

Arguments for the Rise of Artificial Intelligence Art: Does AI Art Have Creativity, Motivation, Self-awareness and Emotion?

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Abstract: With the advent of artificial intelligence (AI), ‘AI art’ was born, and the concept of ‘AI aesthetics’ was derived. Despite the emergence of this new concept in art theory, the question of whether artworks created by AI have artistic and aesthetic value still needs to be debated in academia. While new concepts related to AI art are emerging, the discussion of whether a sustainable and critical theory system can be constructed in the field of computers and art, which is most closely related to it, ought to be focused on AI itself to explore whether it possesses similar characteristics of creativity and emotion as traditional art creation processes. This paper will first analyze the origins and possibilities of AI art and then explore the enormous impact of the rise of AI art on current and future human society in 4 dimensions: creativity, motivation, self-awareness, and emotion.

Keywords: Artificial Intelligence Art; Philosophy; Creativity; Emotion; Art Development.

[es] Debate en torno al auge del arte de la Inteligencia Artificial: ¿El arte de la IA cuenta con creatividad, motivación, autoconciencia y emoción?

Resumen: Con la aparición de la Inteligencia Artificial (IA), se ha originado el “arte de la IA” y, consecuentemente, se ha derivado el concepto de “estética de la IA”. A pesar de la aparición de este novedoso concepto en el ámbito de la teoría del arte, aún se debate en el entorno académico si las obras de arte generadas por la IA poseen valor artístico y estético. A medida que se desarrollan conceptos nuevos relacionados con el arte de la IA, surge el interrogante de si es posible construir un sistema teórico crítico y sostenible en el campo de la informática, el cual guarda una estrecha relación con la IA, y el campo del arte. Resulta necesario enfocarse en la propia IA para explorar si esta presenta características de creatividad y emoción análogas a los procesos tradicionales de creación artística. El presente artículo examinará, en primer lugar, los orígenes y posibilidades del arte de la IA, y posteriormente, abordará el impacto significativo que el surgimiento del arte de la IA tiene en la sociedad humana actual y futura desde cuatro perspectivas: creatividad, motivación, autoconciencia y emoción.

Palabras clave: Arte de Inteligencia Artificial; Filosofía; Creatividad; Emoción; Desarrollo Artístico.

Summary: 1. Introduction; 2. The Origins and Possibilities of Artificial Intelligence Art; 3. The Creativity and Motivation of Artificial Intelligence Art; 4. Self-awareness and Emotion in the Creation of Art by Artificial Intelligence; 5. Conclusion. References.

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1. Introduction

With the advent of the Artificial Intelligence (AI) era, ‘AI art’ has also emerged, and the concept of ‘AI aesthetics’ has been proposed. However, there are still some sensitive issues in the field of AI art that have left many artists wondering, including the possibilities of AI art, the creativity and motivation of AI art, and the self-awareness and emotion of AI in creating art, all of which deserve in-depth consideration.

2. The Origins and Possibilities of Artificial Intelligence Art

Since the early days of computers, the idea of using them in conjunction with art has been proposed. Augusta Ada King (formerly Augusta Ada Byron), daughter of the famous poet George Gordon Byron, first developed the concept of loops and subroutines, drew up ‘algorithms’ for computing programs and wrote the first ‘programming flowcharts’ (Hollings, Martin & Rice, 2018, p. 12-14). At the time, however, Ada believed that machines could not think creatively. John von Neumann, the father of modern computing, concluded that although the human brain and the computer were very different in structure, the ‘Von Neumann Machine’ could mimic the processing of information by the human brain. Computers and the human brain are essentially the same. The redundancies that the brain uses to maintain memory stability and consistency can also be fully simulated by software (Kurzweil, 2013, p. 184-189).

With the birth of the electronic computer in 1946 and the introduction of Computer Graphics (CG) by Ivan Sutherland, which was studied in greater depth by many experts, computer painting, digital media art and new media art were created. In 1950, Ben F. Laposky in the United States created the first computer ‘art’, namely “Electronic Abstractions” (Juliani et al, 2022). Laposky created abstract art using a cathode ray oscilloscope, sine wave generators, and other electronic circuits. He then used static photography to capture the electrical vibration image displayed on the oscilloscope screen. These images are considered the earliest computer graphics by academia (McKim, 2021).

Subsequently, the ‘AI Art’ and digital media art have emerged on a large scale due to the rapid advancement of computer technology, increasing internet accessibility, the close association between art and contemporary science and technology, as well as the diversification of artistic presentation methods. AI has been used to create scripts, videos, poems, compositions and paintings. In recent years, one branch of AI art, Generative art, has also made a splash. For example, Jon McCormack’s *Fifty Sisters* is a large-scale installation of 1m x 1m computer-generated images of plant forms, which have been algorithmically “grown from computer code” using AI self-evolution and generative algorithms, and do not exist in their own right. The seemingly realistic 3D plant image is essentially just a series of codes (McCormack, 2017). In fact, Japanese artist Yoichiro Kawaguchi also created the *Growth Model*

series of computer graphics and animation works in the 1970s and 1980s (Juliani et al, 2022).

Some scholars have already proposed the concept of ‘AI Aesthetics’ and explored the possibilities. Yonghui Lin gives a preliminary definition of ‘AI Aesthetics’: “the study of AI aesthetics involves researching various aesthetic issues that arise during the development of AI technology, including the style and appreciation of AI art, as well as the question of how AI views the nature of human emotion and art” (Lin, 2020). The approach is primarily rooted in philosophy and aesthetics, and involves a synthesis of multiple interdisciplinary fields such as brain science, neuroscience, biological evolution, and other relevant theories, along with the latest advancements in the field of AI. Based on this discussion, The Austrian-French artist duo **Christa Sommerer & Laurent Mignonneau** have been exploring the subtle links between bioscience and art since the 1990s. In works such as *Interactive Plant Growing* (1992) and *Portrait on the Fly* (2015), they make extensive use of computer algorithms to convey their understanding of biological forms, and even provide viewers with a deep insight into the wonders of biological evolution and growth in nature by providing them with an immersive experiential view of virtual reality (ZKM Center for Art and Media Karlsruhe, 2022). In addition, in ‘The Bush Soul’, a trilogy created by American artist **Rebecca Allen** over a three-year period from 1997 to 1999, the artist also presents her research on the topic of artificial life and the evolution of life in a virtual world within an electronic screen (Allen, 2005; Morie, 2007). Unlike the artist duo Christa Sommerer & Laurent Mignonneau, who explore digital art to express the growth of plants or create tiny computer-generated creatures, Rebecca Allen focuses on the ethical and legal implications of digital life when it is created or uploaded by humans.

The explosion of AI technology, especially in the context of today’s global technological integration, and the extraordinary speed with which AI technology has moved from the laboratory to everyday civilian use and commercialization, has made it imperative for academics to address the questions of whether AI art can stand alone as a genre of art, and whether AI art has aesthetic and artistic value. These two questions require a precise response and detailed provision.

When it comes to ‘AI Art’, people will inevitably think of the ‘creativity’ behind artistic creation and the problems of creativity-related thinking and laws. However, when discussing ‘creativity’, many artists think it is unclear and unexplained, and even think ‘creativity’ is very ‘mysterious’. Then, whether there are rules for ‘creativity’ and the related creative thinking and creative process is one of the crucial questions that AI art must face and try to solve.

As for ‘creativity’ in art, this article considers creativity a mental process that can be followed. The essence of creativity lies in the connections between things, and new relationships and connections must be constantly discovered. Relationships and connections are essential aspects of the laws of creativity and the basic logic behind AI art. The creativity of AI art relies on processes and algorithms, which in turn rely on clear logic. The basic logic is that creating art is decomposable, processable, clearly relational, representable, and datable. This is similar to the basic idea of ‘dataism’. According to ‘dataism’, the universe consists of a stream of data, and the value of any phenomenon or entity lies in its contribution to data processing (Levin & Mamlok, 2021). According to ‘dataism’, Beethoven’s *Fifth Symphony*, the stock market bubble, and the flu virus are just three different models of data flows that can

be analysed using the same basic concepts and tools. The world is “moving from a human-centred worldview to a data-centred worldview” (Harari, 2016, p. 333).

The above idea of ‘dataism’ comes from the book *Homo Deus: A Brief History of Tomorrow* by the historian and futurist Yuval Noah Harari. Nevertheless, what is even more striking about this book is that it ends with three significant developments in the world of the future: first, that science is converging on an all-encompassing dogma that all living things are algorithms and that life is about data processing; second, that intelligence is being decoupled from consciousness; and third, that unconscious but knowledgeable algorithms may soon know more about ourselves than we do (Harari, 2016, p. 353-357 & p. 359). The third point we have already learned from the so-called ‘precision push’ approach on the Internet, the first of which seems to be very favourable to the AI art, and the second of which is discussed in the Part 4 of this paper.

When discussing creativity, it is essential to mention creative thinking and models that embody the fundamental principle of creativity, known as the law of creativity. In this paper, creative thinking should be divided into the 5 levels of basic thinking, content thinking, product thinking, market thinking, and management thinking. ‘Relationship’ and ‘connection’ can be simplified to ‘association’, important thinking in creating AI art. Artists discover some laws or ‘association’ while creating art. In contrast, others are discovered with the support of big data and AI-related technologies (and probably some connections not previously discovered by humans). The ‘associative mind’ is also reflected in people’s emotions and connections to objects. For example, different colours, shapes, and brush strokes can trigger different emotions. By comparing these art forms with a large amount of data on emotions, ‘affective computing’ seeks to find connections between the two (Junior, Nogueira & Vinhal, 2008). The Part 4 of this paper will address the role of emotion in AI-generated artworks. Many artists still question the extent of AI’s creative potential and what motivates it to create art. These questions will be explored in the Part 3 of the paper.

3. The Creativity and Motivation of Artificial Intelligence Art

It is understandable to question the artistic creativity of artificial intelligence, given that, until a few years ago, only human beings could create art. However, in the context of the suggestion that humanity is facing “the demise of art”, AI could be a new star that saves art. AI could embody greater creativity and more possibilities in creating art. The motivation of AI in creating art is a complex issue that can be debated, but it cannot be ruled out that the motivation of AI in creating art is purer than that of humans.

The so-called ‘creativity’ is again linked to ‘idea’, ‘principles’, ‘thinking’, and ‘method’. The principle of the operation of everything is primarily about how everything works in the most fundamental elements of our world, such as space and time, and this is all a matter of ‘structure’. In short, structure means order. Are not all our existing artistic disciplines summarizing the methods and laws of artistic creation? One of them is the ‘structure’ of an artwork.

For instance, in the literary and cinematic arts, the demand for high-quality narrative storytelling has sparked the creation of various story structures and styles. Rob-



ert McKee's book *Story: Style, Structure, Substance, and the Principles of Screenwriting* summarises the structure, formal differences and genres of storytelling, for example "closed VS open structure", "external VS internal conflict", "linear VS non-linear time", as well as the genres of love story, horror, war, action & adventure, etc (McKee, 1997, p. 46-58 & p. 87-89). However, in 2023 the ChatGPT-4 (an AI technology-driven natural language processing tool that uses the Transformer neural network architecture) has been able to create long literary stories and plays that are non-comedic and non-satirical, even can imitate the structure and style of writers such as Shakespeare through deep learning (Hornaday, 2023; Heritage, 2023). Furthermore, in the field of AI painting, image generation models, represented by DALL-E 2, can already create new paintings based on the artistic styles of specific artists such as Van Gogh, Monet, and Dali (Fraile-Narváez, Sagredo-Olivenza & McGowan, 2022).

When it comes to the 'creation' of AI art, one way of looking at it is that 'creation' is 'creative conception' and 'composition' is 'execution'. Those who question the creativity of AI art are mainly sceptical about the ability of AI to 'conceive'. It has been argued that AI is better at imitating existing artistic styles or structures than creating new ones. In terms of the performance of artistic activities and their outcomes, AI can first produce art and create new ideas by refining existing styles. However, such new ideas cannot yet overcome the challenge of reproducible production (Li, Gu & Wang, 2020). Now, this view has lagged, and the rapid development of AI may reveal spontaneous creativity.

Some scholars distinguish between 'novelty' and 'originality', with 'novelty' being 'something from something', as in those as mentioned above 'ordinary creativity' and what M. Boden calls 'non-possible' creativity. 'Originality' is what Immanuel Kant calls genius, 'eminent creativity', 'non-realistic creativity'. These are the exemplary 'originality' that the artist seeks (Long et al, 2017).

GAN (Generative Adversarial Networks), which allows AI to learn and imitate classical works in art history, can simulate and generate works in a similar style, as exemplified by Google's Deep Dream in 'novelty' above. The main difference between CAN (Creative Adversarial Networks) and GAN is that while GAN can only imitate a certain style, CAN "learns by deviation from the originality". CAN "achieves its creativity by deviating from the learned style to enhance the arousal potential of the generative art" (Elgammal, 2017).

It is clear that CAN outperforms GAN in terms of 'originality' in terms of creativity, which may dispel some of the doubts about the creativity of AI art. CAN's programmers argue that art needs to be creative because it has "the property of being modelled by external stimuli", and that people are habituated to external stimuli, with "moderately motivating potential stimuli", too little stimulation can be boring, too much can be distasteful. The designer's task, therefore, is "to try to increase stylistic ambiguity and deviate from stylistic standards, while at the same time avoiding going so far as to be unacceptable as art" (Long et al, 2017). In a sense, CAN demonstrates the unique creative power of AI in terms of 'originality' for humans.

In this way, should we be more sceptical or expectant of AI's artistic creativity? Some scholars have argued that AI painting is no less technically advanced than that of the best artists; AI is less intimidated and more willing to innovate (Hertzmänn, 2022). Of course, it is to be expected that the creativity of AI art still has its limitations now. A significant proportion of what AI art has achieved so far is within

the existing human artistic disciplines. However, within this category, AI's artistic shortcomings are still evident in that it lacks the capacity for large-scale narrative in both visual art and literary works. Ultimately, the works presented by AI are still combinatorially generated from a selected sample pool, rather than true narrative figurative works (Mikalonytė & Kneer, 2022). However, this view may break down as AI technology continues to advance.

When it comes to the 'creativity' of artists, Marvin Minsky, one of the pioneers of AI, once proposed a point that needs to be taken seriously. He says that sometimes the obstacle to learning new thinking is that people need to put up with the discomfort of not being skilled or performing well. So one of the "secrets of creativity" is to get into the habit of enjoying that discomfort (Mikalonytė & Kneer, 2022). In the book *Creativity: Flow and the Psychology of Discovery and Invention* (Harper Perennial Modern Classics), Mihaly Csikszentmihalyi explores the practices and features of the most influential creative thinking in the contemporary world. In the introduction to this book, Csikszentmihalyi writes that true creative achievement is almost never the result of sudden insight, but of 'creative intuition' and 'inspiration' built up from a wealth of practical experience (Csikszentmihalyi, 1997). AI relies on the superstrong computing power of computers to generate more 'possibilities' for AI to choose from than the human brain. This a large number of 'possibilities' based on data analysis is similar to the 'creative intuition' and 'inspiration' generated in the artist's brain based on daily creative experience. But what makes so-called 'creative ideologists' stand out is not the number of ideas they come up with, nor the novelty of these concepts, but how they choose new ideas to continue thinking and developing (Minsky, 2007, p. 286). This makes it easier to understand why the aforementioned CAN uses "moderately motivating potential stimuli". At the same time, machines are more able to 'enjoy' or 'tolerate' discomfort and take more 'risks' than humans, which may mean that machines are more 'creative'.

In addition, in order to achieve what is called 'originality', computer programs have their own unique random functions that can play a role. Take the aforementioned generative art as an example, which breaks the path limitations of design software in the traditional sense, is no longer bound to the boundaries of software and is not a structured design system. From the point of view of originality and artistry, the calculation of beauty, done by the designer who sets the rules through computer programming, gives the design a whole new possibility, both in terms of the rules and quantification of art, and the disorder and randomness of design. It is clear that the randomness of the random function contributes in some way to the 'originality' of AI art.

When it comes to the 'motivations' of AI when it comes to making art, they may be complex, but perhaps they are purer than those of human artists. One type of motivation is the inspiration to create art. In the case of musical inspiration, for example, artificial intelligence can generate musical inspiration through changes in emotion after analysing the possible effects of emotional fluctuations on musical inspiration. Based on this, a Logistic Mapping Equation is used to give the generated chord motive and perform specific calculations that can extend a sequence of chords to develop a piece of music eventually (Li et al, 2021). The second type of motivation is the 'purpose' of artistic creation, where there is the question of 'what is the motivation' and 'is the motivation pure'. The motivation for creativity may determine the taste of a work of art, and the motivation of human artists is more complex than

that of machines, for example, to appeal to the audience or the **buyer of the artwork**, to survive and make money, to become a big hit, or to express emotions. In contrast, a machine's motives are more superficial and purer, unless humans give it sinister motives.

More often than not, many traditional terms, ideas, or concepts need to be updated to reflect a more up-to-date and inclusive approach. For example, do concepts such as 'creativity', 'motivation', 'consciousness', 'emotion', and 'intelligence' have to be 'dominated' by humans? In ***Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence***, Jerry Kaplan says that a close reading of Turing's paper reveals an intention: "I think the original question, 'machines can think', is too meaningless to be worth discussing. At the end of the 20th century, there will be such a dramatic change in the use of words, and in cultural thought in general, that we will no longer be refuted when discussing machines thinking" (Kaplan, 2015, p. 190). Many words' connotations, extensions, and targets will likely change dramatically, and many concepts will become broader and more inclusive.

5. Self-awareness and Emotion in the Creation of Art by Artificial Intelligence

At present, the most questionable aspect of AI art-making is that of self-awareness and emotion: Can AI be self-aware? Can AI have a soul? Can AI have emotions? Can AI feel pleasure or pain? Can AI have empathy or jealousy? Does AI need to have 'life experience' to create art? Can AI have empathy or jealousy, and does AI need 'life experience' to create art? These questions are still highly controversial. If AI had self-awareness and emotions, what would be the impact on humans? Will they turn the world upside down?

In order to address these controversial issues, the focus should first be on clarifying whether AI has the potential to be self-aware and emotional. As already mentioned, 'dataism' believes that research on **'affective computing'** is the key to advancing the humanisation of AI. Of course, some also argue that machines do not need 'consciousness' at all. The title of **Marvin Minsky's book *The Emotion Machine: Commonsense Thinking, Artificial Intelligence, and the Future of the Human Mind*** is a clear indication of this primary intention. In fact, in his book *Society of Mind* (1985), Marvin Minsky suggested that **"the question is not whether an intelligent machine can have emotions, but whether an emotionless machine can be intelligent"**. This has given many people an alternative perspective on the issue and suggests a relationship between emotion and intelligence.

In *The Emotion Machine: Commonsense Thinking, Artificial Intelligence, and the Future of the Human Mind*, Marvin Minsky states the goal of the book: to explain how the human brain works, to design machines that can understand and think, then to try to apply this thinking to understanding ourselves and to developing AI. In addition, emotion is the way of thinking that people use to enhance their intelligence (Minsky, 2007, p. 5-6). In this book, the author also believes that the brain enhances its primitive response mechanisms through 'Critical-Selector Machines' (Minsky, 2007, p. 27). If you can determine the problem you are facing, you will choose **a more appropriate way of thinking**. At the same time, he divides **mental activity into at least 6 levels: instinctive reaction, acquired reaction, ruminating, reflection,**

self-reflection and self-conscious emotion (Minsky, 2007, p. 31-32). Significantly, the author also proposes 6 dimensions for creating an emotional machine: consciousness, hierarchy of mental activity, common sense, thinking, intelligence, and ego. These alone take up 6 chapters of the book. Of course, the author acknowledges that it is not easy to study the consciousness and emotions of AI, and a chapter is devoted to the ‘emotion description puzzle’.

One of the more important points here is that intelligence is closely linked to emotion, and without emotion, there can be no intelligence. Early research often assumed that robots would not have consciousness and emotion. Some have compared the vital difference between robot performers and human performers: although robots can perform technical tasks, they lack all the elements of consciousness, intelligence, and emotion that contribute to developing interpretive skills (Nagl, 2022). However, the role of consciousness, intelligence, and emotion in interpreting skills is also implicit.

It is important to re-emphasise that research into the working mechanisms of the brain is a crucial issue in achieving AI awareness and emotion, where reverse engineering of the brain is in full swing and various methods of achieving emotion are being actively explored. The most complex part of the human brain is the EQ-Emotional Quotient and perceptual awareness, which AI sees as the most sophisticated technology to develop. When the brain is successfully reverse-engineered, it will be possible to use certain regions to simulate specific neurons to solve these problems, so brilliant emotional robots can become commonplace (Marinaro, 2020). Can we arbitrarily say that machines must not have emotions?

There are already practical implementations of machine-driven emotions. One approach is to use the Vor der Pol equation to create a simple non-linear dynamic model of basic emotions and to analyse how the model can represent human emotions in the presence or absence of external stimuli, thus simulating the change in emotion (Gong, Lin & An, 2019). In the case of musical emotion, for example, the PAD three-dimensional emotion model can be used, which divides emotion into three dimensions: pleasure, activation, and dominance. After extracting the musical features (note density, beat, number of variations, maximum interval, tempo, proportion of chord bars, etc.) and determining the emotion label, an emotion recognition system can be constructed. This type of system can be based on a large number of emotion-labelled music samples, and a deep learning strategy to find the regularity of the emotion recognition and establish a cognitive discriminant formula; the unknown emotion vector can then be determined automatically according to the recognition model (Li et al, 2021).

While talking about the ‘consciousness’ and ‘emotion’ of AI, one has to think about the question of whether AI has a ‘soul’ or not. Jerry Kaplan’s *Humans Need Not Apply: A Guide to Wealth and Work in the Age of Artificial Intelligence* has a section dedicated to “Putting Soul into Machines”. He mentions that the advent of recording (analogue recording) and the advent of digital recording in history have been accompanied by the suggestion that the machine behind the recording is soulless compared to traditional live or sung music, or that part of the “soul” is lost when the music is expressed in digital form (Kaplan, 2015, p. 184-185). Likewise, Walter Benjamin’s discussion of the loss of the “aura” of artworks in the mechanical reproduction age. Although the “aura” in Benjamin’s article refers mainly to the immediacy of the traditional art scene and the authenticity, high fidelity and originality of



the work (Benjamin, 1935). The “aura” at this point is close to the “soul” mentioned above. Walter Benjamin reminds us that the disappearance of “aura” is inevitable, and photography and film art once relied on “aura” or similar “soul”. However, after the disappearance of the “aura” or “soul”, photography and film art continue to flourish in the digital era. So, does AI need a ‘soul’, ‘consciousness’, and ‘emotions’ associated with it?

This has led to two very different views, one that machines can have consciousness and emotions, and one that they will not. Ray Kurzweil believes that the machines of the future will have consciousness and that humans will believe them when they say what they feel. They will have all sorts of subtle, similar emotions that will make us laugh and feel sad; they will get angry if we tell them we do not believe they are conscious. When the machines speak of their feelings and perceptual experiences, and we believe what they say is true, they truly become conscious (Kurzweil, 2013, p. 177, p. 204-205). He is also convinced that “if (non-)living organisms behaved exactly like humans in their emotional responses and were completely convincing, I would accept them as conscious entities with respect to these non-objects, and I predict that there would be a consensus in this society to accept them as well” (Kurzweil, 2013, p. 203 & p. 206). This view is close to the idea of “the Turing Test”.

“The Turing Test”, invented by British scientist Alan Mathison Turing, refers to a test taker and a testee (a person and a machine) being separated from each other and asking random questions to the testee through some device (such as a keyboard). After performing the test several times, if the machine makes more than 30% misjudgements on average per participant, then the machine passes the test and is considered to have human intelligence. If we follow this line of thought, can a machine be judged to have emotion based on a normal percentage of its emotional responses exceeding a certain value?

If machines had consciousness and emotions, it might sound like a certain amount of panic. What some believe would be a ‘disruptive’ challenge to humans is that once AI enters a stage where it is ‘artificially programmed’ for emotion management and self-awareness, so that humans can, on the one hand, design the same type of ‘breed’ on the one hand, and actively choose the type of human they want, and on the other hand, humans may create their own ‘adversaries’ or even ‘enemies’. What cannot be predicted is whether these already self-aware AI will ‘define’ their own meanings and goals in life, thus establishing their dominance with their physical and mental superiority. Indeed, Stephen William Hawking and Elon Musk, among others, have warned gravely of the dangers of future AI, which cannot go unnoticed.

However, AI’s ‘consciousness’ and ‘emotion’ may be more complex than thought, and there are those who insist that machines are not conscious and think this is not terrible. Roger Penrose, for example, takes issue with methods of judgement such as the Turing test and does not quite agree that machines have consciousness, feelings, pleasure and pain. He believes that an understanding of spiritual qualities, other than directly from AI, there is “something more substantial”. Perhaps the machines would truly be intelligent; perhaps they can think, feel and be spiritual. Or they may not be made yet. These are questions that cannot be easily dismissed (Penrose, 1990). A more distinctive view comes from the aforementioned Yuval Noah Harari: “Intelligence is being decoupled from consciousness.” He mentions that even the more conservative ‘scientific humanism’ (which, along with ‘dataism’, constitutes the two main categories of the new ‘Church of Science’) likewise believes that although hu-

mans are the pinnacle of creation and share many of the traditional humanist values, the homo sapiens as we know them are history, and we should use technology to create gods: a better form of human being. Here gods would still retain some basic human characteristics, but with upgraded physical and mental abilities and the ability to counter the most sophisticated unconscious algorithms. As intelligence is being decoupled from consciousness, and as unconscious intelligence is developing at an alarming rate, humans will have to actively upgrade their minds if they still want to keep from being kicked out of the game (Harari, 2016, p. 317).

Even more interestingly, views on the question of AI's consciousness and emotion have also collided in traditional Asian philosophical circles, with Tingyang Zhao arguing that if super-AIs are to emerge, we can only hope that they will be devoid of emotion and values. Having desires and emotions makes them cruel. Having no desires and emotions means that they will not have unique preferences for everything and will be less likely to develop bad ideas (Zhao, 2019). Rui Zhu argues that machines do not have independent consciousness, and that their so-called perceptual, computational, and analytical abilities are merely extensions of the corresponding functions of humans. Machines cannot generate their human intelligence and emotions. If human intelligence and emotions are 'grafted' onto a machine, it does not possess these abilities and emotions by itself (Zhu, 2022). Tongdong Bai argues that the risk of Strong AI having powerful capabilities without autonomy is enormous and that humans controlling it only from the outside may not be effective. If Strong AI were autonomous, the situation would be much different: humans would be able to communicate with it and develop affection and love for it, and the risks of AI would be more likely to be controlled, and the relationship between humans and AI would be transformed into a familiar social one (Bai, 2019). If this were the case, it would be more likely that the AI would be able to communicate with humans and develop affection and love for humans (Marinaro, 2020). Will this be the case? This remains to be seen.

This paper has a bold conjecture of the AI's 'emotion': even if machines do not have emotions, people may have emotions for them. A simple example is the introduction of the smartphone, which as an objective object has no emotions, but to which many people currently have 'dependent' emotions and may become anxious when they do not look at it for a while. Similarly, future robots may accompany you in your life, and even if these robots do not have emotions, they may make you feel them. So, can we say humans will not develop feelings for AI art?

Also of interest is the typology of Strong AI. There are two types of Strong AI: the first is 'human-like AI', where the machine thinks and reasons like a human being. The second category is 'non-human-like AI', where machines develop perceptions and consciousnesses that are utterly different from those of humans and use reasoning methods entirely different from those of humans. Whichever type of strong AI humans deal with in the future, it looks pretty different from traditional ones. Perhaps the artistic creativity of 'non-human-like AI' is even more expected when viewed from the perspective of artistic creation.



Conclusion

The above questions about the possibilities, creativity and motivation associated with AI art, and the self-awareness and emotion of AI in creating art have come to art practitioners as a result of the changing times, and although it feels overwhelming, there is a real need to actively understand, comprehend, digest and think deeply about them, and to be open-minded and tolerant in order to avoid jumping to conclusions about some issues. Only more and more in-depth theoretical and practical exploration across borders will be able to. Only more in-depth theoretical and practical exploration across borders can facilitate the continuous evolution and development of AI art.

References

- Allen, R. (2005). The Emergence Project: The Bush Soul. *Leonardo*, 38(4), 314-314.
- Bai, T. (2019). Rethinking the Development of Artificial Intelligence from the Perspective of Chinese Philosophy. *Academic Journal of Zhongzhou* (09), 104-109. doi: [10.3969/j.issn.1003-0751.2019.09.017](https://doi.org/10.3969/j.issn.1003-0751.2019.09.017)
- Benjamin, W. (1935). *The Work of Art in the Age of Mechanical Reproduction*, 1936.
- Csikszentmihalyi, M. (1997). Flow and the psychology of discovery and invention. *Harper-Perennial*, New York, 39, 1-16.
- Elgammal, A., Liu, B., Elhoseiny, M. & Mazzone, M. (2017). *Can: Creative adversarial networks, generating "art" by learning about styles and deviating from style norms*. doi: <https://doi.org/10.48550/arXiv.1706.07068>
- Fraile-Narváez, M., Sagredo-Olivenza, I. & McGowan, N. (2022). Painting Authorship and Forgery Detection Challenges with AI Image Generation Algorithms: Rembrandt and 17th Century Dutch Painters as a Case Study. *International Journal of Interactive Multimedia and Artificial Intelligence*, 7(7), 7-13.
- Gong, C., Lin, F. & An, X. (2019). A novel emotion control system for embedded human-computer interaction in green IoT. *IEEE Access*, 7, 185148-185156.
- Harari, Y. N. (2016). *Homo Deus: A brief history of tomorrow*. Random house.
- Hertzmann, A. (2022). *Toward Modeling Creative Processes for Algorithmic Painting*. doi: <https://doi.org/10.48550/arXiv.2205.01605>
- Heritage, S. (2023, March 24). Can an AI program really write a good movie? Here's a test (Producer, The Guardian) Retrieved March 28, 2023, from *The Guardian*. <https://www.theguardian.com/film/2023/mar/24/chapgpt-movie-script-ai>
- Hornaday, A. (2023, February 17). AI is a time-honored movie trope. Now it can write its own script. (Producer, The Washington Post) Retrieved March 28, 2023, from *The Washington Post*. <https://www.washingtonpost.com/movies/2023/02/17/ai-in-movies-screenwriting/>
- Hollings, C., Martin, U. & Rice, A. C. (2018). *Ada Lovelace: The making of a computer scientist (p. 2018)*. Bodleian Library.
- Juliani, A., Arulkumaran, K., Sasai, S. & Kanai, R. (2022). *On the link between conscious function and general intelligence in humans and machines*. doi: <https://doi.org/10.48550/arXiv.2204.05133>
- Junior, C. G. C., Nogueira, R. G. & Vinhal, C. D. N. (2008). Inteligência Artificial Distribuída: conhecendo para aplicar. *Revista EVS-Revista de Ciências Ambientais e Saúde*, 35(2), 247-256. doi: <http://dx.doi.org/10.18224/est.v35i2.644>

- Kaplan, J. (2015). *Humans need not apply*. Yale University Press.
- Kurzweil, R. (2013). *How to create a mind: The secret of human thought revealed*. Penguin.
- Levin, I. & Mamlok, D. (2021). Culture and society in the digital age. *Information*, 12(2), 68.
- Li, D., Wang, S., Zou, J., Tian, C., Nieuwburg, E., Sun, F. & Kanoulas, E. (2021). *Paint-4Poem: A Dataset for Artistic Visualization of Classical Chinese Poems*. doi: <https://doi.org/10.48550/arXiv.2109.11682>
- Li, Y., Gu, J. & Wang, L. (2020, November). Research on artificial intelligence ethics in the field of art design. *Journal of Physics: Conference Series* (Vol. 1673, No. 1, p. 012052). IOP Publishing. doi: <https://doi.org/10.1088/1742-6596/1673/1/012052>
- Lin, Y. (2020, October). Research on application and breakthrough of artificial intelligence in art design in the new era. *Journal of Physics: Conference Series* (Vol. 1648, No. 3, p. 032187). IOP Publishing. doi: <https://doi.org/10.1088/1742-6596/1648/3/032187>
- Long, D., Gupta, S., Anderson, J. B. & Magerko, B. (2017, September). The shape of story: A semiotic artistic visualization of a communal storytelling experience. In *Thirteenth Artificial Intelligence and Interactive Digital Entertainment Conference*. doi: <https://www.aaai.org/ocs/index.php/AIIDE/AIIDE17/paper/view/15876/15243>
- Marinero, A. E. (2020). Art and artificial intelligence, a window into the future of the evolution of contemporary society. *EAI Endorsed Transactions on Creative Technologies*, 7(22). Doi: <http://dx.doi.org/10.4108/eai.13-7-2018.163834>
- McKee, R. (1997). *Story: style, structure, substance, and the principles of screenwriting*. Harper Collins.
- McKim, J. (2021). Oscillons and cathode rays: photographic hybrids in early computer art. *photographies*, 14(3), 459-479.
- McCormack, J. (2017). Working with generative systems: an artistic perspective. *Electronic Visualisation and the Arts (EVA 2017)*, 213-218.
- Mikalonytė, E. S. & Kneer, M. (2022). *Can Artificial Intelligence Make Art? Folk Intuitions as to whether AI-driven Robots Can Be Viewed as Artists and Produce Art*. *ACM Transactions on Human-Robot Interaction*. doi: <https://doi.org/10.1145/3530875>
- Minsky, M. (2007). *The emotion machine: Commonsense thinking, artificial intelligence, and the future of the human mind*. Simon and Schuster.
- Morie, J. F. (2007). Performing in (virtual) spaces: Embodiment and being in virtual environments. *International Journal of Performance Arts and Digital Media*, 3(2-3), 123-138.
- Nagl, L. (2022). Digital Technology: Reflections on the Difference between Instrumental Rationality and Practical Reason. *Kantian Journal*, 41(1). doi: [10.5922/0207-6918-2022-1-3](https://doi.org/10.5922/0207-6918-2022-1-3)
- Penrose, R. (1990). Précis of The emperor's new mind: Concerning computers, minds, and the laws of physics. *Behavioral and Brain Sciences*, 13(4), 643-655. doi: <https://doi.org/10.1017/S0140525X00080675>
- Zhao, T. (2019). How Could AI Develop Its Self-consciousness? *Journal of Dialectics of Nature* (01), 1-8. doi: [10.15994/j.1000-0763.2019.01.001](https://doi.org/10.15994/j.1000-0763.2019.01.001)
- Zhu, R. (2022). Tool, Prop and Proprop: On the Technological Profile and Innovative Potential of AI Art. *China Literature and Art Criticism* (05), 50-61. doi: [10.19324/j.cnki.zgwy-pl.2022.05.008](https://doi.org/10.19324/j.cnki.zgwy-pl.2022.05.008)
- ZKM Center for Art and Media Karlsruhe. (2022). *Christa Sommerer & Laurent Mignonneau. The Artwork as a Living System*. Retrieved March 28, 2023, from ZKM Center for Art and Media Karlsruhe: <https://zkm.de/en/exhibition/2022/05/christa-sommerer-laurent-mignonneau-the-artwork-as-a-living-system>