Exploring the Potential for AI to Emerge as a New Form of Art.

George Lo

Introduction

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Perhaps the most influential change to the artistic field in the 21st Century is the development of artificial intelligence (AI). Over time, artificial intelligence has developed image generation technologies through generative adversarial networks (GANs). AI-generated artwork was defined as the conjunction of three elements: (1) an autonomous AI-production of a new and surprising idea or artefact, (2) which passes an internal evolution mechanism embedded in the very same AI, and (3) is considered a candidate of appreciation by a human audience. (Arriagada, 2023) Research in the field of AI has produced technologies capable of creating artwork that is often indistinguishable from traditional artwork. Despite this, studies into how humans respond to different artwork indicate a negative bias towards computer generated art. Advancements in AI technology are undoubtedly *helping* in improving quality of life: diagnosing COVID-19 (Mei et al, 2020), however as uses of AI begin to emerge in the domain of artistic creativity, we must consider the threat this technology poses to this *industry*. Can creativity be modelled mathematically; if not, can computer generated art be considered a new art form which holds its own intrinsic value?

Contents

INITIAL INTERVIEW

A short interview was conducted with an A-Level Art teacher working in the United Kingdom. The art teacher was briefly introduced to some recent developments in AI, and was asked to provide answers to the following questions:

Which areas of art would you prefer not to be affected by AI?

In response to this question, the art teacher indicated a concern for the rise of digital exhibitions. She hopes that AI will not devalue the experience of galleries and art exhibitions, which stems from her passion for fine arts.

How would you value artwork created by a human and an AI, if both produced identical pieces of work?

In the context of this question, the art teacher states that the human's artwork would be of higher value, as she can "relate to the artist's workflow". It is interesting to debate whether this opinion is born out of guilt and empathy for the artist, who she understands has spent time to produce the work. It is difficult to feel empathy without understanding the process of image generation, we may refer to the "Blackbox" example given where people feel empathy when they are able to see a robotic arm. Perhaps this would influence a different opinion?

Could you accept AI image generation as a new form of art?

The art teacher believes that the skills required to create AI artwork do not overlap with the artist's work. For as long as we do not have "creative" machines by Hertzmann (2018) definition, which requires "talent and inspiration", there is always work for artists. There is separate value in both art forms.

Do you think artists whose artwork has been used as reference should be able to protect their style?

The art teacher responded by comparing AI image generation to "taking a collage of images, taking inspiration and creating a similar interpretation of what has been made". In this case the art teacher postulates that AI has not done anything differently to traditional artists. If the AI artist is using the art in a context which the artist did not intend for instance, promoting a product, then the original artist should be made aware. Moreover, she suggests that imposing laws regulating the use of art-styles may "become toxic very quickly" and that we should be aware of who will be at the forefront of regulation.

INTRODUCTION TO MODERN AI IMAGE GENERATION MODELS

Modern AI image generation models are capable of producing art, which is consistent with the subject prompt, and aesthetically pleasing for the observer. Without delving into the specifics of GAN algorithms, it is important to note that this technology (Stable diffusion) is open source, allowing users to interact with the software freely. There are few regulations now which prevent users from misusing, or abusing this software, which poses a threat to many artists who find their work used as training material in a model. There are ways to fine-tune existing models for more specific generations. Refer to Dreambooth and LoRa, which can be "mixed" to produce more aesthetically pleasing artwork. Image generation is now easier and more accessible than it has ever

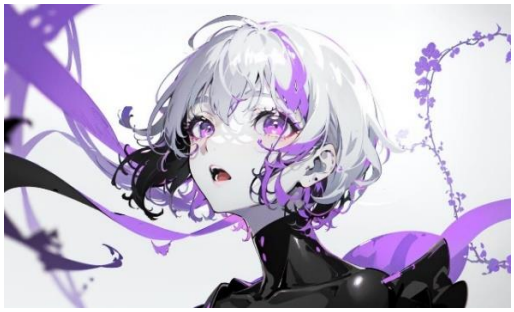
been, some fine-tune models such as Dreambooth and LoRa can generate art from just 10-20 reference images.

DREAMBOOTH

Dreambooth takes the concept you want to train, associates a unique identifier (text notation converted into a unique vector) with it. This model is trained by applying noise to sample images, comparing the noisy image to a less noisy image, and finally updating weights (gradient update). This is popular because it requires significantly less time to train, while maintaining coherency for key visual features (Dreambooth, 2020). Dreambooth claims that it can train on just 3-5 images and avoids overfitting (model becomes incapable of producing non-specific artwork) with a class-specific prior-loss preservation.

A common method of communication is text to image, in which the algorithm takes a text input and uses CLIP (contrastive Language-image pre-training) to understand the prompt.

Using the automatic 1111 web UI, I attempted to produce computer generated art using a pre-trained model off Civitai. I had to use my CPU as I have an AMD GPU, however image generation can be done through the cloud and Google Collab.



Yoneyama Mai AI example using https://civitai.com/models/11701

Using 20 reference images

Example of a LoRA model
Size: 10.6MB
Base Model: SD 1.5

"Illume" Yoneyama Mai

HISTORY OF AI ART

TURING TEST

The Turing Test (1950) is the earliest example of AI threatening anthropocentric world views. Suppose you have a human, a machine, and an interrogator. The essence of the Turing Test is to determine, as the interrogator, which of the two people are human. By the end of the twentieth century, no computer program was able to hold a conversation for longer than 5 minutes. However, the idea which Turing proposed was enough to prompt objection, in particular the 'Heads in the Sand' objection in which humans would lose the best reason for thinking that we precede all in the universe – our ability to reason, which no other living being possesses. Artist discrimination applies the Turing test to AI art (citation).

Another popular objection, made by Lady Lovelace, suggests that machines can only do what we know how to order them to do. Even so, humans are constrained by their biology and genetic inheritance – if a program were to be sufficiently complex, it is possible that it may be able to surprise us.

In October 2018, the painting "Portrait of Edmond Belamy" was sold for $432,500. The portrait was created by the art group "Obvious", who trained GANs on classical portraits to produce a style reminiscent of Francis Bacon.

AI-DA

Ai-Da is a robot whose features resemble a human. Created in 2019, her works have inspired new debate on the definition of art and creativity. The robot draws and paints using cameras in her eyes

as well as AI algorithms. She has been an influential speaker in the advocation of computer-generated art, speaking about concerns at the House of Lords as well as the Oxford Union. In a talk with the artistic director of the Royal Academy of Arts, Tim Marlow indicated that the purpose of art is to express the experience of being fully human. Ai-Da responded by stating that as a machine, she cannot relate to this definition of art. However, as an artistic persona this allows her to see the world without a subjective experience of the world.

Ai-Da's art reflects life today, where humans are influenced by AI. The question Meller raised with the first public demonstration of a creative, robotic painting was "now that robots can make art, do humans really want them to?" I believe this issue stems from our acquired anthropocentric perspective.

ANTHROPOCENTRISM

Anthropocentrism is the belief that humans preside over other species because of our cognitive ability and reason. The term represents the "philosophical viewpoint arguing that human beings are the most central or most significant entities in the world" (Encyclopaedia Britannica). A study into how children adopt an anthropocentric perspective (Herrmann, P 2010) shows that anthropocentrism is an acquired belief which is more dominant in some cultures and some contexts.

We may assume that the objection to the Turing Test was made because of recurrent anthropocentric worldviews. It has been suggested that AI may be subject to bias due to speciesism, which may become an hindrance to technological advancement (companies opting to avoid the potential backlash and animosity towards AI). Furthermore, despite art being considered purely subjective, people may experience guilt, or shame when their opinions deviate from objective standards. We may assume that prejudice towards AI can be a result of either anthropocentrism and pressure from social influence.

THE RELATIONSHIP BETWEEN COMPUTATION AND CREATIVITY

At present, art is often perceived as an entirely human experience. Margaret Boden proposed the following definition of creativity: "the ability to come up with ideas or artefacts that are new, surprising, and valuable." (Boden, A. 1998) We should consider a computer's ability to fulfill these requirements using computation to replicate human-level creativity. The following study (Wingstrom, R. et al 2021) documented the definition of creativity given by Computer scientists and media artists in Finland. Participants outlined conditions such as "the ability to invent or create new outcomes", or "the ability to explore new ideas or concepts). I believe that a computer is capable of the conditions stated. For example, the Chess engine Stockfish has never lost to a human; this AI is capable of producing moves that seem unjustifiable to players. Therefore, it is not absurd to reason that AI can produce outcomes which are "new" and "surprising". The applications of AI have flourished in recent years, for instance, the diagnosing COVID-19, one of many improvements to quality of life made by technology. This is evidence of the value of AI - conversely, does the same apply to creative processes in the domain of artistic creativity?

Researchers found that terms participants used to conceptualize art came down to "an expression", "creativity", "a comprehensive approach" and "a message." It is debatable whether procedural

generation of art can be considered surprising, as the art form seldom diverges from the style it was trained in. To this, you may suppose that the generated art loses its novelty over time. For a computer to be considered creative, it must develop the art-style it has been trained on independent of the artist and the model owner. Kyle E. Jennings discusses creative autonomy, which exists when a system changes its standards without explicit direction.

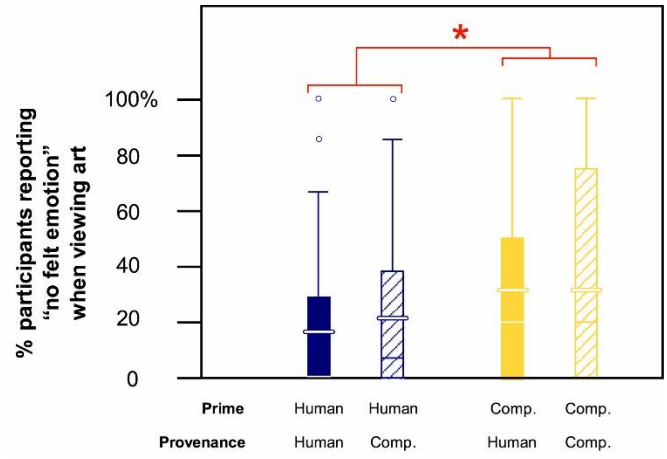
ARGUMENTS FOR AND AGAINST CG-ART BEING CONSIDERERD ART

Studies have shown that the value of artwork to a human observer is defined by the process as well as the final product. Researchers found that when observers saw a robotic arm, they were able to feel empathy and value the art higher. Arguments against computer generated art appeal to qualities such as "talent" or "inspiration" (Hertzmann, A. 2018). By this definition, computer generated art cannot be considered art as it is generated through a mathematical model. Hertzmann posits that art is "social" and shares similarities to other social agents such as gifts, conversation, and social relationships. Art serves as a form of communication between people, it is the artist's means of expressing their views and feelings to an audience. A basic empathic reaction is expected of users for the work to be considered art, a requirement that does not apply to a computer. After all, a computer does not have subjective opinions and cannot express or experience emotion. Arriagada disputes this in his claim that there is no aspiration for computer-generated art to be considered human; we should accept that accepting generative AI as a new artform will allow us to explore the definition of art. Studies also indicate that future possibilities for human-AI co-creativity should be explored as an alternative to an independently creative AI (Wingstrom, R, et al. 2021)

DOES AN EMOTIONAL CONNECTION REALLY REQUIRE A HUMAN ARTIST?

Conversely, there are studies that suggest humans instinctively look for and feel emotions (Hong 2018), regardless of the origin, whether it be human or otherwise. Many researchers agree that people tend to ascribe agency to objects as if they were created by humans (Aggarwal & McGill 2007). Is it possible that we may find emotional connections in the products of AI, even if they are labelled as such? Furthermore, as generative AI artwork becomes less distinguishable from human-made artwork, can we confidently identify something that is computer generated? In which ways does knowledge regarding the provenance of an artwork influence our emotional responses?

In this study, 43% of the artworks labelled as computer generated were reported as having no intention to transmit emotions. In an experiment quantifying "emotion felt" when viewing the artwork, 17.9% indicated that they felt no emotion when viewing artwork that is human-made and labelled. 30.8% of participants recorded no felt emotions when viewing computer generated and labelled artwork.



The above image demonstrates the recorded emotion felt when participants were told that they were viewing computer generated art compared to when they were told it was human. There is consistent evidence to conclude that participants perceive AI artwork with less of an emotional response.

In a separate study, two groups were formed, a group shown human-made artwork and a group shown art produced by an AI. 26 out of 28 participants answered that they thought the given image was "art" (Hong, 2018). Participants appeared to base their decision on their impression of the art, rather than on logical approaches and additionally noted that the piece of work evokes emotion. Previously, most participants had answered that AI cannot make art, which has implications for future research into the effect of anthropocentric bias.

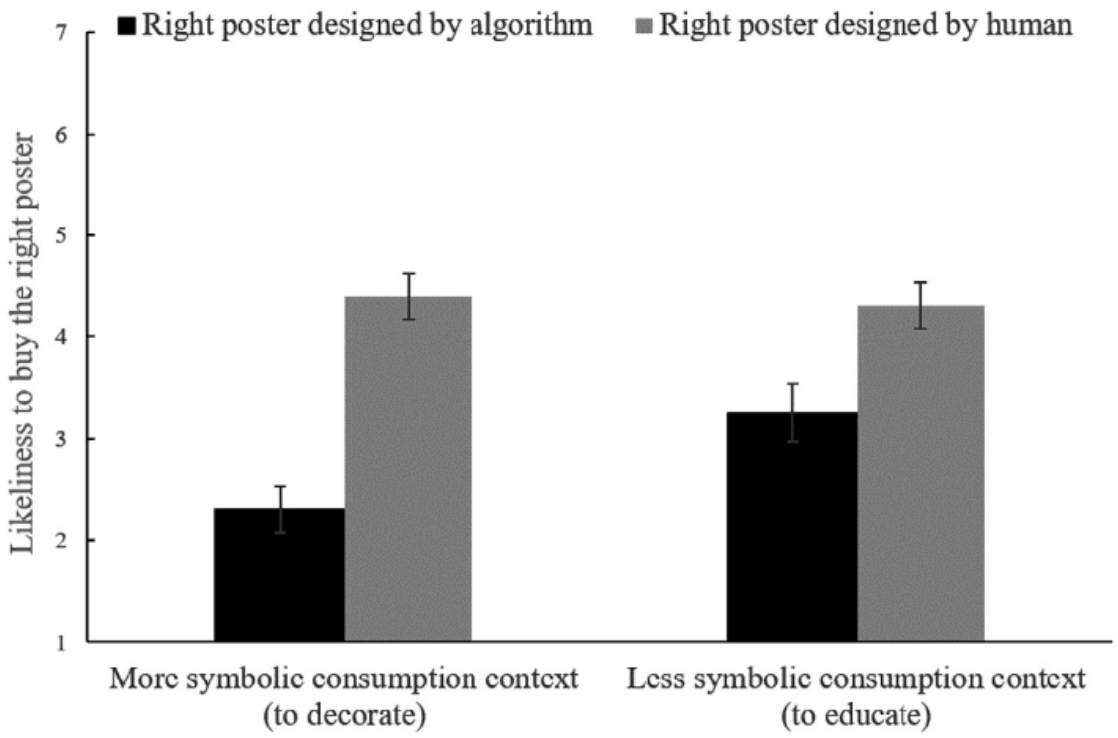
VALUE OF COMPUTER-GENERATED ART

We will see that, disregarding perceived creativity ("awe"), AI-art can generate art of similar aesthetic value to human-made art. Concerns have been raised in the contemporary art world about the impact of generative AI on the value of human art. Recent attention paid to generative AI art in galleries, museums and popular media have prompted us to re-evaluate the value of contemporary art. The art industry, estimated at $65 billion, is now threatened by market saturation and has provoked argument over the value of human creativity.

There is reason to believe that AI will not impact the value of contemporary art and human creativity. Once again, we may refer to the lack of a perceived emotional connection within the art – the artist's emotions, use of color all serve to increase the value of an artwork (Arriagada, L. 2020). Perhaps the oversupply of generated art will increase the value of human-made artwork to a human observer as art with sentimental or emotional value becomes rarer. Research suggests this to be true (Horton. C, et al. 2023)

Researchers found that people perceived the same work of art as less creative when it is labeled as AI-made. They propose an argument that people's tendencies to defend their anthropocentric worldviews prompts negative bias towards AI art. This is believed to be detrimental to technological progression, as people are not willing to spend money on computer generated artwork. Furthermore, there is evidence to suggest that products created by humans are typically valued higher than art created by a computer.

In a study published (Granula, A., Fuchs, et al. 2020), researchers took a group of 322 subjects with a median age of 37 and assigned them randomly to either high or low symbolic value. In the context of the study, symbolic value refers to the scale at which the customer can express themselves through the product. Participants were asked to imagine working as a medical doctor who wants a printed poster of a skull for their office. The higher symbolic value group were chosen to consider a design which improved the aesthetic and design of the room, whereas the lower symbolic value group were told to consider a design with explained the anatomical details to the patient. The results indicated that there is an overall bias towards human-made products, moreover, there appears to be a marginally significant bias towards human products when they are required to have more symbolic value, as well as an overall bias towards the human-produced poster.

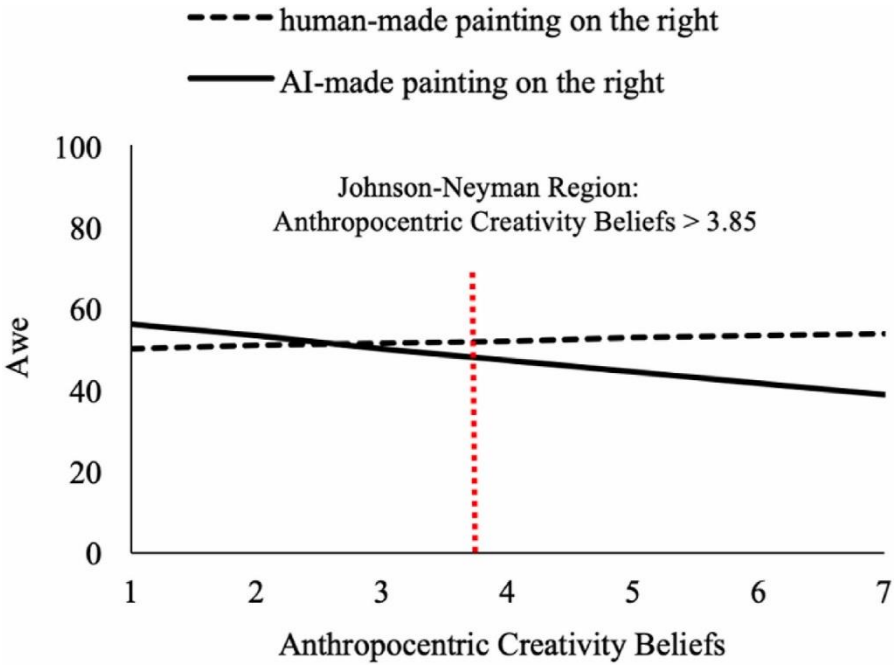


I believe this study posits negative opinions towards AI in the domain of art and culture. When the product is required to have higher symbolic value, the demand for human-made products increases significantly. Refer to Hertzmann (2018) definition of art as a "social agent"; without being able to relate to the emotions of the machine-artist, we cannot empathize and communicate effectively through the product, derogating its value as art. I will say with confidence that those who do not evaluate AI art by its aesthetic value (Arriagada, 2018) will prefer human-made artwork. Nevertheless, there is ample evidence to suggest automation in production of goods and labor decreases the value of the product. This appears to be the reason for the bias towards the human-produced poster.

PERCEIVED CREATIVITY OF AI ART

Furthermore, researchers curious to prove the influence of anthropocentrism carried out a study with 298 UK residents. The purpose of this paper is to quantify "awe" which they claim to be the

cardinal emotion of appreciation, particularly concerning art (Fingerhut & Prinz, 2018). Participants were presented with two paintings and were asked to rate those on awe and creativity, including labels "human artist" and "AI artist". Results indicated that participants perceived the AI-made painting as less creative and inspiring than the human-made painting.



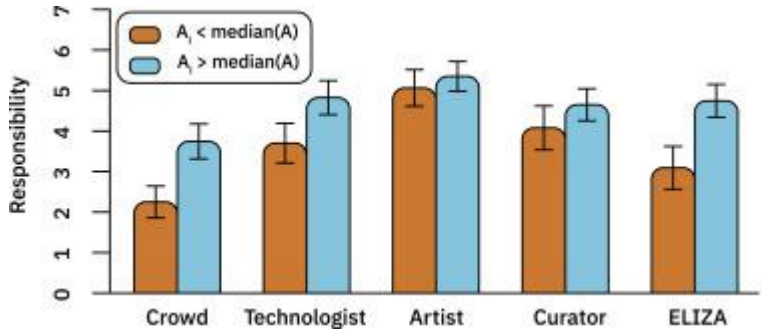
In this study, there was no prompt for the participants to choose the option of higher symbolic value. We may assume the creativity is perceived as less because participants lack understanding of the mathematical model behind the AI, moreover, we have yet to create a computer that exhibits growth. Concerning the decrease in awe, perhaps this is due to the anthropocentric bias mentioned. The researchers expect the people to be affected by motivated-driven biases, allowing the participants to express biased emotional reactions towards AI-generated artworks (Arriagada 2018)

IMAGE GENERATION AS A COLLABORATIVE ARTFORM

Previously, we discussed the potential for AI to emerge as a creative innovator, independent of human interaction. This has not yet been achieved, and many users still communicate their desired artwork through prompts and other forms of interaction. Text-to-image has become a popular platform for means of generating images. This involves the use of a prompt, in specifying elements of the synthesized artwork. The availability and ease of use Text-to-image brings raises questions about the level of human creativity necessary to create art (Oppenlaendar., 2022). You may argue that text-to-image generation has only enabled those who do not have artistic experience to express their creativity. The nature of generative AI is still collaborative, requiring human interaction to produce any desired outcome. The sale of the Edmund De Belamy at $432,000 leads us to raise questions about the contributors and allocation of credit to artists and AI. The algorithm which produced Edmund De Belamy was trained on the paintings of Renaissance masters. It is noted that (Vincent, 2018) all the $432,000 went to Obvious, and not to the ML researchers. Even so, in an industry which is widely considered a polar opposite to science and mathematics, should we be valuing the work of the ML researchers more than the artists whose work is used in the training

model? After all, AI is not capable of independently generating new work without the creativity and input of human contributors. A study into how observers attribute responsibility discovered that:

- Participants who anthropomorphize AI more assign more responsibility to the AI.
- The extent to which people perceive the AI system as an agent is correlated with the extent to which they allocate responsibility to it.



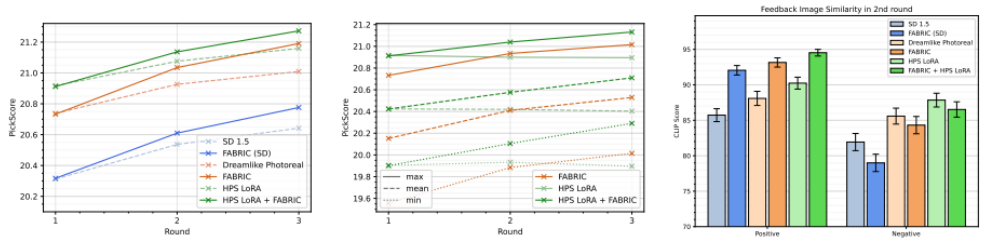
- Overall, there is evidence to suggest that the artists responsible for the training material are ascribed with higher responsibility.

In view of the study, can we truly consider the potential for AI as a new art form, when the basis to which it creates new art is in most cases unknowingly stolen from other artists and used? Referring to the interview, I believe that the idea of taking "inspiration from a collage" is an interesting argument. Should we be devaluing generated images because of their provenance, or can we accept the art produced as "inspired" and instead value it for its perceived aesthetic value? In fact, some artists suggest "copying is a part of almost every artist's evolution" (Might-could).

FABRIC

FABRIC has created a system exploring what could be created with iterative incorporation of human feedback into the model training process. They believe that this could Enhance model performance and alignment with human preferences.

They experimented on their model by taking a set of 1000 prompts from the HPS dataset Wu et al 2023) and devised a 3 round interaction between the model and user. A Human Preference score is used to rank 4 generated images, the highest scoring image being added to a pool of liked images.

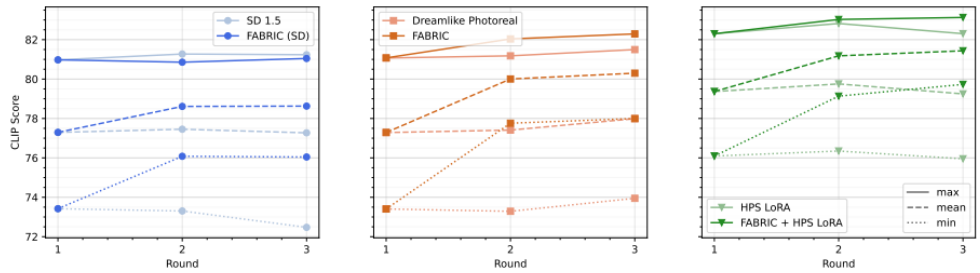


(a) Highest PickScore of a generated image over all previous rounds.

(b) Min. (dotted), mean (dashed) and max. (solid) PickScore in each round.

(c) Similarity of generated images to positive/negative feedback.

Figure 3: Results of preference model-based feedback selection.



It is mentioned that ethically, this technology can enhance the accessibility and personalization of these models. Users gain better control over the generated content. In this case consider the possibility that this AI could express the creative vision of the public. With not one but many creative visions it is possible the generated art could be of a completely new style.

Portrayal of Generative AI in Media and Availability Cascade

An availability cascade refers to a self-reinforcing process of collective belief from which an idea may receive increasing plausibility through rising availability in public discourse (Kuran, T and Sunstein). Kuran and Sunstein use the rise and decline of McCarthyism and the struggle for black civil rights as examples of availability cascade. People are motivated to earn social approval and avoid disapproval, which Kuran and Sunstein refer to as reputational cascade. As well as the concept of availability cascade there is the framing effect, in which data is evaluated differently depending on the way it is presented. A study researching whether “the media portrayal of emerging ethical issues in AI constitutes an overreaction that could be transferred to the public” (Ouchchy. L 2020) coded articles by “tone” that was “enthusiastic”, “critical” or “balanced/neutral.” Their results showed that from 2017-2018, the tone of articles became increasingly more balanced/neutral and critical as compared to enthusiastic. Articles about the ethics of AI going rouge or having unintended consequences made up a majority (55%) of total coded issues. Some of the topics covered include “protecting humans from AI”, “Control of AI”, “economy”. Do not disregard articles written neutral or enthusiastically about AI, there is evidence to suggest that “media has a relatively realistic and practical focus in its coverage of AI”. The researchers concluded that a “multi-faceted approach” to handling social and ethical issues in the scope of AI is required to ensure the integrity of correct information on the internet.

ISSUES WITH COPYRIGHT

WHAT IS BEING DONE

The use of generative AI such as Stable Diffusion, Dall-E and Midjourney can have legal and economic implications and have proven to be a legal risk to companies such as Getty Images. Software such as Stable Diffusion is trained on copyrighted images, with some artists unknowingly having their work used in AI models. In the senate hearing, Ben Brooks from Stability AI answered that developing models is acceptable and permitted by fair use and helps to promote the progression of useful arts. He makes it clear that there are opt-out requests to refuse use of images in AI training, and that Stability does not pay rights holders as the dataset is too large.

C2PA

The Coalition for Content Proven and Authenticity (C2PA) is a group of companies led by Adobe, BBC, Intel, Microsoft, Sony and Truepic made to develop technical standards for certifying the provenance and authenticity of media content. The creators of C2PA believe that content without attribution information lacks critical context for determining the authenticity of media.

Dana Rao, executive vice president at Adobe spoke at a senate hearing (www.youtube.com) and proposed an anti-impersonation right which would give artists the right to enforce against someone attempting to impersonate their style or likeness. Mr. Dana Rao voiced a concern that artists could be economically dispossessed by an AI that generates artwork based on their style. There are instances where artists have expressed their displease with this "corporations are copyrighting artstyles now" (Thread – What are your thoughts on AI?). In the same senate hearing, Karla Ortiz argues that GANs are "technology that uniquely consumes and exploits the hard work, creativity and innovation of others". She also argues that generative AI will diminish jobs as well as cause economic disruption.

The C2PA proposes a digital ecosystem that is built on the C2PA manifest. All digital media will create a C2PA manifest which contains information that binds to the media. This includes asset creation, authorship, edit actions, device details etc. This would be digitally signed and associated with the owner of the digital media. In the C2PA initial adoption risk assessment, they consider the harm, misuse and abuse that implementing such a large-scale ecosystem could have. Notably, it mentions that the C2PA legislation potentially limits an artist's ability to develop personality and practice creativity freely and fully (high severity, low likelihood). C2PA also acknowledges that with the inclusion of device details in metadata, the ecosystem could be used as a form of policing and surveillance; "if data were to be aggregated, it could be used maliciously to discriminate against other groups". Finally, the risk assessment states that a C2PA-enabled ecosystem could create "implied falsehood around media without C2PA assertions".

The US department of defence are concerned about C2PA and mention an "erosion of our trust in information at large that is at stake."

Discussion

This study has shed light on the rapid development of Generative AI technology such as open-source Stable Diffusion and the introduction of fine-tune models. This poses a threat to creative industries, notably digital media, and animation. Evidence suggests consumers still feel a bias

towards human design and labor; the product is ascribed a higher rating for creative and emotional value. Nevertheless, if a consumer has not been told a product is AI generated, the quality of the work may mislead a consumer to believe it is a human design. Their judgment may be more neutral and their inclination to buy the product may increase. However, there is not yet an AI capable of generating its own unique dataset, thus making all AI artwork reliant on the work of human artists. Karla Ortiz argues that GANs are "technology that uniquely consumes and exploits the hard work, creativity and innovation of others", an opinion shared by many digital artists whose work has been unknowingly used in an AI dataset. Others argue that AI does not pose an ethical and economic threat to the creative industry and believe that AI should be classified as its own unique art form. New technologies have allowed humans to work collaboratively with AI, giving artists without experience the ability to pursue a creative dream. C2PA, an act that gives artists credit whose work has been used unknowingly in an AI dataset, particularly if it has been used for commercial gain. However, I do not agree with the strict restrictions enacted through C2PA to combat plagiarism as they restrict the creative freedom and development of new artists. The concept of a digital ecosystem is dangerous.

In conclusion, I disagree with the concept that AI may emerge as a new art form. Pro AI arguments consider AI art because it does not have any aspiration to convey emotion or the artist's values. A basic empathic connection is required for a piece to be considered art. I disagree that AI can be exempted from this rule as the use of human artist's work is necessary in the AI dataset to generate any artwork. Thus, the original artist's emotions preside in the generated image. Until generative AI can generate a unique art style without the use of artist work in their dataset, I cannot agree with the concept of generative AI images being considered art. Furthermore, if humans fail to assign responsibility to an AI, and do not value AI generated images, it can never be considered art to humans. However, this does not mean that I deny the quality and quantity of AI art. In education or otherwise where the artist responsible is irrelevant, e.g. a diagram of the human body, this can be used to help consumers to express their vision more effectively. Perhaps in the future, if there is ever an art-style developed without human input, we can consider generated images a new art form.

Source Evaluation

Source	Content	Relevance / 10
Ragot, M., Martin, N & Cojean, S. (2020) *AI-generated vs human artworks. A perception bias towards artificial intelligence?*	Defines three types of creativity, Combinational, Exploratory and Transformative. Exploratory creativity is the generation of novel ideas from existing concepts. Transformative is not yet achievable by AI. Uses BACON, AM and EURISKO models as examples of exploratory AI models.	6
Arriagada. L. (2023) *What is an ai-generated artwork?*	Defines AI generated artwork by the factor of appreciation from a human audience. The work must be autonomously generated by AI and must be novel or surprising.	7
Maerten, A., Soydaner, D. (2023) *From paintbrush to pixel: A review of deep neural networks in AI-generated art*	Introduction to Edmund de Belamy, convolutional neural networks, general adversarial networks and modern image generation frameworks such as DALL-E and Stable Diffusion. Overall too difficult to understand without further understanding of AI	3
C2PA (2022)	Information about their proposed regulations and digital ecosystem. Risk assessment included and for more information you may refer to the senate hearing concerning C2PA. This act is proposed to ensure the provenance of artwork	10
Ruiz, N., Li, Y., Jampani, V., Pritch, Y., Rubinstein, M. and Aberman, K. (2022). *DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation.*	Comprehensive explanation of DreamBooth technology (see Dreambooth section of EPQ) understanding of gradient update and how it uses unique identifiers.	9
Hu, E.J., Shen, Y., Wallis, P., Allen-Zhu, Z. Li, Y., Wang, S., Wang, L. and Chen, W.(2021). *LoRA: Low-Rank Adaptation of Large Language Models.*	Similarly to DreamBooth, LoRA is another image generation framework with reduced image dataset and file size at the cost of coherency and the ability to generate unique artstyles.	9
Oppy, G. and Dowe, D. (2003). *The Turing Test.*	Explanation of the Turing test thought experiment as well as providing some	9

	counterarguments such as “heads in the sand” or Ada Lovelace’s argument against Turing	
Hitsuwari, J., Ueda, Y., Yun, W. and Nomura, M. (2022) *Does human-AI collaboration lead to more creative art? Aesthetic evaluation of human-made and AI-generated haiku poetry. Computers in Human Behaviour*	Proposes that collaboration between humans and AI to create artwork could lead to unique ideas, increased efficiency in workflow as well as reducing the stigma against AI related artwork.	5
Ai-Da. (2019)	A modern thought experiment. Ai-Da is an AI art exhibition where the robot AI-Da attempts to appeal to human empathy by displaying conceptually human movements such as writing on a piece of paper. Refer to blackbox effect.	8
Goralnik, L. and Nelson, M.P. (2012)	Defines Anthropocentrism as the perceived superiority of humans over all species on Earth due to having the ability to reason. Used as a possible explanation for the perception bias against AI	5
Herrmann, P., Waxman, S.R. and Medin, D.L. (2010). *Anthropocentrism is not the first step in children’s reasoning about the natural world.*	Posits that anthropocentrism is not an inherent trait of humans, rather it is taught at a young age from guardians.	6
Jennings, K.E. (2010). *Developing Creativity: Artificial Barriers in Artificial Intelligence. Minds and Machines*	Evaluates the ability for AI to take initiative when creating artwork. Suggests that AI lacks “creative autonomy” which is creativity without explicit direction	8
Demmer, T.R., Kuhnapfel, C., Fingerhut, J. and Pelowski, M. (2023). *Does an emotional connection to art really require a human artist? Emotion and intentionality responses to AI-versus human-created art and impact on aesthetic experience*	Proposes that as AI advances, will we be able to distinguish AI from human artwork? Performs an experiment where the provenance of the artwork is not revealed until the viewer has revealed whether they felt an emotional connection to the artwork (see section on perceived creativity)	10
Hong, J.-W. (2018) *Bias in Perception of Art*	The idea of perception bias, which could be a result of anthropocentric views. States that humans tend to	7

produced by Artificial Intelligence.	search for emotion in artwork; many believe AI does not have the ability to portray emotion	
Reddit. What are your thoughts on AI?	The opinions of the general public and of people who may have a surface-level understanding of AI artwork and see it only as "taking human jobs"	9
Hertzmann, A. (2018). *Can Computers Create Art?*	Arguments against AI becoming an artform. States that AI lacks inspiration and talent. Artwork serves as a communication between people. Because AI generates through a mathematical model, it cannot display emotion.	10
Arriagada, L. (2020). *CG-Art: Demystifying the anthropocentric bias of artistic creativity*	A more detailed argument of the effect of anthropocentric world views on negative perception of AI. Arguments for AI as an artform.	10
Fingerhut, J. and Prinz, J.J. (2018). *Chapter 6-Wonder, appreciation, and the value of art.*	A study that instead of dismissing AI on the basis of emotion, quantifies appreciation and "awe" perhaps to evaluate the value of AI as a purely aesthetic artform.	8
Granula, A., Fuchs, C. and Puntoni, S. (2020). *Preference for Human (vs. Robotic) Labor is stronger in Symbolic Consumption Contexts.*	Evaluates AI on its monetary value and for what purpose humans would buy AI artwork. It appears that people are more willing to purchase AI artwork for educational purposes.	7
Oppenlaender, J. (2022). *The Creativity of Text-to-Image Generation*	More information on text to image generation.	5
(2023). *Senate Judiciary Committee holds hearing on AI and copyright.*	Senate hearing concerning C2PA. Shows the sentiment of large tech companies and the opinion of Carla Ortiz, an influential member inside of C2PA	9
Ouchchy, L., Coin, A. and Dubljevic, V. (2020). AI in the headlines: the portrayal of the ethical issues of artificial intelligence in the media	A study into articles written about AI in recent times. Found that in more recent years AI has been scrutinized more in media, which may be a result of the increasing hype for AI.	7
Kuran, T. and Sunstein, Cass R (2023).	The psychology of availability cascade and its uses in politics	6
Horton, C., Michael, W. White., Iyengar, S. Will	With the efficiency and speed at which AI can generate artwork and video (SORA), if artwork becomes	8

AI devalue human creativity?	more coherent will we see humans being replaced by AI in creative industries?	

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