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Melding or Singularity from 2005-2024: The Impact and Disruptive Power of Al in the Art Market

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ABSTRACT

This research paper centers around the question of how Al will impact the art market, meaning, will it dilute it with artificially made artworks, will it create its own sub-market within the broader art market, or will it just dissolve due to the current negative perception of Al? This entails an analysis of a general audience's perception and critics' perception of already existing artworks, the perception of Al outside of the context of art, the differing perceptions of Al in different cultures, what people consider creative, and many more factors that will be broken down in this study to conclude on the central question. This study is crucial because Al is in its infancy and has taken the world by storm. So, it is imperative that a projection is made as to how generative Al algorithms focusing on visual art will impact the art market because it has massive implications for ethics, creativity, and what gives art value. Right now, there is a significant bias against Al, especially in the professional art world. However, dissidents are expressing that they see immense potential in Al as not only a tool but even something that will define the next century of art. So, there is no straight answer as to what happened. No one can see the future after all, but it is definitive that Al, independently or as a tool for artists, will send ripples through the art world and art market in the coming years and even decades.

Introduction

This research paper centers on analyzing and forecasting the potential impact of Al-generated art on the art market. A documentary analysis will be performed to carry out this research. In this paper's case, this means that other research papers involving questionnaires and surveys involving Al-generated art and human-generated art, their comparisons, and interviews on these topics. This documentary analysis sets a precedent on how Al's use in creative fields is perceived by a general audience, artists, and critics. By studying the evolution of these perceptions in the past and deep-diving into the different ways people see Al around the world, an estimation of the future trends in these perceptions can be made; this is done to understand better how Al art will fit into the worldwide art market.

Even with these analyses, it is essential to know that making perfect predictions is impossible. More than all the data will be needed to determine whether Al-generated art will become a successful commodity or fail in the face of negative perception worldwide. This study provides an empirical point of view to anticipate what is likely to happen as Al evolves and its abilities expand. However, considering the unpredictability of how Al develops and how its perception will change worldwide in different cultures with different views, this study can only scratch the surface of how Al will evolve and how the perception of what it produces will change with this evolution, and it will provide the grounded theory for future study into a niche in the field of Al art that is yet to be studied in depth, as well as its future impact on the art market.

Problem Statement

Surprisingly, Al started in the 1950s with Alan Turing. He coined the term Artificial Intelligence; then, Herbert Simon and Allen Newell made a program that could prove mathematical theorems. Speech and video processing started in the 1990s. In the 1970s, an English painter, Harold Cohen, made the first Al capable of generating art. It began with basic black-and-white drawings; by the '90s, it could generate colored paintings. In 2023, there is a long list of AI specialized in developing art; some cause all kinds of art, some only certain styles. DALL-E, Midjourney, and NightCafe are some of the most popular. Even though Al has existed for decades, it is still in its infancy and set to develop exponentially; this is because Al improves itself, and the more it improves itself, the faster it can improve itself.

Purpose

This research paper seeks to answer whether Al art will dilute the art market with an unlimited supply or if it will create its own "Al art market." This means analyzing various things: the current perception of Al in different cultures, the current abilities of generative AI algorithms that produce visual or written art, projecting how both of those things will evolve, and knowing the previous three things a projection on how Al art will settle into the art market can be made.

Justification

This study in Al art is crucial as it is in its infancy; the first Al-generated artwork was sold six years ago; meanwhile, people have been paid to make art for centuries. This investigation's uniqueness lies in that it will analyze how Al will impact the art market in the future, something that has yet to be done. Until now, studies have discussed the perception of Al in different cultures, the perception of Al art by a general audience and by art critics, the quality of Al art, and other aspects of Al and Al art pertinent to the present. No study has compiled this information to project its future impact on the art market; this impact is bound to be substantial because Al has the unique ability to produce artwork within seconds, meaning there will be a surge in the supply of art. The question is how the demand will be impacted, given that people have been shown to see Al's art differently for various reasons.

Research Questions

1. How will the surge in the use of Al to generate art for inspiration, publication, or sale impact the art market?
2. Will the practically unlimited, instantaneous supply of art Al can provide dilute the market, will a negative perception of Al authorship diminish this effect, or will it form its own sector within the market?
3. Will Al settle as an entity capable of creating "original" works of art, or will it predominantly be used as one of many tools for an artist to form and execute an idea?

Research Objectives

1. To determine Al arts' potential long-term impact on the art market.
2. To evaluate whether Al's ability to produce hundreds or thousands of works of art within seconds lowers the demand for art or if the negative perception of Al authorship will diminish this effect.

3. To assess the level of involvement Al will predominantly have in the art market, if it will produce art, or if it will serve as a tool for artists.

Theoretical Framework

This investigation compiles investigations discussing different aspects or variables impacting the influence of Al art in the art market. In various studies on how people value human authorship versus Al authorship, Al authorship proved to be a devaluating factor (Fortuna & Modlinski, 2021), although to different degrees in different cultures (Xu et al., 2020). So, Al's potential as a creative entity depends on whether people will consider Al creative. So, what do people think creativity is, and is it uniquely human? Many people argue that Al cannot be creative because he does not understand the symbols or emotions employed in art and that art does not mean anything to Al. Another aspect that people say invalidates Al's art is effort; AI algorithms can produce a work of art in seconds, while it could take artists weeks or months; the dedication an artist puts into an artwork is a factor in the perceived quality of an artwork (Chatterjee, 2022). In the international art market context, only some have to consider an artwork creative for it to sell, so it is still completely viable.

Furthermore, with every month that passes, Al's capabilities grow far faster than any other technology; this is because Al learns and improves itself, and it makes itself more capable, and as it becomes more capable, it can improve itself even faster and more efficiently; it grows exponentially; meaning, within an Al will play a decisive role in many industries, as it becomes more familiar people will perceive it better, and the art it produces will be indistinguishable from human-made art. So, Al will most likely have a space in the art market, regardless of the people who do not accept it, works for lack of creativity (Benedikter, 2020). Moreover, Al can also act as a tool or assistant in creative endeavors, artistic or scientific. Al is already used as a tool to facilitate the creative process of artists or scientists completing works (investigations, dissertations, poems, paintings, et cetera); instead of Al producing the final product, it merely serves as a sort of assistant to the author of the work, this could entail grammar checks, producing outlines, producing samples that can act as inspiration, and other indirect actions; the study calls this kind of interaction or relationship between author and Al "co-creativity"; as its capabilities grow its use in this way will also grow (Wingström et al., 2022).

Definition of Terminologies

The term "artificial intelligence" (AI) was first coined in 1955 by John McCarthy and Marvin Minsky, who hosted an 8-week workshop at Dartmouth College; this workshop reunited those who would later be considered the fathers of Al; it is considered the birth of the field. In its essence, it can be defined as a computer program capable of imitating humans' problem-solving abilities and the ability to learn (Haenlein & Kaplan, 2019). Algorithms are the instructions that serve as a basis for these abilities; they instruct a computer on what values to output given a specific input at the most basic level, but this can mean how to respond to a human prompt with an output imitating how a human would respond (Cormen et al., 2022). A generative Al is nothing more than a computer program designed to generate a response, be it written, visual, or audible, in response to a complex prompt based on the information it has been trained on. So, a generative Al algorithm designed to produce paintings will be fed paintings so it can learn from them, identifying patterns in separate styles to better respond to a prompt; it will do this in response to a complex prompt (meaning a prompt in natural language, not computer code) (Michel-Villarreal et al., 2023). Lastly, machine learning allows systems to learn from something they were fed (i.e., music, images, paintings) and adapt without explicit instruction, meaning a computer will draw its connections without humans programming them by hand (Sarker, 2021).

Review of Literature

The Prejudice Against Al Authorship

Many researchers mention the bias against Al but have yet to delve into it and prove it through a dedicated study. In this study, 565 volunteers were asked to rate artworks by Al and humans based on four factors: liking, perceived beauty, novelty, and meaning. Additionally, participants had to identify between the content created by humans and those created by Al. The investigation results validated what many researchers thought but had never received comprehensive and complete research. Based on the four criteria, it was concluded that AI authorship negatively impacts the perception of an artwork. Moreover, Al-generated art classified as human-made still scored lower than human-made art; this suggests that Al-generated art still needs to be developed more to replace artists. Eventually, most of the time, people could distinguish between works of art produced by Al and those produced by humans.

To exemplify this further, the following source stated the following:

Indeed, Al-generated paintings were less well evaluated in terms of liking, beauty, novelty, and meaning) than paintings made by humans. These results support the first results obtained by Moffat and Kelly [40] on the perception bias towards computergenerated music. To the best of our knowledge, these results had never been replicated on a large sample, with the previous methodological precautions presented. Moreover, the modified TT, in which participants have to guess the real author of the paintings, showed a better recognition of human paintings (66%) than Al-generated paintings (56%). These results are consistent with Burnett [12] for composed-computer music and are opposed to results of Moffat and Kelly [40]. In Elgammal [231, 75% of respondents thought that the Al-generated paintings were made by humans. These differences could be explained by the improvement of the techniques in computational creativity, especially with the emergence of GAN. In parallel, it should be noted that participants are better able to identify the origin of the author for portraits (69%) than for landscapes (53%). (Ragot et al., 2020)

This deep dive into the bias related to Al's authorship in the context of art proved essential; through a robust questionnaire with large sample size, the study showed a bias against Al's authorship. Moreover, participants could distinguish between Al-generated art and human-made art; this proves that Al still has a long way to go, both in technology and culturally speaking. People still see it as inferior regardless of the merit of an artwork, which is shown by the fact that human-made artworks were labeled lower when they were labeled as made by Al than when labeled as human-made. What is good about this is that it further proves how Al has space to grow, regardless of its abilities, once people accept it more as it becomes more present in our day-to-day lives. Much like any other new technology in the past, it is first feared because of its implications, which, although valid, fade away once it is integrated into society.

Is Al Capable of Producing Art, or is it an Ability Exclusive to Humans?

Previously, it was believed that only humans could create art, but this is beginning to change. This article seeks to answer the question, "Can machines create art?" It asks this question in the context of the international art business: will there be a market for machine-created art shortly? Artificial intelligence (AI) is undergoing a technological revolution as it grows more potent and gains the ability to simulate both human interactions and previously unachievable creative activities. The distinction between humans and machines is becoming hazier; in the past, machines served as tools and humans as the subject. We call this "human-machine convergence." The real breakthrough in Al will come when it begins to alter and even replicate itself, which, according to Google, it already does. There are five elements to this blending of the lines between creativity and Al. At first, it copied traditional artistic styles. Second, Al starts to recognize patterns that people would value more in beautiful artwork and designs. Third, Al begins to reproduce unpredictably. Fourth is the, sometimes physical, fusion of humans and machines in art, or "transhumanism." Fifth, technology directly engages the human mind.

That these five things have already been accomplished is astonishing. The following source elaborates on this by expressing:

On the other hand, art, whichever way we may define it, is and remains tied to the human will in its core: to the will of creation, which—as at now—is still exclusive to humans.

The will is creativity in (and as) consciousness, related (but not identical to) intelligent creation. As Ricardo Manzotti put it, in the age of neuroscience and neurotechnology we tend to give the brain all the burden which in previous times we used to give to the soul in the occidental tradition. Yet creativity is more than just brain waves, although it is related to neural activities which can be measured, recorded, imitated and reproduced to some extent by machines. The "trend to the brain" has led to a substitution of identity claims by terms of interrelations-but is this good enough for art? Do we rather need feedback loops between both sides, the brain and the will, to enter and explain the "emergence process" characteristic of art?

Most probably, all this also means to rethink the juridical and civil religion framework surrounding the art-machine interface. The sector is already profoundly questioned, long before Al may de facto change it in depth and a bit before the full "Al-art gold rush" starts. (Benedikter, 2020)

The unique perspective given by this source on the Al and creativity dilemma emphasizes the ongoing technological revolution fueled by exponential computing power growth. With Al now capable of modifying and even creating other Al systems, we stand at the precipice of machines potentially attaining and surpassing select human capabilities. The author outlined five pivotal points symbolizing the convergence of machine and human abilities, astutely noting that machines have already exhibited limited yet notable proficiency in all five aspects. This information holds paramount importance as it offers a glimpse into the future of Al's capabilities. Presently, Al systems can discern aesthetics in artworks with remarkable precision and replicate them while also possessing the ability to enhance their performance through iterative learning processes. Most astonishingly, Al systems can generate an almost limitless number of unique artworks based on those created by humans, effectively bridging the gap between artificial and human creativity, which is pivotal at the intersection of technology and creativity. Understanding these advancements becomes increasingly crucial for comprehending the evolving landscape of Al and its implications for various domains.

How Al Appreciates and Produces Art in Comparison to Humans

Al does not need to understand symbols or emotions to be employed in art; does this impede Al's success in the art market? This is crucial for Al to have a future in the art industry. Since creativity and "labor-of-love" have been valued by people since childhood, psychological research has revealed that if a machine produced an artwork in two seconds, it would not be acclaimed as highly as the identical artwork produced by an artist in a week. Similarly, people respect an original work of art more than a duplicate, even if the imitation displays an identical artistic aptitude. This prejudice has been lessened by showing the effort into developing an Al that produces these works of art; also, shown works of art are rated higher.

Moreover, these prejudices against Al may eventually disappear as they become more commonplace in culture and daily life. Mistakes are acceptable in art, even embraced, as they are subjective and creative. Al and machines, in general, are coded based on rules; computers cannot break these rules, so the idea that an objective, rules-based machine can create something completely subjective is hard to accept. However, machine learning, where computers can change their code (the rules they follow), may change this. Also, the Al is not in control of its given data set, so the programmer can rectify biases by feeding biased training data. An investigation into the psychological side of Al art appreciation elaborates on this in the following:

The beginnings of art appreciation and production that we see now, and the examples provided in the figures, might be like the video game Pong that was popular when I was in high school. Pong is a far cry from the rich immersive quality of games like Minecraft in the same way that Dall-E and Midjourney images might be a far cry from a future art making and appreciating machine.

The idea that creative pursuits are an unassailable bastion of humanity is untenable. Al is already being used as a powerful tool and even as a partner for some artists. The ongoing development of aesthetically sensitive machines will challenge our views of beauty and creativity and perhaps our understanding of the nature of art. (Chatterjee, 2022)

The historical context shown in this investigation proved to be eye-opening in that the current Al revolution is not dissimilar to when video games were first developed; it becomes evident that Al is currently in its nascent stages, brimming with untapped possibilities. The research also delves into the prevailing skepticism surrounding Al-generated art, which is not limited to the skepticism of galleries and art critics but extends to a broader public perception. However, a noteworthy finding in this study is that the negative perception of Algenerated art can be lessened when individuals recognize the substantial effort invested in its creation. This psychological aspect highlights a fundamental shift in how people perceive Algenerated art, indicating its potential to garner genuine appreciation and acceptance. The study thus serves as a compelling testament to the evolving dynamics of Al's role in the art world, offering a glimpse into a promising future where artificial intelligence and creativity converge to produce remarkable works that challenge our understanding of artistry and creativity.

Al as Creative Contributors in Science and the Arts

Co-creativity is a novel term that this study sought to define and apply to Al authorship in art. This poorly understood idea needed to be reexamined in light of the present increase in the use of Al in many scientific and artistic fields. The increased use of Al as a tool for creativity has raised questions about what exactly constitutes creativity. As a result, both artists and scientists now use the term "co-creativity" interchangeably. The author focused on the idea that artificial intelligence (Al) has advanced or is poised to advance to the point where it might contribute to a creative endeavor. Therefore, creativity may no longer be a human-centric term for those who use Al in specific ways. The problem is that artists and scientists need Al to do opposite things; artists need Al to play with ideas and explore, and scientists need Al to be trustworthy and accurate. The problem is that while artists need Al to experiment and play with ideas, scientists need Al to do tasks that require entirely different skill sets. A cross-discipline study explained that:

Furthermore, many common definitions of creativity (Boden, 2004; Puryear & Lamb, 2020) focus on novel and valuable outcomes, which Al arguably can produce. Therefore, Al can be included within these definitions, and it challenges the understanding of human-centered creativity.

On the other hand, creative Al causes tension with the human-centered perceptions on creativity. The lack of certain human traits was a critical reason why one-third of the participants opposed the idea of creative Al. For instance, scientists and artists are needed to develop and program Al that cannot act independently, and Al's lack of intention or motivation was also mentioned (cf. Mazzone & Elgammal, 2019). Moreover, although Al can "pass the Lovelace test" (Bringsjord et al., 2001) - for example, create outcomes that the audience deems creative - it cannot give meaning to such work. Thus, for many participants, acting consciously is an essential requirement that Al does not meet.

(Wingström et al., 2022)

It has become apparent that it is not a matter of whether Al will be considered a creative contributor but whether people will accept Al as a contributor to the creative process. This realization has profound implications for the art market. Al is creating its own art and influencing traditional "human-made" art. Additionally, it distinguishes a third category: the original creative process, art generated solely through the human creative process, devoid of Al input; this means that what used to be the only category will now distinguish itself as the traditional form, something many art buyers may give value that would not have been there before the Al boom. This surge in Al's co-creativity could lead to entirely new art styles, such as "living art," which reacts and evolves based on chosen variables. Consequently, this study significantly advances the understanding of Al's potential role in the creative process.

How Art is Interpreted When the Author Is Not Human

Do people value art produced by artificial intelligence like human-made art? This investigation concluded that Al's authorship hurt an artwork's value or perceived quality. Participants were asked to score both artificial intelligence (Al) and human-made works of art to determine their level of appreciation for each. In specific trials, participants were informed which artworks were produced by artificial intelligence (Al), while others were not; when "Al" was mentioned as the piece's author, they gave it less value. Participants also gave human art a higher rating than average when directly compared to Al art. Moreover, the perceived value was higher when a monetary value was given to an Al-generated artwork; this shows that people not only evaluate Al-generated artwork differently than human-made artwork, they separate it into different categories. In this regard, a study on Al art indicated:

The assessment of the perceived quality of the image painted by a human estimated in the context of information about the quality of Al painting reflected the contrast effect. It may be concluded that, as not representative exemplars, the WoA created by AI has been excluded from the category of human-made art and has formed a standard of comparison. One of the reasons why such effects may occur is the narrative used in the public discourse that presents robots and machines as a direct danger to human life. Selle (2018) found that for over forty years, Al and intelligent robots have been depicted in sci-fi books and movies as such entities that bring the destruction of human civilization.

As the automation of business and robotic processes develops, people see Al as direct competition for their position in the workplace. As a result, intelligent machines are associated with a negative rather than positive context. As Moravec (1998) and Tegmark (2017) suggested in the metaphor of a "great flood," people feel threatened by machines and try to protect their unique status, preserving some competences, such as creativity, just for their own species. (Fortuna & Modlinski, 2021)

The fact that people have been shown to separate Al art into another category from human-made art indicates how Al art could settle into the art market. Participant's distinct categorization of these art forms supports the notion that Al-generated art could potentially establish a new and distinct "sub-market" within the broader art market. It underscores that human-created art is generally considered more valuable than art generated by artificial intelligence. What is particularly intriguing is that participants tended to assign a higher perceived value to the human-made artwork when these two art forms were compared side by side. This development has the potential to impact the value of human-created art and reshape the entire landscape of the art market.

The Different Perceptions of Al in Different Cultures

It is essential to acknowledge that different cultures have different perspectives on art; some are more reserved, and some are more accepting. This study examines how people from different cultural backgrounds (the US, Germany, and China) see computer-generated art. Through a survey platform, 837 participants were signed up (apart from those whose responses were ignored or "those who failed manipulation tests") in each country, including 293 from Germany, 293 from China, and 251 from the US. The experiment used four different writing scenarios: an Al author writing poetry, a human author writing poetry, an Al author painting, and a human author painting. Both the Al-generated and the Bob Ross paintings were impressionist, and while the paintings with the human author condition had human names ascribed to them, the writers of the Al-generated painting did not. Two Al-generated poems comparable in style, length, and structure were delivered to the participants in their home tongues to lower language barriers for the poetry conditions. Like a picture, writing serves a purpose. Participants were questioned on the work's creativity and quality in open-ended and closed-ended formats. These conclusions came from the tests: Germans valued human works more highly than paintings created by artificial intelligence (AI), giving paintings and poetry the lowest overall perceived quality score.

Americans valued human works more highly than artificial intelligence (AI) artworks, awarding paintings and poetry the second highest perceived quality score. A cross-cultural study on Al states:

Results from machine learning further suggested that when participants revealed their feelings about the creative works, they did not use significantly different words between human-generated works and machine-generated works. The only exception was that U.S participants used more words such as calm, enjoy, and relax -- when viewing humanauthored paintings than when viewing machine-authored ones--suggesting that they felt more relaxed with human-authored paintings. Overall, although participants from crosscultural backgrounds assigned different discussion topics to these artworks, their responses were independent of agency cues. Considering that people initially reported lower acceptance of computers taking on interpretative roles (e.g., editorial writers, novelists) than the ones taking on routinized roles (e.g., ATM, automatic cashiers, mall guides) (Nass et al., 1995), the findings here imply that over time people's acceptance of machines assuming interpretive roles like artists and composers has increased. Even though sometimes machine-generated content could violate readers' expectations (Waddell, 2018), due to people's growing exposure to Al devices, their acceptance of machine-generated works may have grown as well. (Xu et al., 2020)

What is most beneficial to the study of this paper is that it addresses an issue with sources that do not acknowledge that different cultures see Al differently. Not only does this study focus on the different perceptions of different cultures, but it also touches on the reasoning behind it. Another stand-out aspect of this study is their methods; they used open-ended and closed-ended questions, allowing participants to write their feelings or thoughts. This difference, uncommon in the topic of research, method gave a better perspective on how different cultures perceived the Al works versus the human works. It also showed that although the quality may be seen differently, discussion topics, feelings, and thoughts are mostly the same within each culture. This holistic approach to studying cross-cultural perceptions dramatically enhances the research and contributes valuable insights into the topic of Al and how what comes out of it is interpreted.

How a General Population Perceives Al Authorship Versus How an Expert Audience Does

How art experts see Al's authorship compared to the general viewer needs to be addressed. This study evaluated the potential difference between art experts and a general audience using two studies— one with experts and the other with non-experts-using three criteria: liking, purchasing intention, and collection intention. Previous studies have indicated that the average consumer and art expert have distinct perspectives on art. Hence, the researchers focused on one aspect of people's perceptions of art that has yet to be studied: whether art expertise influences how Al's authorship affects an artwork's perceived value/quality. The researchers also referenced a previous study in which they discovered that people rated an artwork higher if it was claimed to be from an art gallery rather than an adult education center; this implies that mental frameworks are significant when evaluating an artwork's aesthetic characteristics. In the end, Study 1 found two distinctions between non-art experts' perceptions of the authorship of artificial intelligence (Al) and human artworks. First, there is no bias because when comparing artwork created by artificial intelligence to artwork created by humans, they did not change their rating for liking, purchasing intention, or collecting intention. Second, Chinese-style paintings were favored above Western-style paintings out of the two styles evaluated in the two tests. Study 2 concluded that art experts did evaluate Al-made artworks differently; they rated them worse based on the same categories as Study 1. In this regard, the following investigation can validate the following:

We expected a bias against Al-generated paintings based on existing literature on the framing effect of labels or titles in empirical aesthetics (Kirk et al., 2009; Belke et al., 2010; Hawley-Dolan and Winner, 2011; Silveira et al., 2015; Mastandrea and Umiltà, 2016; Mastandrea and Crano, 2019). However, participants (non-experts) in study 1 showed no bias against Al-generated paintings. One explanation was that the label "AIgenerated" might make observers feel novel (Israfilzade, 2020). Israfilzade (2020) found that abstract paintings were rated more novel and surprising when artificial intelligence accompanied the title, and no difference was

found in terms of complexity, interestingness, and ambiguity arousal of the paintings. Moreover, participants in study 1 showed a preference for Al-generated Chinese-style to Al-generated Western-style paintings, in line with the uncertainty-identity hypothesis (Mastandrea et al., 2021). They might be uncertain about the Al-generated context and may resort to cultural identity as an art appreciation heuristic (Gu & Li, 2022)

Pinpointing how art-related training or experience in the art field impacts the perception of Al's authorship in artworks is essential to determining Al's place in the art market. Art experts, after all, have more sway when it comes to the valuation of artwork, so it is imperative to know if they interpret Al's authorship differently. This source delved into this, which, given its specificity, has barely, if at all, been discussed. The investigation then concluded that art expertise negatively impacted the three criteria used in the survey they performed (liking, purchase intention, and collection intention). The last two criteria matter most when evaluating the financial viability of Al art. Although a general audience did appreciate Al and human authorship equally, the people considered reliable sources in the art community dissented. So, it is clear that even in a more accepting culture of technology, as shown in previous studies, there is still progress regarding negative biases towards Al's authorship in artworks.

Why Al Authorship Negatively Impacts an Artwork's Perception

It has become clear that Al tends to negatively impact an artwork's valuation, but why remains to be seen. This study first delved into whether Al can or cannot replace humans in creating art; then, the investigation explores potential explanations for this. In order to answer this question, the researchers did two experiments in which they arbitrarily assigned labels created by Al or humans to a collection of artworks produced by Al. These works of art were delivered to Study 1 participants along with a label indicating authorship, Al or human, that was not correlated to actual authorship; it was to measure how the label impacted perception. They were asked to rate the artworks on four criteria: liking, beauty, profundity, and worth. The study concluded that participants who rated artworks with the human authorship label were perceived as higher quality regardless of actual authorship. They extended the parameters from Study 1, and Study 2 added emotion, story, meaning, effort, and time to create. They did this to provide more justification for why human artwork is valued. The findings of Study 1 were confirmed. The two results show that people have a negative bias towards artificial intelligence, regardless of the artwork's merits. The source reflects this in the following:

In Study 1, for instance, we found increased effect sizes for differences between human and Al labels for the more-communicative criteria of Profundity ($d = 0.47$) and Worth ($d = 0.61$) than Liking ($d = 0.17$) and Beauty ($d = 0.22$). This distinction is further emphasized by the different interaction mechanisms discovered in Study 2. Ultimately, these results align well with hierarchical and multi-processing models of aesthetic encounters that view sensory versus communicative engagements as different pathways, including Graf and Landwehr's (2015) dual-process model of aesthetic liking and Chatterjee and Vartanian's (2016) Aesthetic Triad, which delineates a distinction between sensory- and meaning-level systems of aesthetics. Corroborating these models, our results suggest that people may feel cognitively obstructed when engaging deeply with and deriving meaning from artworks that are labelled as created by Al (or have any other label that is pejorative). Equivalently, a "human" label encourages elaborative engagement (e.g., deriving emotion, effort, narratives). However, on quick, surface-level evaluations rather than elaborative appraisals, Al art may be better appreciated. (Bellaiche et al., 2023)

Understanding why people interpret Al's authorship a certain way is just as important as knowing how they interpret it; to project how these interpretations will evolve, it is essential first to understand the reasoning behind them. This source performed a comprehensive series of studies to determine how people perceive Al's artworks versus human-made artworks regarding the authorship and why they answered the way they did, a bias against Al. The most exciting part of the study was that all the artworks were Al-generated, and the labels

were randomly assigned; this shows no real difference in "quality." It is merely a perception based on the authorship of the artwork. Using different criteria to rate the artworks further reinforced the study's conclusion because it became apparent that artworks with a "human-made" label dominated almost all criteria. The difference in "surface-level judgments" was far more negligible, but artworks with human-made labels still were received more positively. The criteria where human-made artworks were not so dominant was when participants perceived there was not much effort put into a human-made artwork; they perceived Al's artwork as better in the "Story" category, meaning that participants felt that they could extract a story from the artwork more if it was labeled as Al-made rather than human-made, as long as the "Effort" criteria were low on the human-made one. So, the dominance of the human-made label does not mean that Al artworks could not be appreciated or are not "valid"; they were still well received, and given that all the artworks were Al-generated, it is clear that it is not a matter of quality but merely a matter of biases and perceptions.

The Interaction Between Machine Learning Algorithms and the Art Community

Something neglected in the study of the implications of Al's authorship in the art context is the artists' and the art critics' perceptions and feelings about the matter. This investigation sought to determine how artists see and analyze the interaction between human and machine creation, how generative algorithms influence their creative processes, and what kind of complementarity exists between algorithmic and human creativity. During a three-year case study, they examined how artists and curators used machine learning technologies in their creative processes. These partnerships ranged from straightforward complementarity in the creative process to automation. Although Al can produce art, it has yet to gain traction, meaning the art community has not accepted it. With this in mind, the study concluded that Al serves better as a tool rather than an independent "artist." That does not mean that, in the future, it will not be able to produce art independently once it has developed more. This "future" may not be so far since this study began in 2019, right around when Al use started surging. It has been developed far more since and will improve faster the more it improves. The following excerpt will further discuss this by indicating:

There's been a lot of hype and overinflated interest in Al art, it's very much the height of the Al art summer. But I don't know if it will continue as its own movement. I expect some of the art, particularly generative art, to become part of the lineage and narrative of the computer arts movement. And some of the art will be absorbed into fine or contemporary art or media art, where Al artists will compete with all the other artists who are painting landscapes or creating critical works that look at society, and there the technique will become a bit more secondary than it is now. Bailey, for his part, is more optimistic. To him, generative art is "the most important artwork of our generation", a currently undervalued movement which will come to define the early 21st century.

Pushing back against what he calls "a massive bias against digital art and digital artists" in the art world, he explains: Not only is digital art important, it's the most important artwork of our generation. I think of generative art in particular as the history of our generation made visible. To me, everybody's missing the bus on that, which is also a good signal, because historically, we do a very lousy job of celebrating the most important art as it's happening. It's usually after artists die and we've moved on that we figure out what actually mattered. For me, it's clear that digital art is the art of our generation. It's undervalued now, but I don't think that'll last. (Ploin et al., 2022)

Understanding how artists feel about Al's authorship is essential because they are making the art (in the case of a collaborative process, not Al as an independent artist). This source provided a fascinating perspective because the study lasted various years and covered artists and curators. Throughout the study, artists went through a creative process where generative algorithms sometimes took a complementary role and sometimes a completely independent role. Although they concluded that Al could not be effective as an independent creative entity, in a complementary role, it could benefit artists a lot. So, in a collaborative role, Al opens a whole

new field for artists, especially beginners who may struggle with ideas. Generative algorithms can produce tens or hundreds of images within seconds, providing plenty of inspiration for artists. On the other hand, artists can train the algorithms to produce specific images based on certain conditions, such as the viewer of the artwork in a gallery, which can impact how an artwork on a screen looks. So, Al cannot act independently as an artist very well, but it can act as a potent tool, opening up new genres and possibilities.

The Ethical Implications of Al

An essential factor to consider is Al's ethics; this can be about the artworks or data used to train Al or how Al may displace many artists in the art market. This source contemplated the application of Al in art, that is, to examine its influence on aesthetics, the creative process, and how authorship alters the viewpoint of its audience. The possible advantages, disadvantages, and ethical ramifications are discussed in length. This source offered an intriguing viewpoint since it examined actual Al artworks, how people generally perceive them, and how they may affect the art industry. While there was doubt about Al algorithms producing works of art, there were more encouraging comments. Al has clearly shown to be a beneficial tool for established artists and a means of achieving success for up-and-coming artists; there are significant ramifications for an algorithm trained on previously created works. People are now wondering if Al-generated artworks are truly creative or how valid an artwork made with Al's help is.

Additionally, it may lead to prejudice; an AI educated on works of art that distort reality may generate visuals that do the same. Since human creativity is based on human experiences and emotions, Al cannot ever duplicate "creativity" (in its current state) because Al processes information objectively rather than interpreting events as people do (subjectively). An AI program examines the patterns and applies them to a "new" artwork rather than fusing two distinct art forms through interpretation. According to others, the generated artwork is not original because the algorithm was trained on previously produced works of art. The source showcases the following:

The use of Al in art production and reception also raises a number of broader ethical questions, including questions about the potential impact of this technology on the art world and beyond. For example, some worry that the use of Al in art may lead to a devaluation of human creativity and the role of the artist in society. Others worry that Al-generated art may contribute to the automation of other creative industries, such as writing, music, and film. Additionally, there are concerns about the use of Al-generated art in marketing and advertising, and the potential for this technology to be used to manipulate public opinion and behavior. As Al continues to advance, these concerns will become increasingly urgent, highlighting the need for ongoing critical reflection on the implications of this technology. Furthermore, the use of Al can perpetuate biases present in the data used to train the algorithms, leading to works that reflect and reinforce social and cultural biases. For example, an Al-powered art project by a group of researchers at MIT, called "Norman," used algorithms trained on violent and graphic images to generate disturbing artworks. (Yusa et al., 2022)

This excerpt exemplifies the potential dangers that must be considered when so many Al algorithms are available to anyone with an internet connection. Regardless of Al's potential as a tool for current artists and emerging artists, the fact that Al is trained can prove problematic for various reasons. First, some artists feel that using their artwork as a basis for new artwork is copyright infringement. Second, since the programmer can train an Al with whatever they see fit, Al can be trained to produce offensive artwork. The source points out an example where to show the dangers of Al, researchers at MIT trained an Al with violent depictions, resulting in an Al that could only produce violent and even offensive pictures. This source has shown how it is not all good for Al; there is a long way to go before it is commonplace or accepted in the art world, especially by professionals in that field. That is not to say there is no future for Al, but it will be a bumpy ride as safeguards are put in place and a legal precedent is set on using human-made artworks to train an Al algorithm that produces art.

Methods

The investigation was conducted using a computer connected to the internet through the Safari browser. Google search engine was crucial in identifying the required sources to answer the research question. Despite occasional internet instability, the investigation was successfully completed. While some sources may not have been peer-reviewed, the investigation mentor verified and approved them, ensuring their accuracy. The combination of all these factors facilitated the successful completion of the project.

A qualitative documentary analysis grounded theory design was used to complete this investigation. To conduct the research, it was crucial to identify the purpose of each of the thirteen sources and their design and approach, as well as the target audience, limitations, recommendations, and findings for each source. For the analytical component of the inquiry, a descriptive content analysis methodology was used to outline the significance of the data presented.

Results

The search engines utilized (Google and Google Scholar) proved most beneficial for the selected sources of this investigation. Per the order of the sources in the references, the first and eighth sources are very recent, published in 2023. Source one discussed whether Al could replace human artists (is Al art indistinguishable from human art?), and source two provided a definition for generative Al. The third, fourth, sixth, ninth, twelfth, and fourteenth sources are recent and published in 2022. The third source elaborated on the biases engrained in humans against Al-produced artworks; the fourth source defined the term "algorithms;" the sixth source delineated whether art expertise impacts the effect of Al authorship in the interpretation of an artwork; the ninth source argued how generative Al algorithms impact an artist's creative process and an art critics interpretation; the twelfth source redefined creativity and presenting a new term ("co-creativity"); and, the fourteenth source analyzed Al's impact on a work of art and its audience. The second, fifth, and eleventh sources are very recent; they were published in 2021. Source 10 discussed whether there is space for AI art in the international art market; source 5 answered how Al's authorship may impact a general audience's perceived quality of a work of art; and source 11 defined the term "machine learning." The tenth and thirteenth sources are recent, published in 2020. Source ten proved an inherent bias against Al in the context of art, and source 13 examined how different cultures see Al differently in the context of art. The seventh source is recent, published in 2019, defined as "artificial intelligence." Other than source 4 (a graduate studies-level textbook on algorithms) and source 9 (a report from the Oxford Internet Institute), all sources were from peer-reviewed journals.

During the early stages of the investigation, the main question was:

1. "How will the surge in the use of Al to generate art, for inspiration, publication, or sale impact the art market?"
    a. The section titled "The Interaction Between Machine Learning Algorithms and the Art Community" provided quotes from interviews with the authors of the source discussed in that section performed in the study that provides sufficient evidence to say that Al art will impact the art market in some way. However, the interviewees (artists and art critics) differed in how much it will impact the market. An "optimistic" view states that Al art will come to define art in the 21st century. A more conservative view was: "I do not know if it will continue as its movement. [...] some art will be absorbed into fine or contemporary art or media art."

As more evidence was gathered, one more question was generated to define further the variables of this investigation (art-market impact, co-creativity, and creativity).

2. Will the practically unlimited, instantaneous supply of art Al can provide dilute the market, will a negative perception of Al authorship diminish this effect, or will it form its own sector within the market?
    a. This question was answered by the data provided in the "Al as a Creative Contributor in Science and the Arts" section. This source expands on what creativity means and if it can be applied to AI; furthermore, they put forward a new term. "co-creativity." When talking about how Al will settle into the Al market, it will likely form a market or niche mostly isolated from the traditional art market dealing in human-made artworks. So, it will become a subdivision of the art market until art critics wholly accept Al as a creative and independent artist.

Such a situation led to the creation of the final question:

3. Will Al settle as an entity capable of creating "original" works of art, or will it predominantly be used as one of many tools for an artist to form and execute an idea?
    a. This question is answered by the analyses provided by the section labeled "AI as Creative Contributors in Science and the Arts." This source elaborated on the various roles Al could take when being used in the context of art, detailing that at its current state, it serves better as a tool rather than an independent artist. That is not to say that once Al leaves its "infancy" and becomes far more capable as algorithms improve and computer hardware's capabilities evolve past their current capabilities, it will not be capable of operating as an independent artist, but it is not yet ready.

Discussion & Conclusion

The presented sources elucidated how art is interpreted when the author is not human and the different perceptions of Al in different cultures. Moreover, this investigation delineated Al as a creative contributor to the sciences and the arts. Additionally, evidence was provided that Al can produce some forms of art. Notwithstanding this, further data supported the investigation by stating how Al appreciates and produces art compared to humans. The process revealed some limitations, which might be resolved by more investigation. Generally, it would have been beneficial if the sources outlined more information on empirical data explicitly showing that Al art will form a new market in the art market. In a general sense, the sources presented a vignette on how humans interpret Al's art and how this connects to its future impact on the art commodities market. For upcoming continuing research and data analysis, recommendations include securing more years of data and requesting more study resources. Ultimately, this investigation aimed to answer whether Al art will dilute the art market or make its own "Al art" market within the general market. Sources converged to provide an answer, which is that although an exact answer is impossible to obtain, it has been shown through analysis of previous and current observations of how Al is interpreted that Al art will form its market within the general art market, rather than directly impacting the current art market.

Addressing the limitations detailed in the previous chapter, these are the most apparent things that could be done to improve this research paper. In future studies, it is imperative to not only gather demographic information on the audience (as most sources have done) but to gather information on the Al platform used; this is not limited to the name but extends to the development, how it was trained, to what extent is it trained, does it learn from prompts and user feedback, to touch on some of the many considerations that must be taken when studying such a complex, multi-disciplinary field. As previously discussed, this is essential because no Al algorithm is made or trained similarly. Also, simply waiting for the field to evolve will prove very beneficial as the development of Al stabilizes and it becomes more integrated into society on a surface level, not just in the background; this will allow society as a whole to adjust to new technology with still unforeseen potential in just about any field ranging from engineering to medicine to humanities. Lastly, given that Al art's success depends on how it is seen, studies in this field would benefit from gathering audiences' and critics' opinions; this means

doing questionnaires and interviews, case studies into existing artworks, and their success. On the other hand, given the rapid evolution of Al's capabilities, it is also highly beneficial to compile this information (general perception, critics' comments, and other factors) to compile this information and to deduce a pattern and generate a projection of how the perception has evolved and will continue to evolve, respectively.

Limitations

For the investigation to come to fruition, the scope of the research question had to be more encompassing to find more information on the subject, which permitted the optimal conditions to answer the research question. If the original research question had not been changed, perhaps the essay would not have been written as well, given that the research question would have been challenging to complete. In order to preserve a logical order in the organization of the sources as presented in the research paper, a process of reordering of the sources had to be performed. Preserving this logical order of the sources will ensure that readers better understand the topics discussed throughout this study as they gradually decrease in scope and increase in specificity of the topic, meaning the first sources will discuss topics such as how Al is seen by a general, unspecified, audience, following sources discuss how a specified audience (i.e., art experts, specific cultures) interprets Al authorship. There were three notable limitations apparent throughout the study. Firstly, when it comes to studying art, there is a need to acknowledge the inherently subjective nature of the field; this is even more important when the study also encompasses the ethics of Al use and how creativity should be defined; these are things that do not have straight "right" or "wrong" answers, which in turn will produce differing conclusions in different studies rooted in different personal views or different way to go about answering a subjective question. Another limitation hindering this study's capability of answering its central question is the lack of research centering on the impact Al will have economically on the art market; most studies focus on the aesthetic or utilitarian side of Al art, meaning how it is seen, do people accept it as art and creative, or could it be a tool for artists. Very few directly talk about the potential impact of Al in the art market in an economic sense. This limitation is rooted in the inherent immatureness of the field; the Al boom has only gotten started; the only natural way to mitigate this limitation is to continue research as it advances, and a solid foundation of studies and theories is made to develop research further. Lastly, a significant limitation was apparent when comparing the conclusions of all the studies analyzed in this research paper; there were opposing conclusions. Most studies concluded that there is a negative bias against Al authorship in a general audience (non-expert), and some studies said Al art is distinguishable from human-made art; yet, in some other studies in this research paper, they said the opposite; a non-expert audience is not biased against Al and Al art is not distinguishable from human-made art. The general cause that can be attributed to these inconsistencies is the plethora of factors that have to be considered when discussing the interpretation of art: age, culture, personal views, upbringing, and, most notably, there is a variety of differing generative Al algorithms.

What does this mean? Not all Al are trained the same, with the same pool of sample artworks, or operate with the same hardware; this means that they will produce different outputs from the same input and may differ in quality, style, adherence to the prompt, and many more aspects.

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