

**Exploring Boundaries Between Art and Technology:
The Role of AI-Generated Art in the Traditional Art Market**

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Yannie Wu

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Rosanne Vrugtman, Department of Computer Science

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Yannie Wu
Computer Science
The University of Virginia
School of Engineering and Applied Science
Charlottesville, Virginia USA
ylw4sj@virginia.edu

ABSTRACT

Increasing advances in technology have led to the creation of a new genre of AI-generated art that challenges the value of more traditional artists, bringing into question its validity as an art form. In addition to exploring the algorithms and work behind AI art generation, I consider standards that should be established that allow it to either complement, compete, or coexist with conventional artwork. Although AI technology is utilized in many different creative fields (such as animation, music, and architecture), its impact in creating traditional illustrations is now under scrutiny. The anticipated result from this research is to provide an objective study of computer-based art to guide regulation of such works.

1. INTRODUCTION

At the 2022 Colorado State Fair's annual art competition, entrant Jason M. Allen took home first place with his work titled "Théâtre D'opéra Spatial" (Roose, 2022). In addition to prestige, Allen also received a cash prize for his achievement. This instantly sparked fierce backlash from other participants who accused him of essentially cheating. Allen did not use a pencil or brush to create his piece; nor did he spend hours working on his creation. Instead, he used an online AI art generator called MidJourney that can turn a text prompt into a hyper-realistic image.

Although AI-generated art has been around for decades, accessibility to it has grown considerably. With the release of MidJourney and similar tools like DALL-E and Stable Diffusion, it is easier than ever for anyone to create complex pieces in seconds. These innovations in technology have prompted a new round of debates on the ethics of AI-generated art and the potential consequences it holds for the future.

Allen had submitted his piece to the division for "digital art/digitally manipulated photography" and did not break any rules in his submission, but his win still proved controversial. Should AI-generated art be considered a new form of art? To what standards should it be held? And how would its acceptance impact the traditional art market?

2. BACKGROUND

AI-generated art has existed since the 1950s, when a group of engineers at the University of Stuttgart started experimenting with computer graphics to generate simple shapes and patterns. As algorithms have progressed in complexity, machines have been able to create more abstract and original pieces. Today, the main method used for creating new art is by generative adversarial networks (GANs), a neural network framework trained with existing images and able to create new data in the style of the training data. GANs are comprised of two

neural networks that work against each other: the generator and the discriminator. The generator produces new data that tries to match a collection of sample data. The discriminator classifies input images as real or fake. Over repeated rounds of training, the discriminator pushes the generator to improve until it can create realistic images. Likewise, the discriminator gets better and better at distinguishing between real and fake images (Shah, 2023). Since its creation in 2014, improved versions of GANs have been able to generate images from a text description, modify existing images, and mimic art styles.

3. RELATED WORKS

Joshi (2022) discusses the current state of artificial intelligence and its ability to emulate human creativity. He argues the potential benefits and drawbacks of using AI in creative fields and concludes that AI should be viewed as a tool that augments human creativity rather than replace it entirely.

Driehaus (2023) reports on the use of AI in art education and its potential impact on the future of art. Driehaus presents several examples of how AI is being used in universities across America and argues that it can help students learn new techniques, as well as expose them to new forms of creative expression. However, Driehaus cautions that the popularization of AI art could lead to a devaluation of traditional art-making skills.

Elgammal, et al (2017) created a CAN (Creative Adversarial Network), which is like a GAN, but designed to be creative and not just emulative. An experiment was conducted to test whether human subjects could distinguish whether art was generated by a human artist or a computer. They concluded the computer was able to consistently confuse human subjects, who sometimes even rated the generated art higher than human-made art.

Rosenburg (2022) discusses the ethical implications of advances in AI image generation, specifically the release of DALL-

E 2. While AI-generated images have many positive potential applications, they can also be used to spread propaganda or create offensive images. Rosenburg emphasizes the need for ongoing dialogue between AI researchers, policymakers, and the public.

Cohn (2018) reports on the \$432,500 sale of a painting titled “Edmond de Belamy, from La Famille de Belamy.” The portrait, produced entirely using artificial intelligence, is the first piece of AI art to be sold at a major auction house. The auctioning of the Belmay portrait proved that there is a place for AI art in the traditional art market.

Vincent (2023) reports on a legal dispute over the copyright of an artwork generated by DALL-E 2. The artist sued Midjourney, which allegedly used his artwork without permission. Midjourney argued that because the artwork was created by a machine, it was not subject to copyright law. The article explores the legal and ethical implications of AI-generated artwork and highlights the need for ongoing discussion as ownership over AI art become an increasingly complex subject.

4. PROPOSED DESIGN

I examine the benefits and threats that AI-generated art brings to the art industry.

4.1 The Definition of Art

One might argue that the beauty we find in art comes from context. For example, in 1962, French artist Yves Klein painted a blue rectangle titled “IKB 191,” which is considered a masterpiece of post-war French art. For Klein, the blue color represented his spirituality and religious upbringing. He applied the paint with rollers, rather than brushes, to convey character and personality in the monochrome piece (Paul, 2021). By comparison, computer-generated artwork is a product of mathematical calculations and not of an artist’s emotional connection with the piece.

Additionally, AI-generated art is challenging our idea of what it means for art to be original. Originality has long been valued as a crucial component of art, and artists are rewarded for their ability to produce something new and unique. There is a misconception that AI art generators just “combine” images to create the desired results and are nothing more than advanced collage-making machines. In actuality, the software interprets training images as mathematical data that it then uses to build pictures completely from scratch. Even so, AI-generated art can still contain elements similar to the original source material. Whereas a human must personally take inspiration from existing artwork, a human using AI does not even have to be aware of the original material for their art to resemble a certain style. Is it possible for an algorithm to be “inspired?” Or is it simply creating a derivative work? It is also difficult to develop a distinct personal style or finetune details when creating art through AI since the result is ultimately controlled by the algorithm. In comparison, every stroke in a traditional work of art is intentionally placed there by the artist. However, AI algorithms can also understand patterns and information beyond human perception to create artwork impossible for a human artist to produce. The artistry of AI art may lie in the hands of the human who designed the algorithm, in the collaboration between human and machine, or even in the mathematical beauty found in the algorithm itself.

4.2 AI in the Traditional Art Market

The emergence of AI-generated art has the potential to disrupt the job market for traditional artists. AI can create artwork quicker and cheaper than a human artist, which could lead to a severe reduction in demand for traditional art-making services. Greg Rutkowski, a well-known commercial illustrator in the gaming industry, notes that

his name has turned up hundreds of thousands of times in the AI image search database Librarie.ai. For artists, a distinctive style is a major selling point in the market. When Rutkowski’s work can be easily replicated by anyone, the incentive to hire him disappears. However, it is important to note that AI cannot replace human creativity and expertise. Furthermore, the development of AI presents new opportunities for artists to leverage their expertise in new and innovative ways. Jason Juan, art director and artist, emphasizes that a human touch is still important in achieving the desired outcome from any new technology (Sakowitz, 2022). No invention will immediately replace the current industry. It will grow its own ecosystem and push the existing industry towards innovation. Instead of being viewed as their replacement, artists should view AI-art generators as tools that complement their skills. AI can be used to automate repetitive processes, quickly create concept art for clients, and easily draw interesting textures and patterns. Individuals with a creative mind who lack the skill to visualize their ideas can now express themselves with the help of text-to-image generators. There even exists a “prompt marketplace” where individuals can sell and buy high-performing prompts.

Looking back at the introduction of cameras, artists once valued for their ability to recreate reality became outdated. But instead of disappearing, artists pivoted to Impressionism, an artistic movement that emphasizes depicting an “impression” of their environment instead of a one-one reflection of real life. Cameras also created a new set of desirable skills in the industry. From technical knowledge of cameras and lenses to image editing skills to an eye for lighting and composition, a whole host of careers sprang from its invention.

4.3 The Legality of AI-Generated Art

The current limiter of AI-generated art in the art industry is the issue of authorship and ownership. There is no way to track whether an artist's work has been used to train AI-art generators. Stable Diffusion used more than two billion images to train its model and was sued by Getty Images for allegedly stealing over 12 million of the company's photos (Growcoot, 2023). Independent artists have also spoken out against AI art tools for copyright infringement. Generally, creators of AI art tools claim that images used during training are covered under the fair use doctrine, although this is not completely clear due to variations in legislation depending on the country of the creators and the purpose of the tools created. When interviewed, creators claim there is no feasible way to obtain the rights to every single image in their training data.

In early March of 2023, the U.S. Copyright Office released a statement of policy concerning intellectual property rights of AI-generated art. Works created by a machine do not qualify for copyright protection. Even heavily modified AI art will only have the aspects of it that were deemed to be created by a human be protected (Mattei, 2023).

5. ANTICIPATED RESULTS

Whether computer-generated art constitutes as real art is a question that is subjective and open to interpretation. However, this has not prevented AI-art from entering the mainstream. When comparing art created using AI versus conventional methods, a distinction needs to be made to fairly judge the skills of the respective artists. Creating traditional artwork requires an artist to spend years building a strong technical foundation before even beginning to master their medium. AI art focuses less on technique and more on the concept of the piece. It tests an individual's creativity and

ability to clearly describe an idea in such a way that a machine can understand it.

Regulation must also catch up to technology before AI art generators can become a valid means of creation. Currently, there is no way to trace a picture back to its owner or authenticate it. One solution is for images to have metadata imbedded in them that contains copyright information. Another is to create a central registry that all images can be validated through. Due to the speed with which AI art technology has advanced, the infrastructure needed to police such tools does not yet exist.

6. CONCLUSION

AI art generators have an uncertain relationship with the art world. AI has the potential to increase accessibility to art, revolutionize the way human and machine interact, and redefine the limits of what is possible. It also has the potential to devalue the efforts of traditional artists through oversimplification of the creative process and existence in a gray space in terms of its ethicality and legality. Regulators and artists alike must understand all aspects of the debate surrounding AI art to guide its use for the positive.

7. FUTURE WORK

One issue to consider is the potential for abuse. Generation tools greatly open the door to creating "deepfakes," synthetic media in which a person in an existing image or video is replaced with someone else's likeness. Deepfakes can be used to spread propaganda and false information, create fake identities, and even blackmail individuals. Another ethical issue is the potential for AI-generated art to perpetuate bias. This can occur when AI is trained on biased data sets that reflect existing stereotypes. It is important to develop techniques to identify and mitigate bias to create AI-art that is diverse and inclusive. By addressing these and other key

questions, we can ensure that artificial intelligence is used in ways that are beneficial and responsible for both artists and society.

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