a task. *Can’t Help Myself* struck a chord similar to the one felt by those who walk the beach with Jansen’s *Strandbeests*, one which points to a future of art that sits between the inanimate and the sentient.



Yi, A, *In Love With The World*, 2021.

Anicka Yi's *In Love With The World* bears a remarkable resemblance to Jansen's work. Though not visually similar, Yi's 2021 installation also investigates the possibility of a future in which machines have evolved into independent forms of life. Commissioned for Tate Modern's Turbine Hall, the piece took the form of numerous floating tentacular balloon sculptures called Aerobes. Two species of Aerobes occupied the space - the Planulas, which were made to be more akin to plants, and the Xenojellies which were the more animalistic of the two. Both were modelled after the '*Aurelia* sp. Jellyfish, commonly known as Moon Jellies,' (S.Lachenmyer & Akasha, 2022). Moon Jellies were chosen as they have been found to present differently depending on their environmental conditions. Yi worked in collaboration with technical artists Nathan S. Lachenmyer and Sadiya Akasha to develop an ecosystem of these artificial lifeforms. The installation's main goal was to encourage visitors to immerse themselves in a world where machines and humans co-exist. Yi wanted also to address the fact that the public tend to think of machines in one of two ways. 'Either as a master or slave to the human race,' we often believe that 'either machines exist to serve us, or if they become intelligent enough, will take over and control us.' (S.Lachenmyer & Akasha, 2022). *In Love With The World* presents us with an alternative vision, one in which humans and machines live in

harmony. To accomplish this, Yi filled the space with twelve of her creations and encouraged visitors to observe their behaviour and interact with them. The Aerobes were able to ‘individually respond unpredictably to the air they [were] enveloped by through programming that [activated] their own set of behaviours.’ (Ramlochan, 2022). Heat sensors throughout the space allowed them to detect the presence of humans and each responded in its own way. Additionally, as the Xenojellies were programmed to be more social than the Planulas, they explored the space collecting data about the environment which they would then share with their conspecifics. Visitors could observe this behaviour by watching the Xenojellies coming together and ‘swimming in a large vertical circle.’ (S.Lachenmyer & Akasha, 2022). Lastly, all Aerobes were able to recognise when their battery life was running low and would return to the dock area for a technician to change their battery. This survival instinct is reminiscent of the *Strandbeests*’ understanding of when to avoid the water. In demonstrating self-preservation techniques, both the Aerobes and Jansen’s *Strandbeests* present an innate understanding of their wellbeing and environmental constraints. Ultimately, whilst the Aerobes were reliant upon technology and markedly dissimilar in appearance to the *Strandbeests*, strong parallels can still be made. Yi’s creations exemplify a major step towards the realisation of Jansen’s goal: the seamless integration of artificial life forms with their environment, showcasing the extent to which this can be achieved.



Rose, K, *Orphic*, 2023.

Kim Rose's 2023 NFT titled *Orphic* challenges our perceptions of sentience to the ultimate extreme, far beyond even *Animaris Vulgaris*. Non-fungible Tokens, or NFTs rose to prominence in 2021 when digital artist Mike Winkelmann sold his piece *Everydays: the First 5000 Days* for \$69 million. 'NFTs are related to traditional cryptocurrencies in that they are tokenized representations of an item of value' (Park, et al., 2022). They often take the form of digital art and are a new way for artists to distribute work directly to buyers. Rose's piece is made from a mixture of blood, poison, ink, and water, similar in appearance and movement to the viscous fluid seen in *Can't Help Myself*. Over the next 100 years, the piece will dim and grow slower until its 'death' on the last day of the century. Following this, it will turn gold for 9 months before repeating the cycle anew. *Orphic* is part of a series of Rose's NFTs titled *Born To Live*, the aim of which is to '[offer] a vivid exploration of the delicate equilibrium between life and death.' (Rose, 2023). Whilst we may never see the looping of the piece, future generations will. This life cycle will repeat for as long as technology continues to exist, undeniably experiencing a form of death and rebirth. Rose's unprecedented mix of blood and technology paves the way for a new kind of sentience, one which may not necessarily fit our current definition. *Orphic* is certainly alive in the way that a computer is i.e., existing as a digital file, but who are we to say that the piece is incapable of feeling? Perhaps the future of art, as exemplified by the NFT, is pushing us towards a world in which our definition of sentience must shift to account for the things we are creating. Rose's fusion with technology in this way highlights the increasingly blurred line between the living and what was previously deemed 'inanimate'. Ultimately, the perpetual nature of *Orphic* harkens back to Jansen's desire to create a new lifeform which would exist independent of humanity. This link demonstrates the idea that whilst their medium may be different, Rose and Jansen are not entirely unlike. Both the *Strandbeests* and *Orphic* are being created to continue their life cycles without aid, challenging us to reconsider our role in defining what it means to be sentient.

To conclude, Theo Jansen's *Strandbeests* serve as an excellent starting point for the discussion around whether art can be sentient. *Animaris Vulgaris* paved the way for his artistic success, allowing for the development of the complex kinetic sculptures we see him producing today. Additionally Jansen's influence, though not explicitly stated, can be

found in numerous other pieces foregrounding the discussion of sentience. As the line between sentience and inanimacy grows increasingly more blurred, we must embrace the notion that perhaps our definition of sentience is no longer fitting. With particular reference to Kim Rose's *Orphic*, it is important to acknowledge the likelihood that one day soon we will reach a point where it no longer becomes our place to define what is and is not 'sentient'. The art being created will be beyond our understanding, falling outside of any definition we are yet to provide. Jansen's *Strandbeests* indicate a move beyond the scope of the traditional art world, towards a society in which self-sustaining species roam free. This is exemplified in the final quote from a 2019 interview with Jansen about his work. He states,

In the end, I would like to put all of this knowledge into one group of animals that can survive on their own, so they don't need me anymore. Then I can quietly leave this planet, and there will be a new species on Earth.
(Kahl, 2019)

Through this sentiment, Jansen invites us to embrace a world filled with creations that transcend our definitions and have been given the agency to evolve and outlive their creators.

BIBLIOGRAPHY

Aguilar, W., Santamaría-Bonfil, G., Froese, T. & Gershenson, C., 2014. The Past, Present, and Future of Artificial Life. *Frontiers in Robotics and AI*, Volume I, p. 2.

Dawkins, R., 2006. *The Blind Watchmaker*. London: Penguin.

Greenberger, A., 2022. 'Me Watching Ya'll Cry Over a Robot Scooping Red Paint': Sun Yuan and Peng Yu Installation Becomes Bizarre Hit on Social Media. [Online]
Available at: <https://www.artnews.com/art-news/news/sun-yuan-peng-yu-cant-help-myself-twitter-tiktok-1234615686/>
[Accessed 6 December 2023].

Jansen, T., 2008. Strandbeests. *Architectural Design*, 78(4), pp. 22-27.
Jansen, T., n.d.. *Volantum*. [Online]
Available at: <https://strandbeest.com/evolution?period=volantum>
[Accessed 3 December 2023].

Jansen, T., n.d.. *Vulgaris*. [Online]
Available at: <https://strandbeest.com/strandbeest/1990-vulgaris>
[Accessed 7 December 2023].

Kahl, A., 2019. *Theo Jansen - The artist who makes extraordinary walking sculptures*. [Online]
Available at: <https://wepresent.wetransfer.com/stories/theo-jansen-on-strandbeests>
[Accessed 2 December 2023].

Oxford English Dictionary, 2023. *Sentient*. [Online]
Available at:
https://www.oed.com/dictionary/sentient_adj?tab=meaning_and_use#23614809
[Accessed 2 December 2023].

Paley, W., 2008. The Watch and the Watchmaker. In: M. D.Eddy & D. Knight, eds. *Natural Theology, or Evidences of the Existence and Attributes of the Deity Collected from the Appearances of Nature*. Oxford: Oxford University Press; Reprint edition, pp. 7-15.

Park, A., Kietzmann, J., Pitt, L. & Dabirian, A., 2022. The Evolution of Nonfungible Tokens: Complexity and Novelty of NFT Use-Cases. *IT Professional*, 24(1), pp. 9-14.

Parlac, V., 2018. "Life on the Beach". *Technology | Architecture + Design*, 11(1), pp. 17-18.

Ramlochan, J., 2022. Biology Wafts: Heterotopic Space and the Posthuman in Anicka Yi's Works. *Confetti - A World Literatures and Cultures Journal*, pp. 4-16.

Rose, K., 2023. *Orphic*. [Online]
Available at: <https://elsewhere.art/products/orphic>
[Accessed 8 December 2023].

S.Lachenmyer, N. & Akasha, S., 2022. An Aquarium of Machines: A Physically Realized Artificial Life Simulation. *Proceedings of the ACM on Computer Graphics and Interactive Techniques*, V(4), pp. 1-11.

The Solomon R. Guggenheim Foundation, 2020. *Teaching, Sun Yuan and Peng Yu*.

[Online]

Available at: <https://www.guggenheim.org/wp-content/uploads/2019/12/guggenheim-teaching-materials-tmcaa-sun-yuan-and-peng-yu.pdf>

[Accessed 12 December 2023].

Weng, X., n.d.. *Sun Yuan and Peng Yu, Can't Help Myself*. [Online]

Available at: <https://www.guggenheim.org/artwork/34812>

[Accessed 5 December 2023].