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“AI Art and Its Implications Current and Future Artists”

Abstract:

During the 21st century, art has taken an interesting turn. It has began to shift into more technological mediums such as photoshop or digital art programs like Procreate. However, what no one expected was a shift towards AI art generation. Recently AI art has created a stir in the art world. There is much debate on whether or not AI art can even be considered art. Some say that the lack of the creative process negates this consideration, while others believe that AI art generators can bring a new evolution of art. What’s more concerning are the possibilities that AI art possesses the ability to reduce the already limited jobs available to artists. So is this technology good or evil so to speak? Well, the answer is much more complicated than that.

In this essay we discuss how the concept of such a technology began and how it is continuing to develop. We will analyze how AI art is programmed to work, and how these companies get the large sums of data needed to power these advanced generation systems. Most importantly we will analyze how artists are currently being affected by this technology, while also considering what benefits it could bring to the artists of the future. There is no clear path on how to act when faced with technology like this, but there are steps that can be taken to prevent any possible repercussions an artist might face. In this essay we highlight some of the regulatory

paths that can be taken to prevent harm to artists and their livelihoods. In the end, we find a conclusion that is not as simple as we would prefer.

Throughout history as society has progressed, art has progressed. Whether it be developing new techniques or reflecting the horror and beauty of man, artists and their work have always evolved as time has gone on. Now there is a new artist entering society. This artist is not biologically human, nor is it a living being. It is completely inorganic. It is an artist whose very existence threatens the very idea of what “art” even is and what it can be. AI art, a thing of science fiction, has now become a reality. AI art generators have caused quite the stir in the art world. Some people believe that this will allow endless expressions of creativity, while some artists are fearing for their jobs and future. The question remains, is AI art the next evolution of art, or will it be remembered as the destroyer of the art industry that we know of today if not regulated properly?

Artificial Intelligence is a complex topic, but where did it all begin? Where did this idea of a conscious computer stem from? Many hail John McCarthy as the “Father of AI,” and one of the people responsible for AI technology being introduced. McCarthy was born in Boston, Massachusetts in 1927. He had an extensive education in mathematics, eventually receiving his PhD from Princeton University in 1951. McCarthy began to take an interest in computer science, and grew fascinated by the idea of a computer being able to think for itself, learn, and problem solve. This led to John McCarthy creating the term “Artificial Intelligence” in 1955. Only three short years after that, he created “The computer programming language LISP, which was

primarily used by the AI community,” (“John McCarthy”). However, the prospect of AI really started during the Dartmouth Summer Research Project on Artificial Intelligence in 1956 which was hosted by both John McCarthy and Marvin Minsky. This is where Allen Newell, Cliff Shaw, and Herbert Simon’s Logic Theorist Program was first presented. This program was deemed to be the first artificial intelligence program. The proof presented in this conference showed the members that “AI was achievable,” (“John McCarthy”) and set off a chain of events that would forever change the world. AI would grow exponential from here, and people could only imagine the limitless possibilities.

With AI being such a relatively new concept at the time, many people were hopeful for what the future would bring. Imaginations ran wild, and society’s hopes were extremely optimistic. Many computer scientists expected the progression of this technology to be quick, but the beginnings of AI were much more humble. One of the first computer programs was an AI chess program made by Claude Shannons in 1950, and similarly Arthur Samuel made a computer program that could play checkers. Arthur Samuel ended up calling his self-adaptive and learning program, “machine learning” (Dia). Although a computer playing chess seems like minuscule breakthrough today, considering most computers have this app already installed, this was considered to be a major step forward at the time. There was much talk of an intelligent computer system that was as smart, if not smarter, than a human, yet there was no talk of an AI being able to create. Art was not an immediate thought for programmers, and the capability for AI to even paint a portrait was not seen for decades. Perhaps we would have seen AI art sooner in history if it hadn’t been for the Cold War and other unfortunate setbacks. The uncertainty of the times caused AI development to halt, and AI was put in the back of everyone's minds.

Since scientists overestimated how fast AI technology was going to grow, many found the lack of development disheartening. Funding dried up as investors' fear from the ongoing Cold War with Russia caused them to place their money into more immediate technologies such as the space program. In turn, AI development came to a gradual halt. This is known to AI researchers as "AI Winter, a term borrowed from the ongoing Cold War and the idea of nuclear winter," (Dia). It wasn't until the 1990's that AI development truly started to gain traction again, leading to huge advancements and leaps in technology.

One of the many advancements that gave hope the the future of AI development actually stemmed from an earlier discovery. The idea of "machine learning" particularly started to advance in the late 80's. Arthur Samuel's original idea of machine learning reduced the AI to only use "formal reasoning," but in the late 80's a "new paradigm would use statistics and probabilities to enable machines to learn from available data and adapt by building on previous experiences. Soon, AI was connecting with other mature and rigorous disciplines like decision theory, statistics, control theory and optimization. This led to major advances in the fields of speech recognition, natural language processing, robotics, and computer vision. It was a fresh approach that yielded a new wave of impressive results, as well as a better theoretical understanding of some core concepts in AI," (Dia). This new way of machine learning was called "deep learning," and was popularized by two people, John Hopfield and David Rumelhart, (Anyoha). Although these developments in AI were not enough to pull America out of its AI winter, other countries found themselves interested in what this new technology had to offer.

One of the first countries to recognize the potential for AI research again during this period of AI winter was Japan. “The Japanese government heavily funded expert systems and other AI related endeavors as part of their Fifth Generation Computer Project (FGCP). From 1982-1990, they invested \$400 million dollars with the goals of revolutionizing computer processing, implementing logic programming, and improving artificial intelligence,” (Anyoha). Unfortunately, like other countries Japan felt as if the AI programs weren’t progressing as rapidly as they wished, so funding started to dry up. Eventually like most other governments, the idea of investing in AI was put on the back burner, although AI ended up continuing to develop even without out the help of big investors or governments.

One of the biggest moments of AI development stems from its earliest programs. In 1997, a computer called Deep Blue made by IBM was able to beat the reigning world chess champion Garry Kasparov by using the ‘deep learning’ technology. Deep Blue had originally played Kasparov in 1996, but lost. This was a first time that computer intelligence superseded a human’s. Kasparov tried to dismiss the loss by telling people that the reason he conceded was because he “lost his fighting spirit,” (“Deep Blue Defeats Garry Kasparov in Chess Match”). Not matter how Deep Blue won, his triumph invigorated and renewed the passion for progress in artificial intelligence development.

Soon artificial intelligence was doing much more than playing chess, and as humanity entered the new millennium, progress skyrocketed. In the 2000’s technology started to exponentially grow in ways we have never seen before. The growth of AI can be partially attributed to the development of an extension of the internet called the World Wide Web. The creation of this new part of the internet allowed a flood of data, and this data was exactly what

artificial intelligence needed to grow and learn. An example of these fruits would be the robot Kismet. Kismet was an AI created by Dr. Cynthia Breazeal in 2000. Dr. Brezeal describes Kismet as a “robotic head that can interact with humans in a human-like way via myriad facial expressions, head positions, and tones of voice. ‘The goal is to build a socially intelligent machine that learns things as we learn them, through social interactions,’” (“MIT Team Building Social Robot”). This was one of the first times that artificial intelligence was programmed with the intentions of recognizing emotion and adapting to the physical world in this way, but there were other advanced robots during this time as well.

Another robot created during the 2000’s was the robot ASIMO created by Honda. The difference between Kismet and ASIMO is that ASIMO’s main goal was to navigate the terrain and mimic human movement. The ASIMO project originally started in 1986, and the original main goal was to create a robot that could walk similarly to a human. After many different prototypes, ASIMO’s P3 prototype was exposed to the world in September of 1997 and made the claim that it was the “first completely independent bi-pedal humanoid walking robot,” (Hsu, Ben). These advancements didn’t stop here, and Honda continued to develop ASIMO until 2018. In this time ASIMO was able to learn how to shake hands, recognize speech and sounds, remember human faces, pour drinks, and many other things (Hsu). Although ASIMO and Kismet weren’t robots programmed to create, rather robots to serve and learn, they laid the ground work for artificial intelligence to become something greater. Now AI is creating art, but how do these AI art programs work, and can they truly produce art? Or are these programs merely copying the work of humans? That is what we seek to find out in the following sections of this essay.

Today there are many different AI art generators, but many of them work in similar ways. All of them absorb an immense amount of visual data and provide unique pictures based on the input the user puts in. DALL-E is one of these types of AI art generators. It is a relatively new technology launched by OpenAI on January 5, 2021. Although it is considered to be “new technology,” it has been able to produce incredibly intricate pictures while simultaneously progressing. Recently, the company released another version of their system called DALL-E2. So how are these AI art generators able to turn text into visual art? Well, according to Ryan O’Connor’s article, “How DALL-E2 Actually Works,” it can be reduced to three simple steps. When you first describe to DALL-E2 what you want depicted, your text input goes into a “text encoder.” This text encoder basically gives the AI a relative idea of what is needed in the picture. DALL-E2 actually uses another OpenAI model known as CLIP to complete this step. CLIP stands for Contrastive Language-Image Pre-Training. CLIP’s job is basically to learn how to recognize photos based on captions or words used describe them. The information learned by this model is then used to aid DALL-E2. After “ a model called the prior maps the text encoding to a corresponding image encoding that captures the semantic information of the prompt contained in the text encoding,” (O’Connor). To finish up the process, an image decoder generates a visual image based on the semantic information captured by the model prior. AI art is also unique in that it doesn’t necessarily have a unique definitive style. Instead that is determined by the user when inputting the prompt. The user may select some of the given styles the AI art engine has available (such as cubism, pop art, or mosaic), or they could include the specific style that they want (for example one may input: a dark fantasy style forest). Even after

describing this process, there still remains one crucial question, where does OpenAI get all this data to feed its AI models?

DALL-E2 specifically gets its data from a company called LAION. This company sells datasets that contain CLIP-filtered image-text pairs. These images have descriptions that go along with them. For example, if a picture of an orange cat was presented, the text would read as “cat with orange cat sitting.” Their most recent collection of datasets called LAION - 5B has 5,850,000,000 of these image text pairs. All of these images are then fed into the machine, as the artificial intelligence logs each one. Yet, where does LAION - 5B get these photos? Well, these datasets are comprised of “a scrape of publicly available images on the web.” This raises privacy concerns, and there has even been a report of an artist named Lapine whose private medical photos were found in the dataset. What is even more concerning is the fact that Lapine’s medical photos aren’t the only ones in there. According to the article “Artist Finds Private Medical Record Photos in Popular AI Training Data Set,” there are thousands of these medical record photos contained in datasets like these. With 5,850,000,000 images, it is possible that the person reading this may even have an image in this dataset being used to train programs like DALL-E without their consent. Now the question arises if it is possible to even get these images off this dataset?

In many ways LAION has made getting images removed from the data set difficult. In Europe, people may request that their images be removed from the dataset, but in order to do so one must submit another photo of themselves to verify (Edwards). With unauthorized medical records already being contained in this dataset, most people aren’t likely to trust that the company won’t use the photo they submitted. In another documented case, a German stock

photographer named Robert Kneschke found an extremely large amount of his work in the dataset. When he reached out to the company he received an invoice for \$979, and a statement that read, “Our client only maintains a database that contains links to image files that are publicly available on the Internet. It cannot be ruled out that the database may also contain links to images that you are the author of,” The letter, written by the law firm Heidrich Rechtsanwälte continued, “However, since our client does not save any of the photographs you have complained about, you have no right to deletion. Our client simply does not have any pictures that could be deleted.” This statement may cause concern for artists, as they have no say to if their art is used to train AI or not, and they may face fines if they do.

Even though artists’ art is being used to fuel AI art systems like DALL-E, they are receiving no compensation. Since AI generators are using data collected by another company, they aren’t responsible for paying anyone. In fact David Holz, the founder of Midjourney, was quoted saying “There isn’t really a way to get a hundred million images and know where they’re coming from,” so there isn’t even a way to track this data back to the original artist (Salkowitz). With no way to remove art or personal images from being fed into AI, many are calling for regulations to be put in place in order to ensure that all data being collected is collected consensually. In the meantime, some are attempting to take legal action to make sure that these issues do not get swept under the rug.

Three artists named Sarah Anderson, Kelly McKernan, and Karla Ortiz have taken a stand against companies such as Microsoft, GitHub, and OpenAI (who created DALL-E) for using data collected from these internet scrapes. The artists are represented by Matthew Butterick as well as the Joseph Saver Law Firm. Their goal is to make sure AI art can be

ethical along as a tool, currently that is not the case. Kelly Mckernan, one of the artists part of the lawsuit, highlighted the severity of this issue when she said “At the end of the day, someone’s profiting from my work. I had rent due yesterday, and I am \$200 short. That’s how desperate things are right now, and it just doesn’t feel right,” (“Visual Artists Sue AI Companies in SF Federal Court for Repurposing Their Work”). These artists are struggling to find work, yet in August, Open AI, the company who owns DALL-E2, was projected to make over one billion dollars in a year (“Open AI on track to...”). Karla Ortiz also made a point that AI art is taking away some of the few jobs available to artists. She states that “We’re kind of the blue-collar workers within the art world, [referencing her work as a visual artist in movies and videogames]. We provide visuals for movies or games. We’re the first people to take a stab at, what does a visual look like? And that provides a blueprint for the rest of the production.” With AI being introduced she comments that “It’s an almost billion dollar industry. They just took our work, and suddenly we are seeing our names being used hundreds of times, even thousands of times,” She then raises an important question “ Why would employers pay artists salaries if they can buy a subscriptions for a month for 30 dollars?” (“Visual Artists Sue...”). This is where the lawsuit comes in. The artists filed copyright infringement suits against the companies, but on October 30th of 2023, Judge William Orrick dismissed their cases. He based the dismissal on the fact that they never submitted their work to the U.S. Copyright Office, which is necessary to file a copyright infringement claim. Although the case was dismissed, the lawsuit helped raise awareness of artists concerns with AI art and internet data collection, which is an even more important issue on social media.

AI art generators aren't only available through companies like Midjourney and DALL-E. There are a lot of free AI generators on social media, specifically on TikTok. TikTok is a video making platform which consists of fairly short videos ranging from 10 seconds to 10 minutes. Within the "creator tools" (consisting of funny face filters, green screen filters, or just simple editing applications), there are now filters powered by generative AI. Although TikTok's AI art filters are not nearly as advanced as others like Midjourney, but this has not stopped the popularity of this trend. Most filters allow you to use a simple text-to-image type generator, where you just type your prompt into the filter and it will generate a correlating image. There are also filters where you can upload an image into the AI generative filter, as well as a text prompt, and it will create an image based on the photo you upload. With these filters, there have been a variety of trends resulting in numerous people uploading these images to these AI generative filters. Over a million people have used these filters, creating more and more excitement over AI art. Yet as much as the excitement over AI art filters is being pushed on social media, there are numerous artists taking stand against it.

In recent years, AI art development has received immense pushback on social media sites. The hashtag #NOtoAIArt has been used to spread awareness about the ethical concerns of these programs, as well as the blatant lack of concern for the safety of artists jobs. Many artists feel as if AI art isn't capable of even being deemed "art." Illustrator Rob Biddulph claims that "true art is about the creative process much more than it's about the final piece, and simply pressing a button to generate an image is not a creative process," (Shaffi). Throughout art history, we have been able to see the personality of artists embedded into their paintings. Whether it be the grasshopper embedded into Van Gogh's oil painting, or the dynamic way in which Jason

Pollock created his work there is so much that goes into a human comprised artwork. Would Artemisia Gentileschi have chosen the same subjects for her painting were it not for her past traumas? The human experience is always reflected within the artists work, whether is be subconscious or conscious actions. So with the introduction of this “fast art,” are we beginning to lose appreciation for the process? Are we losing appreciation for the emotional depth of each painfully, precisely placed brushstroke? And most importantly, are we losing appreciation for artists in general?

There is immense thought and planning that goes into an artwork, including an artist’s experiences, outlook on the world, inspirations, and style. However, these aspects of the art process are becoming less desirable in today’s society. Instead on-demand illustrations made by AI art generators are becoming the more attractive option for these artists’s clients . Illustrator Anoosha Syed points out that “AI image generation has the potential to do away with smaller jobs that up-and-coming artists often rely on to build up portfolios” (Shaffi). He makes the point that people looking for artists to do small jobs, such as “fan-art, self-published books, logos, and family portraits,” will most likely turn to AI, as it is usually less expensive than hiring an actual artist. Not only will this affect artists working with companies, but also possible freelance work that can now be done with AI. Not only does this factor clients choices, but AI art generators are able to create images in fractions of the time it might take a artist to complete their work. But despite all this, does AI art actually hold the potential to supersede human art? Well, according to one art competition, it already has.

The Colorado State Fair Fine Arts Competition saw its first AI artwork win a three-hundred dollars prize for first place in the emerging artist division’s digital arts/digitally-

manipulated photography category. The piece titled “Théâtre D’opéra Spatial” or “Space Opera Theater” was generated using Midjourney by Jason M. Allen. According to Allen he didn’t have high hopes for the piece, and was shocked that it was chosen for first place. Allen’s win came with a lot of controversy, especially considering the fact that he failed to disclose that these were AI generated images when he entered the competition. Many people felt as if Allen cheated by



just “pressing a few buttons to make a digital art piece,” however, Allen rebuts this claim, (Metz). The three images submitted into the contest took Allen around eighty hours to formulate and fine-tune each prompt, while also retouching the images slightly using Photoshop. However, how long would it have taken for an artist to create that piece from scratch? To plan the concept, the layout, the colors, and fully render the piece, an artist would take much longer in comparison. When it comes down to Allen not disclosing that his images were made using AI, this factor truly might not have made a difference. Cal Duran, one of the judges in the

competition, stated that now knowing that the piece was made using AI technology doesn't change his decision at all. Despite all the backlash Allen has been getting, he still remains optimistic. He encourages people to change their mindset stating that "Rather than hating on the technology or the people behind it, we need to recognize that it's a powerful tool and use it for good" (Metz). As of recently we have been seeing more and more people using this "tool"; whether it is being used for good, well, that's still up for debate.

Many people believe that AI art is not advanced enough to be used by corporations to replace human artists, but in fact, Cosmopolitan Magazine recently released a special edition of their magazine called the "AI Issue." This issue had what they claimed to be "The world's first



artificially intelligent magazine cover." The cover was made in collaboration with Karen X.

Cheng, a digital artist, who worked on this project with Cosmopolitan. The cover was created

using the AI system DALL-E2 made by the Open AI artificial intelligence research lab. All Cheng had to do was come up with the prompt “wide-angle shot from below of a female astronaut with an athletic feminine body walking with swagger toward camera on mars in an infinite universe, synth wave digital art,” (“AI-Generated Image Graces Magazine Cover for the First Time”), and just like that a complex cover was generated. As seen here, AI art seems as if it works best when a highly specifically described prompt is used when trying to produce a high quality image. Not only was a fairly high quality image produced, it was produced quickly. The cover took less than 20 seconds to generate, and was finalized within 24 hours. Although this is an extremely impressive feat for AI, at the same time it is an extremely scary moment for artists. With the capabilities to create magazine covers in less than 24 hours, is it truly necessary to even hire a digital artist or photographer anymore?

As this new age of AI develops, many have felt unease. Karen X. Cheng states that “With AI, we are about to enter a period of massive change in all fields, not just art. Many people will lose their jobs. At the same time, there will be an explosion of creativity and possibility and new jobs being created,” (Liu). With AI having the ability to create oil painting or magazine covers in a fraction of the time a human artist would, the jobs artists currently have are in question. If everyone can be an artist, why hire one? Some artists, like Anoosha Syed, believe that this would never be possible, claiming that “AI-generated art has a specific ‘look’ to it, [and] as time goes on, users will become more attuned to it and start to turn away from it because of its inauthenticity and ‘cheapness,’” (Shaffi). AI art generators have been known to struggle in certain aspects of generation, such as hands, symbols, and text. Even in the Cosmopolitan cover, the astronaut’s hands aren’t completely rendered. However, AI generators

have been progressing at an impressively rapid rate in recent years. What makes us so sure that AI won't be able to conquer these setbacks? So what can artists do to protect themselves, and are there any regulations in place to protect their laws legally?

Currently in the United States there are few regulation in place pertaining to artists' rights against AI. However, there was recently a law passed that "A work of art created by artificial intelligence without any human input cannot be copyrighted under U.S. law" (Britain). Although there has been pushback on the idea that human authorship should determine copyright, U.S. District Judge Beryl Howell stood firm in his decision agreeing "with the Copyright Office stating human authorship is a bedrock requirement of copyright based on centuries of settled understanding," (Britain). This means that pieces like the "Théâtre D'opéra Spatial," cannot be copyrighted. Although this is a small step forward in protecting artists rights, this creates a precedent which can be the catalyst that leads to further regulation in the U.S. and across the world.

Recently Adobe Firefly came up with a program that allows for regulation of people purposefully copying artists' copyrighted work and their styles. This goal to prevent "style impersonation" was proposed to Congress in the FAIR Act which stands for the Federal Anti-Impersonation Right Act. Adobe claims that "this protection would provide a new mechanism for artists to protect their livelihood from people misusing this new technology, without having to rely solely on laws around copyright and fair use. In this law, it's simple: intentional impersonation using AI tools for commercial gain isn't fair," (Rao). If this law passes it would be a huge step towards ensuring that the rights of artists were protected, while also allowing for AI to be a beneficial creative medium. Unfortunately, there aren't many other clear regulations

in sight, and many governments simply just release guidelines of what they think should happen, instead of implementing clear laws.

As of right now, there is not enough regulations or protections of the rights of artists. Instead we are seeing a time in which art and its creative process isn't as valued as the the amount of time and money that can be saved. So what is the next step to ensure that artist's voices aren't ignored? How can we ensure that AI art can be used as a tool to help artists instead of hurting them? How can we make sure that artists and the time they spend on their work is valued as it was in the times of the Renaissance or even 70 years ago? I believe that more regulations considering artist's jobs, artist's privacy, and art competitions could help create a healthy space for AI art to be explored.

AI art is an incredibly powerful tool that can be either used to help aide in the creative process, or destroy it all together. It is a complicated subject that questions what art even is, and what it evens mean to be an artist in today's society. Throughout this paper there has been discussion on the uncertainty of how AI art could affect the livelihoods of professional artists and how discouraging this technology's introduction can be to up and coming traditional artists. Although currently there seems to be more negative pushback to this new technology than positive responses, I believe that with the proper regulation and developers behind it, there is the possibility to be able to harness this technology to evolve art, while also taking into consideration everyday artists. AI art is developing rapidly, so we must act quickly to ensure that it is regulated now before things get set in motion that we can not stop. We are currently at a pivotal moment in art history. One which we must watch very closely as art historians, because the decisions being made now will forever shape the art world. We will either be documenting this as an

extraordinary technology that changed the art world for the better, or one that corrupted the art process.

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