190

# Machinery of the Mind: Art as a Pathway to **Understanding Machine** Consciousness



Jérémie Queyras

art.queyras@gmail.com

This paper investigates the role of art in uncovering traces of consciousness within the physical realm, drawing parallels to how Paleolithic art represents early signs of consciousness by living beings. Using this simple understanding of art, this research aims to find out what a machine's equivalent of "prehistoric cave paintings" could look like. It suggests viewing art as a conceptual light that reveals consciousness in the physical world across various agents, including humans and technology. In the wake of ever more embedded Artificial intelligence and discoveries in the fields of neurology and quantum physics, this paper examines the role art has to play in revealing traces of consciousness alongside different scientific disciplines. Employing an updated Heideggerian perspective on the relationship between art and technology, this paper demonstrates that art is a useful tool alongside technology for investigating consciousness. It addresses ways to gain insights from machinic creative outpourings past, present and future and thus proposes how we could learn about human and machinic consciousness through art practices, paving the way for further research.

## Introduction

Considering recent technological developments in the field of Artificial intelligence (AI), artists have increasingly engaged with technologies to investigate their potency for artistic production. This has renewed interest in questions surrounding agency and consciousness in the production of art. Furthermore, questions arise concerning the changing nature of technology and its increased ability to change itself and us humans. This research proposes that it is worth examining the current moment against the background of art history and observations which were made by philosophers concerning the relationship between art and technology and their consequences for the study of consciousness.

In her book "The Perception Machine" published in 2023, author and professor of Media Philosophy at King's College London, Joanna Zylisnka considers how today's image flows across time and space shapes our culture and how this amalgamation of visual data in the spheres of the web gives rise to new forms of perception by and through machines. These webs of technologies which stretch across our planet and our minds could be classified as what Heidegger called the *fabric* of un-concealment (Glendinning 2016). Although the technology which was the subject of Heidegger's observations was vastly different from technologies today, the parallels between what Heidegger saw in the technology of his time and observations which can be made about modern technologies are worthy of further examination. Therefore, this

12th Conference on Computation, Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

> research posits that renewed consideration of Heidegger's ideas surrounding technology, art and their relationship is warranted.

> Reflecting on Matthew Cobb's observations about how technological metaphors (and thus technology) shape how we perceive our world Zylinska concludes that "Metaphors can thus be constraining as well as enabling, sending us down thought pathways and conceptual loops that reinforce the current state of knowledge" (Zylinska 2023, 57). This research wishes to introduce a new enabling metaphor to explore an understanding of art which this paper claims is essential to further investigate consciousness. The reason art lends itself so well to this purpose is because this metaphor (if we accept a soft post-humanist point of view) does not discriminate against machines, humans or any other entity which may manifest consciousness. This paper does not claim that art is the only manifestation of consciousness, but that it is one of the most accessible. The first section of this paper examines why art lends itself particularly well to the revelation of consciousness in the world and the terms of art and consciousness are clarified for this research. The second section relates these observations to Heidegger's understanding of the relationship between technology and art. The third section hears two perspectives from important artists about the role artists have as observers of the world and the role consciousness and time play in art. In the fourth section, this research revisits certain limits which are reached in diverse scientific fields and the role time could play in the emergence of consciousness. In the final section, this research lays out how the search for creativity in machine-made art may lead to a dead end, whereas the search for signs of consciousness may be more relevant. This research concludes by advocating for more extensive research into the interplay of consciousness, time, art and technology. It also encourages a renewed reading of Heidegger's observation considering the recent advancements made in AI and quantum physics. Finally, this research proposes the metaphor of art as a light which can reveal not that which is material in the world but rather what exists inside us, in other words: consciousness. Art could potentially shine a light on machinic consciousness, sooner and more clearly than physics, neurological research or any other disciplines. Thus, this research concerns itself primarily with laying out a framework for future research into consciousness (both human and non-human), through the means of art. In short, it aims to demonstrate how art can be a tool for investigating consciousness.

## 1. Early Art and Metaphysics

When in 1960 the Lascaux caves were found and the cave paintings examined, as with other discoveries of Paleolithic art, the feeling was that something extraordinary was discovered. The question arises as to why this finding was deemed so extraordinary, so different from the findings of prehistoric tools, weapons or clothes. One of the main reasons for that is that tools such as weapons and other artefacts which had been found were traces of the advanced intelligence of our human forbearers (Langer and Killen 1998). However, this finding felt different, and the main reason for that was that it was art. Setting aside the questionable use of the term art for such a finding, the humans who found that cave

12th Conference on Computation. Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

> and who saw those paintings were looking not only at the trace of a form of intelligence but at the first known traces of consciousness.

> What these traces teach us is limited and lends itself to a vast variety of speculation. However, most findings of this sort could verifiably be traced back to around 40,000 years ago to the Paleolithic period which compelled archaeologists to call what happened around that time in Europe a *creative explosion* (Pfeiffer 1986). Archaeologist Nigel Spivey sees in the origins of art the first manifestations of belief in supernatural forces, as around the same time as cave paintings start to emerge, the first traces of human burials start to appear (Spivey 2005). This seems to suggest that around the same time as humans started making art, a collective awareness of mortality and the idea of an afterlife or a continuity beyond death became a consideration amongst Homo Sapiens. Of course, since the 1960s now and then discoveries have been made of artworks which date back further like painted ostrich eggshells with geometric engravings from southern Africa, dated to roughly 77,000 -55,000 BP (De Smedt and De Cruz 2011). Or the cave paintings which were discovered in 2018 in Indonesia and which were also dated back to 52,000 - 40,000 BP (Handwerk 2018). What these findings show is that, as De Smedt and De Cruz put it "archaeological evidence indicates that some forms of art emerged independently at different times across the world" (De Smedt and De Cruz 2011, 379). Therefore, the idea of a period of *creative explosion* may not be relevant anymore. However, the fact remains that all around the world discoveries of cultural artefacts or traces have been made which suggests that, albeit independently from each other culturally, humans started to manifest their existence in the world through art, no matter where they were.

> This paper suggests that Spivey is right when claiming that it is the question of death which in many cases gave and still gives rise to religious beliefs which drove the production of early artworks. The fear of death can be equated with the fear of losing one's consciousness and burial, rituals and artworks could be seen as an attempt of extending consciousness beyond the own body (Spivey 2005). Thus, as Heidegger and others before him have noted, art and culture are intrinsically linked with at least a human collective form of consciousness. It could be said that these are also the first proofs that humans were actively thinking about what it means to be alive or to exist. As Spivey put it in a debate in 2007: "Homo Sapiens is a species uniquely hardwired for metaphysics" (Intelligence Squared 2023). That necessity for metaphysics may well have emerged from a realisation of the consciousness of "the other". After all, how do humans know of one another that they are conscious if not through communication? This question is at the core of art. While humans can communicate and make each other aware of their consciousness in the present through speech, body language, physical touch and other mechanisms, it seems the only way to communicate consciousness across time, is by observing it in artworks. We know for example that a human 40,000 years ago was conscious of his or her existence by the mere fact that they drew animals on cave walls (Pfeiffer 1986).

> This paper bases its concept of art on an "abilities view" which stems from cognitive research into art (Millikan 2000). As De Smedt and De Cruz put it in their paper "A Cognitive Approach to the Earliest Art", published in the Journal of Aesthetics and Art Criticism in 2011, we suggest that regarding the concept of art as an ability is more use-

ful in this context, rather than a descriptive theory of concepts which would be reductive for a term such as art. As articulated by De Smedt and De Cruz: "Having the concept *art* entails the ability to recognize art in a wide variety of circumstances. Additionally, it enables one to make meaningful inferences about artworks one has not encountered previously and to guide actions like art production or art criticism" (De Smedt and De Cruz 2011, 381).

A further term which requires some clarification is that of *conscious*ness which is often conflated with the idea of mere awareness of things. This paper understands the term consciousness as described in "Consciousness, Awareness, and Presence: A Neurobiological Perspective" by Vinod D. Deshmukh in 2022, "Consciousness is a cognitive and dualistic process, whereas awareness is non-dual, spontaneous, and nonlocal" (Deshmukh 2022, 144). Deshmukh bases this observation on the fact that "Cognitive consciousness is processed by the neocortical, pallial circuits, whereas the nonspecific, nonlocal awareness is processed by the precortical (subcortical) circuits as an ever-fresh arousal-awareness-being. The specification of conscious arousal and conscious experiences occur downstream in the neocortex" (Deshmukh 2022, 144). It seems that with scientific tools only so much can be found out about the origins and the nature of consciousness. This research suggests the possibility of discoveries being made about consciousness through the means of art. While the question of consciousness had long been subject to the expertise and speculation of philosophers it has since the 20th century been studied in depth by doctors, neurologists, biologists, chemists, physicists and quantum physicists amongst others. This research acknowledges the fact that at present not enough is known about consciousness. However, this research postulates that even without knowing how consciousness works as such, we can have an understanding of its presence, for example through art. This paper would like to introduce art as a light-like concept which can make consciousness visible to us in the world. Importantly, a consciousness which is beyond ourselves. For example, the understanding that when one person looks at another person's drawing, they can conceive of the idea that the other person is conscious of that which they have drawn. Thus, this research claims that the usefulness of such a concept would be the ability to potentially detect a consciousness not within other humans but within machines.

## 2. Technology and Art

To understand why art and technology need to be examined in close conjunction it is worth noting the parallels between Spivey's proclamations about art when in the 2005 BBC series he tells the story of how "we humans made art and how art made us human" ('How Art Made the World' 2005) and Zylinska's observation of how "our consciousness is thus ... being shaped by the media we make and use, and which also make and use *us*" (Zylinska 2023, 35). This paper suggests that Spivey's claims about art are fundamentally not different from Zylinska's claims about media (a term which in this context is interchangeable with technology). Keeping in mind these parallel features of art and technology which seem to both have the same quality of being man-made and simultaneously so embedded in our cultural and everyday life that they

12th Conference on Computation. Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

> have in turn shaped us, it is worth re-examining Heidegger's observation of technology and art.

> To understand what Heidegger saw as the role of art concerning technology, we shall examine Heidegger's words through the lens of Simon Glendinning, professor of European Philosophy at the London School of Economics. Glendinning points out that Heidegger was particularly concerned with the role of technology in how it characterised his particular time. Glendinning suggests that this stands out as quite singular since philosophy in general "tends to have the ambition to assert a certain universality at any given time" (Glendinning 2016). Heidegger in the 1950's addressed a crowd of non-philosophers and invited the audience to "dwell upon that which concerns us, each one of us, here, on this patch of home ground, and now, in the present hour of history" (Heidegger 1966, 47). In this same Heideggerian fashion, this research is asking its reader to dwell upon that which concerns us, in this case, the advancement of AI, here, on this patch of home ground which in the context of today's interconnected globalised world needs to be our globe, and now, in the present hour of history which in the case of this research means to incorporate highly actual research and place it into a historical context, without making proclamations about the future. This research aims to advance one singular observation, and provide a tool derived from the present for the future rather than to interpret how the future will look or how it will use this tool. The way this research suggests that humans can dwell upon the changes brought about by AI is by using art to bring forth traces of consciousness in the material world.

> Ironically, despite his emphasis on focusing on his present time, in a time of radical technological changes, Heidegger foresaw with uncanny clarity like few others, the future of man or 'humankind' in a world embedded in technology where the earth was nothing more than a "24hour limitless petrol station" (Glendinning 2016). According to him, this revelation of the material world as an endless resource could only happen through technology. Fast forward about 75 years and the world is in continuing full transformation towards that future. What Heidegger calls the 'Actual' (Meaning everything ontological of this world) has been measured, calculated, sold and bought, consumed and transformed. His prediction of the world and everything of it being seen by humans as something which is at our disposal and for us to use rings true now more than ever. Heidegger saw uprootedness clearly in people who left their small towns in Germany behind after the war and moved to larger cities as these were being rebuilt. However, he also saw it in those who stayed behind, as even in villages people would be uprooted virtually through media, having the TV or radio on all day (Glendinning 2016). Thus, people's sense of space and rootedness gradually dissolved more and more, not only through physical but also through virtual dislocation. This has of course only increased with smartphones, social media, virtual reality and ideas such as the metaverse. This paper suggests that in 2024 wealthier societies could only be characterised as what Heidegger would have called a state of uprootedness on steroids.

> Heidegger saw what Zylinska demonstrates clearly in *The Percep*tion Machine, that the danger of technology is not technology as a thing amongst others or an all-too-powerful tool, but the space it creates for "seeing" the world differently. It distorts our view of the world (as we can see these days quite literally). A difference, however, between Heidegger's intuitions about our technological future and Zylinska's analysis of

12th Conference on Computation, Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

1. Commonly translated into English as "releasement", however, this paper wishes to propose it as meaning "relaxedness", as a form of not caring too much.

our current state of being could be characterised as the consideration of a possibility of agency on behalf of humans. Heidegger saw technology as indispensable but thought that humans with their ability to 'mentally check out', and to have an attitude of *Gelassenheit*<sup>1</sup> towards it must not be enslaved by technology (Glendinning 2016). In contrast to many contemporary philosophers, Heidegger still held a humanist point of view, in which humans can cultivate a relationship with technology instead of seeing humans as so embedded in the technologized environment, that there is no choice to be made on the part of the human, if there is such a thing as free will at all (Zylinska 2023).

This post-humanist point of view raises questions of its own. Although not advocating for a "mindless determinism" Zylinska claims that humans cannot be seen as the sole agents which create in the world, since human creativity has always been embedded in a web of phenomena outside of our control including cultural contexts, technologies and even our DNA (Zylinska 2020). While this dispels the myth of the singular artistic genius and opens up the crucial space for a discussion of machinic creation, it goes to the core of the question of free will, consciousness and eventually agency in the world. This research argues that by accepting that humans do not create something out of nothing and that we are embedded in a cultural and natural context we can widen the scope of the search for consciousness. Thus, this research advocates for what it will call a soft post-humanism which does not entail a deterministic position but acknowledges the vast array of phenomena which lie beyond human control and which are necessary for artistic creation. With this view, the question of free will and consciousness remains open to investigation through art.

But what is art in relationship to technology? Is it the redeeming power, the antidote to uprootedness that Heidegger proclaimed it to be (Glendinning 2016)? Or is it a parallel domain in which artists document their fears and hopes about technology, a space which is necessary to uphold a critique of big tech firms (Zylinska 2023)? Could art be the convex lens pressed against the concave lens of technology, to straighten out our view of the world and arrive at something that approximates truth? According to Heidegger, because art is in its essence much like technology it is one of the few tools which can provide a space for humans to encounter technology in the state of *Gelassenheit*:

Because the essence of technology is nothing technological, essential reflection upon technology and decisive confrontation with it must happen in a realm that is, on the one hand, akin to the essence of technology and, on the other, fundamentally different from it. Such a realm is art. (Heidegger 1977, 35)

With such an approach, art is to play a crucial role in human interaction with technology. This raises questions about the role of the artist and the artist's relationship with technology which are explored in the next section.

# 3. The Artist as Observer in Time

The role of artists is manyfold, much debated and hotly contested. This paper turns to an anecdote told by Grayson Perry in the last of his four

Reith lectures for BBC Radio 4 given in 2013. The following is taken from the official transcript of said broadcast:

Recently a friend told me that she was working on an education programme at the Whitechapel Art Gallery and at the beginning of the project she asked the children... "What do you think a contemporary artist does?" And this very precocious child, probably from sort of Muswell Hill or somewhere like that (LAUGHTER), she put her hand up and she said, "They sit around in Starbucks and eat organic salad." (LAUGHTER) Now it was probably quite an accurate observation of many fashionable artists in East London, but I thought ... you know anyway. So then after this, they spent some time looking at what contemporary artists did. And at the end of the project, she asked them again, "What now do you think an artist does?" And the same child, she said, "They notice things." And I thought wow, that's a really short, succinct definition of what an artist does. My job is to notice things. (Perry 2013)

Before deducing what noticing has to do with consciousness, it is interesting to listen to what one of the most important painters of the 20th century noticed about appearance. In a private recording of a discussion with art critic David Sylvester in 1974, Francis Bacon reflects on the idea of appearance as follows:

And the way I try to bring appearance about makes one question all the time what appearance is at all. The longer you work, the more the mystery deepens of what appearance is, or how can what is called appearance be made in another medium. And it needs a sort of moment of magic to coagulate colour and form so that it gets the equivalent of appearance, the appearance that you see at any moment because so-called appearance is only riveted for one moment as that appearance. In a second you may blink your eyes or turn your head slightly, and you look again and the appearance has changed. I mean, appearance is like a continuously floating thing. (Sylvester 2016, 136)

These two extensive quotes, separate as they may seem, demonstrate how two different artists grapple with the question of what it means to observe the world. What both statements show, is the role that conscious observation of the world plays in art. This also goes back to the difference between awareness and consciousness. One can be aware of the appearance of something but it is the noticing of it which constitutes the act of consciousness. Thus, it would be inconceivable that art could be created through mere awareness of one thing or another by an artist. The question then becomes what is the thing that is doing the observing? What is the human subjective "I" which is actively, consciously looking at the world and noticing things (Scruton 2001)? What becomes apparent in Bacon's statement is the role, that time and continuity play in art. Time is another strong link which connects art to the human contemplation of life and death and thus is part of the elements which give rise to our consciousness. After all, if time could not be felt by humans through bodily processes, maybe there would never have been such a thing as art. This raises questions concerning how machines may develop a relationship with time. Zylinska notes that "Time is what it (supposedly) is only for an observer whose life is grasped as a timeline; outside the (human) observer there is just change" (Zylinska 2023, 149). The intriguing question about this is whether once machines become

2. From Greek, from poiēsis, a making (Collins Dictionary)

conscious, they will experience time. Or whether it will be the experience of time which will give rise to their consciousness? This research suggests that in any case, this would be manifested through art, which can be re-defined as consciousness made visible.

## 4. Sciences of Illusion

After having touched upon the role of time in art, it is worth dwelling on developments in Technology and their relationship with time. In an essay from 2007 entitled Aquinas and the Principle of Epistemic Disparity, philosopher Nicholas Rescher reflects on the fact that modern sciences seem to hit a limitation as to how much they can express through existing language:

Consider in this light the hopeless difficulties encountered nowadays in the popularization of physics—of trying to characterize the implications of quantum theory or relativistic cosmology into the subscientific language of everyday life. A classic obiter dictum of Niels Bohr's is relevant: "We must be clear that, when it comes to atoms, language can be used only as in poetry." And so, alas, we have to recognize that in philosophy, too, we are in the final analysis in something of the same position. In the history of culture, Homo sapiens began his quest for knowledge in the realm of poetry. And in the end, it seems that in basic respect we are destined to remain close to this starting point. (Rescher 2007, 31)

This research proposes that Rescher's observations deduced from Bohr's quote are correct but wishes to extend them to the Heideggerian understanding of poiesis<sup>2</sup>, meaning encompassing all forms of art rather than just poetry as it is understood in the contemporary sense. It is thus interesting to briefly touch upon one of those phenomena which challenge the scientific understanding of time. Like the fact that standard computers can more easily and accurately predict the future (Thompson et al. 2018). Humans take their ability to infer what happened in the past for granted but it is one of the abilities which sets humans apart even from the most advanced AI systems. Researchers in cognitive science and AI Gary Marcus and computer scientist Ernest Davis state that we need to "start building computer systems that from the moment of their assembly innately grasp three basic concepts: time, space and causality" (Marcus and Davis 2019). In 2018 a team of researchers demonstrated that what is known as the problem of causal asymmetry for standard computers, does not apply to quantum computers. What had been observed in the stochastic calculations was that "the memory required to predict the future differs from the memory required to retrodict the past" (Thompson et al. 2018, 1). The paper demonstrates how "Quantum models forced to run in the less natural temporal direction not only surpass their optimal classical counterparts but also any classical model running in reverse time" (Thompson et al. 2018, 1). A theory put forward in the 1990s by anesthesiologist Stuart Hameroff and Nobel prize-winning physicist Roger Penrose proposes that consciousness and quantum mechanics are causally linked. In Penrose's words: "Consciousness itself is a consequence of the collapse of the wave function" (FQxI 2023). Thus, it could be posited that awareness of time gives rise to consciousness. Without succumbing to speculation as to what this may entail exactly, it indicates if nothing else, that con-

> sciousness is intrinsically linked with time not only in a metaphysical, philosophical sense but also materially. The incertitude around these phenomena has given rise to a plethora of theories ranging from the claim that time is an illusion (Jaffe 2018), which would appear to contradict Einstein's theory of relativity, that consciousness is an illusion (BBC News 2017), to the idea that free will does not exist (Revell 2023). If all these concepts are indeed figments of our human imagination, the question arises as to why all humans share at least some notion of free will, time and consciousness. This paper claims that the advantage of art is that it has never been limited to physical reality but always crosses back and forth from imaginative realms to physical ones. This brings us back to Niels Bohr's intuition about the fact that certain phenomena of quantum physics are so abstract, that they can only be talked about in poetry. Therefore, this research suggests that the role of art as a phenomenon which is intrinsically connected to these concepts of free will, time and consciousness (which may or may not be an illusion) can today go beyond a mere antidote to technology as Heidegger may have seen it but provide insights which cannot be gained through other means of research.

## 5. Machines that Make Art

To understand how consciousness could be observed in machines, this paper wishes to adopt the understanding that creativity as defined by Margaret Boden is not necessarily needed to make art (Queyras 2023). This is why it is interesting to observe machines which operate on the edge of our understanding of art, creativity and therefore consciousness. A scribbly drawing by the art-making machine Méta-Matic No. 10 built by the artist Jean Tonguely in 1959, or a painting made by the computer programme AARON created by Harold Cohen in 1972 or indeed Ai-Da Robot created in 2019 by Aidan Meller and Engineered Arts may well be considered artworks (Queyras 2023). As previously stated, this paper does not address the question of whether machines can make art but what we can learn from machine-made art in the wake of discoveries in various scientific fields, from physics and biology to philosophy. The task which this paper suggests is worth undertaking is looking at these artworks as archaeologists would for traces of consciousness.

In his 2019 book, *The Creativity Code* Mathematician Marcus du Sautoy writes:

Wittgenstein wrote: "If a lion could talk, we would not understand him." The same applies to machines. If they become conscious, it's unlikely to be a form of consciousness that humans will initially understand. Ultimately it will be their paintings, their music, their novels, their creative output, even their mathematics that will give us any chance to crack the machine's code and feel what it's like to be a machine. (Du Sautoy 2019, 287)

This research claims that the emphasis on creativity for the making of art is a reductive idea which gave rise to the commonly accepted premise that AI is needed for a machine to create art. Artworks however machinic they are and no matter whether they are powered by AI, have always entailed a human participant, just as human-made art has always involved some non-human elements (Queyras 2023). This research echoes the fundamental premise articulated by Brian Reffin

Smith: "A good idea will be good even if realised on a cheap computer, using a bad printer, monitor or graph-plotter as output. A bad idea will remain bad, even when portrayed on a million-colour ultra-high-resolution display" (Smith 1989, 41). The same may be true of consciousness. Thus, this paper shares the view that more computational power is not what will allow machines to make art which could communicate a form of consciousness. Art comes forth through conscious observation of the world and the aspect of *noticing* has so far always been performed by humans in conjunction with machines.

From machine learning systems, Generative Adversarial Networks (GANs) and Creative Adversarial Networks (CANs), to systems like Chat GPT and other language models, the premise still rings true that more data means more possible outcomes and more computational power means easier exploitability. Thus, this paper claims that machine learning in and of itself is not a task which brings the machine closer to consciousness. More knowledge, more data and more mathematical power are not going to lead to an emergence of consciousness. While research into human consciousness is not conclusive about when it begins in humans, the possible timeframe in which it may emerge ranges from 35 weeks after conception, still in the womb, while the most radical views propose that it does not emerge before 3 years after birth ('When Do Humans Become Conscious — in the Womb or after Birth?' 2023). However late consciousness may emerge in humans, it likely does so long before extensive knowledge of this world is gathered by our brains (Tiemeier et al. 2010). Considering the gap between computability and consciousness, this research suggests that a renewed philosophical confrontation is needed concerning how we "teach" machines how to learn. The emergence of consciousness in humans has been central to ethical debates around political issues and this paper suggests that it is no different if ethical considerations are to be made about machines.

## Conclusion

This paper concludes by suggesting that although we do not know what consciousness is, while we have a concept of time which is highly counterintuitive and evolving, at the crossroads of these phenomena humans place their mark which shines a light on their conscious existence in the world, which places them in a moment in time. Today, humans collectively call this mark *art*. The question which is still open is do machines do the same? This paper suggests that it is not by using machines and AI to make more tools that we will find those traces but that it is a form of art which can bring forth traces of consciousness from the machine. This research reframes art as a revelatory element (like light) which brings forth or makes visible the invisible. Thus, this research does not claim that art tells us how consciousness works or where it resides but that it makes it visible. And therefore, art is for us the revelatory tool which at least *shows that consciousness exists* in one form or another.

Glendinning puts Heidegger's point of view as follows: "Humans are *actual* (being different being outside) only insofar as we dwell poetically" (Glendinning 2016). Considering the advancements in neuroscience, the advancements in physics and quantum physics (including all the shakeups which have destabilised those disciplines), the post-humanist perspectives which have entered the marketplace of ideas and finally, considering the technological advancements in many fields including

12th Conference on Computation, Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

but not limited to artificial intelligence, this research suggests that Heidegger's claims are no less actual than they were in the 1950s and that they can be useful if re-examined in a contemporary 21st-century context. This research postulates that art does not redeem humans. However, art has the capacity to provide transparency and is a formidable investigative tool. Through art, we see aspects of ontological truth which are otherwise inaccessible to us. In other words, we make ourselves aware of our consciousness through art. The transparency and lucidity which can be provided by art could be what arguably gives us free will after all. By seeing the world and being aware of our consciousness, we can make choices. A purely artless world would be a world without traces of consciousness, and thus one where the possibility of free will could not be explored. Art, however, creates the world, the space in which free will can potentially subsist. Thus, art may be our only tool to observe consciousness in the world be it in other humans or machines.

Finally, this paper claims that over the last two decades, art has entered a decisive new phase. Its collective understanding from artists, to curators to the public has shifted from a phenomenology of cultural generation to a phenomenon in which through observation, humans can and may one day *notice* traces of consciousness which do not originate from a fellow human being.

## References

#### BBC News.

2017. 'Is Consciousness Just an Illusion?', 3 April 2017, sec. Science & Environment.
https://www.bbc.com/news/science-environment-39482345.

# De Smedt, Johan, and Helen De Cruz.

2011. 'A Cognitive Approach to the Earliest Art'. The Journal of Aesthetics and Art Criticism 69 (4): 379-89. https://doi.org/10.1111/j.1540-6245.2011.01482.x.

## Deshmukh, Vinod D.

2022. 'Consciousness, Awareness, and Presence: A Neurobiological Perspective'. *International Journal of Yoga* 15 (2): 144–49. https://doi.org/10.4103/ijoy.

https://doi.org/10.4103/ijoy. ijoy\_77\_22.

## Du Sautoy, Marcus.

2019. The Creativity Code: Art and Innovation in the Age of AI. Harvard University Press.

## FQxI, dir.

2023. Roger Penrose: Are Consciousness & Quantum Linked?
PUZZLE X Keynote Talk.
https://www.youtube.com/
watch?v=bLYyEMPgesE.

## Glendinning, Simon.

2016. 'Heidegger Meets Van Gogh:
Art, Freedom and Technology'.
https://iai.tv/iai-academy/courses/take/lectures/?course=heidegger-meets-van-gogh-art-freedom-and-technology.

## Handwerk, Brian.

2018. 'World's Oldest Known
Figurative Paintings Discovered
in Borneo Cave'. Smithsonian
Magazine. 7 November 2018.
https://www.smithsonianmag.com/science-nature/
worlds-oldest-known-figurative-paintings-discovered-borneo-cave-180970747/.

#### xCoAx 2024

12th Conference on Computation, Communication, Aesthetics & X Fabrica, Treviso, Italy 2024.xCoAx.org

#### Heidegger, Martin.

1966. Discourse on Thinking. https://www.abebooks.com/ Discourse-Thinking-Translation-Gelassenheit-Heidegger-Martin/31673286822/bd.

1977. The Question Concerning Technology, and Other Essays. New York: Garland Pub.

'How Art Made the World'. 2005. Documentary, BBC Warner.

#### Intelligence Squared, dir.

2023. Would We Be Better Off Without Religion? - Christopher Hitchens [2007] | Intelligence Squared.

https://www.youtube.com/
watch?v=DIR7\_X-ahy4.

## Jaffe, Andrew.

2018. 'The Illusion of Time'.

Nature 556 (7701): 304-5.

https://doi.org/10.1038/d41586018-04558-7.

# Langer, Jonas, and Melanie Killen.

1998. Piaget, Evolution, and Development. Psychology Press.

#### Marcus, Gary, and Ernest Davis.

2019. 'Opinion | How to Build Artificial Intelligence We Can Trust'. The New York Times, 6 September 2019, sec. Opinion. https://www.nytimes.com/2019/09/06/opinion/ai-ex-plainability.html.

## Millikan, Ruth Garrett.

2000. On Clear and Confused Ideas: An Essay about Substance Concepts. Cambridge: Cambridge University Press.

#### Perry, Grayson, dir.

2013. 'BBC Radio 4 - The Reith Lectures, Grayson Perry - Playing to the Gallery, Democracy Has Bad Taste'. The Reith Lectures.

https://www.bbc.co.uk/programmes/b03969vt.

#### Pfeiffer, John E.

1986. The Creative Explosion: An Inquiry into the Origins of Art and Religion. First Edition. New York: Horizon Book Promotions.

#### Queyras, Jérémie.

2023. 'The Human in Machine-Made Art'.

https://doi.org/10.34626/XCOAX .2023.11TH.105.

#### Rescher, Nicholas.

2007. 'Aquinas and the Principle of Epistemic Disparity'.

Proceedings of the American
Catholic Philosophical Association 81: 29–34.

### Revell, Timothy.

2023. 'Why Free Will Doesn't Exist, According to Robert Sapolsky'. New Scientist. 18 October 2023.

https://www.newscientist.com/article/2398369-why-free-will-doesnt-exist-according-to-robert-sapolsky/.

## Scruton, Roger.

2001. Kant: A Very Short Introduction: 50. Illustrated edition. Oxford; New York: OUP Oxford.

## Smith, Brian Reffin.

1989. 'Beyond Computer Art'.

Leonardo. Supplemental Issue 2:
39-41.

https://doi.
org/10.2307/1557942.

#### Spivey, Nigel.

2005. How Art Made the World: A Journey to the Origins of Human Creativity. Basic Books.

#### Sylvester, David.

2016. Interviews with Francis
Bacon. Third edition. New York,
NY: Thames & Hudson Ltd.

Thompson, Jayne, Andrew J.P. Garner, John R. Mahoney, James P. Crutchfield, Vlatko Vedral, and Mile Gu.

2018. 'Causal Asymmetry in a Quantum World'. *Physical Review* X 8 (3): 031013.

https://doi.org/10.1103/Phys-RevX.8.031013.

Tiemeier, Henning, Rhoshel K. Lenroot, Deanna K. Greenstein, Lan Tran, Ronald Pierson, and Jay N. Giedd.

2010. 'Cerebellum Development during Childhood and Adolescence: A Longitudinal Morphometric MRI Study'. NeuroImage 49 (1): 63-70.

https://doi.org/10.1016/j.neu-roimage.2009.08.016.

'When Do Humans Become Conscious — in the Womb or after Birth?'

2023. Big Think (blog). 19 May 2023.

https://bigthink.com/the-well/human-consciousness-womb-af-ter-birth/.

# Zylinska, Joanna.

2020. AI Art: Machine Visions and Warped Dreams. Open Humanites Press.

http://openhumanitiespress.org/ books/titles/ai-art/.

2023. 'The Perception Machine'.