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I. Introduction

In April 2016, a new piece of art was introduced to the world in Amsterdam, Netherlands.[1] This artistic portrait of an unknown man showcased a masterful understanding of light and shadow and appeared to have been pulled right out of the seventeenth century. The piece would likely have left some of the greatest artists in the history of art to be impressed. In fact, one famous artist would likely have high praise for the work, or at least noticed some similarities. The painting was created by the Next Rembrandt project.[2] The painting was not crafted by human hands and the man in the portrait never existed.[3] The 3D printed painting was created by a team of programmers and art historians by gathering all the data they could on the beloved painter Rembrandt.[4] The team used an algorithm of data taken from Rembrandt's body of work and then trained an artificial

[1] Erin Blakemore, *"New" Rembrandt Created, 347 Years After the Dutch Master's Death*, Smithsonian Magazine (Apr. 5, 2016), https://www.smithsonianmag.com/smart-news/new-rembrandt-created-347-years-after-the-dutch-masters-death-180958664/.
[2] *Id.*
[3] *Id.*
[4] *Id.*

intelligence (AI) program to create a work inspired by the Dutch artist.[5] Some might consider the project incredible for showcasing the advanced capabilities of artificial intelligence, while others terrifying for the programs ability to mimic a skill that is commonly considered a human endeavor, but it serves as proof that AI technology has evolved to the point that it can imitate some of the best artists to ever live.

This type of technology is finding great popularity with the average person for obvious reasons. AI art technologies decentralizes art, allowing regular people to bypass the skill and time requirements for most art pieces.[6] Users can also complete their desired art pieces in what would normally take human artist hours to create. AI art generator users have found their creations sprawled all over the internet as clever memes,[7] winning state fair art competitions,[8] and even ending up in comic books.[9]

Unfortunately, AI technology may be making big strides in advancement and evolution, but that is not the case for the copyright laws in the United States. AI technology is moving at the speed of innovation, while copyright laws are moving at the speed of legislation. The advancements in AI art generation technology bring with it many questions that the U.S. copyright system may not be prepared to handle. Traditional U.S. copyright law may possibly grant AI generated art copyright protections because of a policy tradition of promoting the welfare of the country, through economic means, over the individual, but the incentives for the market and the inherent nature of the technology makes it difficult for human artists to target such AI programs for copyright infringement.

Multiple individuals and entities are involved in the art generation process making it unclear who in the process has authorship over the output of works, and therefore deserves ownership of the copyrighted work. Even if copyright protections can be established, human artists are looking to protect their own copyright protected rights by challenging AI companies, the users, and the works with copyright infringement claims. While some of the copyright laws in the United States provide a solid foundation for handling these issues, the unique and unforeseen potential of AI technology is causing U.S. courts to consider whether to expand previous precedent and scholarly frames of thought in order to combat the growing demand for answers about AI generative use.

In this article, the first section will provide a basic overview of AI generative technology and how it is used to create art. The second section will provide a background of current copyright laws in the United States. The third section will analyze whether AI generative can satisfy the fixation and originality requirements to gain copyright protection in the U.S. The fourth section will look to see if AI art generators, programmers, and users can be held liable for copyright infringement in the U.S. The fifth section looks at current public policy responses to cases involving questions about AI art generation while examining the public policy through the lens of

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[5] John McCarthy, *How a Microsoft machine learning AI created this entirely new Rembrandt*, The Drum (Apr. 7, 2016), https://www.thedrum.com/news/2016/04/07/how-microsoft-machine-learning-ai-created-entirely-new-rembrandt.

[6] Sean Michael Kerner, *AI art (artificial intelligence art)*, TechTarget (May 2023), https://www.techtarget.com/searchenterpriseai/definition/AI-art-artificial-intelligence-art.

[7] Laurie Clark, *When AI can make art – what does it mean for creativity?*, The Guardian (Nov. 12, 2022, 11:00 AM), https://www.theguardian.com/technology/2022/nov/12/when-ai-can-make-art-what-does-it-mean-for-creativity-dall-e-midjourney.

[8] Kevin Roose, *An A.I.-Generated Picture Won an Art Prize. Artists Aren't Happy*, NY Times (Sept. 2, 2022), https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html.

[9] *Id*.

traditional copyright law theories. Section six will take a look at how other countries throughout the world are handling questions about AI art generation within their own copyright laws. The seventh section will provide conclusions.

II. What is AI Art?

Artificial intelligence art creation programs have come a long way with many recently introduced programs finding themselves heavily used thanks to social media trends and growing popularity on the internet. These programs are becoming more and more popular, and they include Midjourney, Stable Diffusion, Dall-E, and many more. While the programs come from different companies, many of the newest programs operate in a similar fashion, through a process known as machine learning.

Machine learning is a subsection of artificial intelligence that features training machines to replicate human thinking by inputting large quantities of data.[10] A series of algorithms are made and combined into a base data set that forms the machine's base learning. The AI then runs repeated tests using this data and new data inputs to over time build up the machine's understanding of the given subject. Through trial and error with additional data added when needed, the AI program can achieve a sizable understanding of its chosen field of understanding. This understanding comes in the form of associating certain data with specific patterns, and by result matching these patterns to ideas.

In the context of art creation, AI programs are trained by large datasets of man-made artworks that creates a base date set for the program, and once the data set becomes understood by the program, then the AI model can begin creating its own art pieces that are similar to the art in the data sets, but not the same.[11] The algorithms within the program would begin with simple task such as learning what a given color may look like, or what does dog look like by analyzing several pictures of a dog. The machine can continue to expand its repository of knowledge so long as new data sets are provided for the AI to learn. The programs can even be specially trained on a specific artist's art in an attempt to mimic their style.[12] With these data sets established, people can then use programs like Stable Diffusion to simply input a text prompt requesting some piece of art. These prompts can be as simple as wanting a picture of a basketball, or as complicated as requesting Darth Vader play a game of ping pong against the Terminator, as long as the data set is large enough to understand the context of the text prompt.

III. Copyright Protection in the United States

Copyright laws in the United States were established early on in the United States Constitution.[13] There are two requirements for copyright protection in the United States and those are originality and fixation.[14]

For the purposes of this paper, fixation will be assumed for AI generated art. Fixation is defined as when a work, "in a tangible medium of expression when its embodiment in a copy or

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[10] *What is machine learning?*, IBM, https://www.ibm.com/topics/machine-learning.
[11] Sean Michael Kerner, *AI art (artificial intelligence art)*, TechTarget (May 2023), https://www.techtarget.com/searchenterpriseai/definition/AI-art-artificial-intelligence-art.
[12] Shanti Escaleante-De Mattei, *Artists Are Suing Artificial Intelligence Companies and the Lawsuit Could Upend Legal Precedents Around Art*, Art in America (May 5, 2023, 10:37 AM), https://www.artnews.com/art-in-america/features/midjourney-ai-art-image-generators-lawsuit-1234665579/.
[13] U.S. Const. art. I, § 8, cl. 8.
[14] 17 U.S.C.A. § 102.

phonorecord, by or under the authority of the author, is sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."[15] Sufficiently permanent and of a transitory duration are not the clearest of standards for fixation, but fixation has been given a fairly broad interpretation that allows for fixation in in electronic devices like computers.[16] The standard use of AI generated art programs allows for the created pieces to be easily saved online or on a computer making it sufficiently permanent for more than a transitory period, so for the remainder of this discussion, fixation will be assumed satisfied.

A. Originality

U.S. courts often view the requirement of originality to be straightforward, requiring an original work of authorship. The work must be independently created by an author with a minimal degree of creativity.[17] This requirement can be broken down into three specific questions for this article. What is the minimal degree of creativity needed for originality? What does it mean to be independently created? What does U.S. copyright law recognize as an author?

Originality can be broken down into creativity, independent creation, and authorship. While the bar for creativity is low for AI art, independent creation by an author is required and the court has a history of denying non-human authorship for copyright protection.

In *Feist Publications v. Rural Services Telephone Co.*, Rural Services published a telephone directory that was filled with information from their subscribers.[18] After denying Feist a license to use said directory in their own publications, Feist took the pieces of information that they needed without Rural's permission.[19] They altered the way some of the information was presented, but some listings in the publication were identical to that of Rural's directory.[20] The court held that the parts of Rural's directory that were copied by Feist was factual information that was not copyrightable.[21] Rural's directory failed to satisfy the requirement for originality even with the court setting the bar for creativity so low because the parts of the directory they were seeking to protect were the facts that were not copyrightable. However, compilations could be copyrighted, if the choices made in selecting which facts to show and how to arrange such facts for their readers could show the minimal creativity needed for copyright.[22] As the court explained, "[t]he distinction is one between creation and discovery."[23] Compilations could be copyrightable because in the work the author was capable of making choices like selection and arrangement that demonstrated creative thought. The court only required that an original work come from an author and that the work had, "the requisite level of creativity," which is "extremely low; even a slight amount will suffice."[24] The vast majority of works make the grade quite easily, as they possess "some creative spark."[25] Feist's publication could not copyright those same facts taken from Rural, but the design and layout and all decisions outside of the facts being displayed could be

[15] 17 U.S.C.A. § 101.
[16] Williams Elecs., Inc. v. Artic Int'l, Inc., 685 F.2d 870, 877 (3d Cir. 1982).
[17] Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991).
[18] *Id.*
[19] *Id*.
[20] *Id*.
[21] *Id*. at 361.
[22] *Id.* at 348.
[23] *Id.* at 347.

[25] *Id.* at 345.

copyrighted if they so chose. If the creative spark standard is low, then what mainly needs to be shown is that an author had the ability to make creative choices within the work.

How can creativity be shown in human thought? In *Meshwerks*, the plaintiff took data and measurements of the defendants' cars and then used modeling software to create a digital modeled wire frame of the cars.[26] Humans were then used to digitally sculpt the wire frames to more accurately depict the vehicles.[27] The lines and data that the modeling program copied were facts of the cars, and facts are not copyrightable.[28] The court explained that when copying images already out in the world that the court will look at other aspects of the image to determine expression, such as "the backgrounds, lighting, angles, and colors."[29] Those creative decisions were made before and after the plaintiff was a part in the process.[30] The court focused on the aspects that demonstrated the author's decision-making to explain that the originality requirement looked at the author's state of mind.[31] The court held that the digital wire frame models were not copyrightable because they lacked the independent creation and creativity required for originality.[32] It is where human thought makes specific creative decisions that go beyond the realm of facts that the court identifies as independent creation leading to creativity.

One of the most famous copyright cases on authorship occurred in 1884 in *Burrow-Giles v. Sarony*, in which Sarony sought copyright protection for a photograph taken of Oscar Wilde against the lithography company.[33] The court defined author as "he to whom anything owes its origin; originator; maker; one who completes a work of science or literature."[34] It is the focus on this definition that begins the court's long-running precedent that an author must be human, as shown by the beginning of the definition "he to whom."[35]

However, courts and the U.S. Copyright Office have denied copyright protection for plants, animals, nature, divine beings, and supernatural beings for being unoriginal.[36] The U.S. Copyright Office also provides that no "machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author" shall be registered as a copyrighted work.[37]

B. What should Originality be with AI?

AI art generating technology has become so advanced that the process would not be described as "random or automatic."[38] Programs are not random because they are based on set data

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[26] *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1260 (10th Cir. 2008).
[27] *Id.*
[28] *See id.*at 1264
[29] *Id.* at 1266.
[30] *See id.*
[31] *See id.* at 1268.
[32] *Id.* at 1269.
[33] *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884).
[34] *Id.*
[35] *See id.*
[36] U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2 (3d ed. 20217); *see also* Naruto v. Slater, 888 F.3d 418 (9th Cir. 2018) (holding, the court held that a crested macaque monkey that took several photos of themselves using a photographer's camara lacked statutory standing under the Copyright Act for copyright protection); *and Kelley v. Chicago Park Dist.*, 635 F.3d 290, 294 (7th Cir. 2011) (holding the Seventh Circuit Court of Appeals held that a living garden display lacked both authorship and fixation for copyright protection).
[37] U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2101 (3d ed. 20217).
[38] *Id*.

and patterns. Programs are not automatic in their results in the sense that machine will not produce the same artwork every instance even with the same text prompt. Is it the human computer user, the programmer, or the program that is providing the creative spark? This section will look at how the originality requirement should interact with AI art generation by looking, first, at the theories of copyright law to provide answers for who should be recognized as authors and, second, at how case law reasoning aligns with the reality of technological advancements.

a. Theories of Copyright Law

There are three different theories of copyright laws that advocate for different ownership decisions. These theories divide the reasoning behind why copyright law is even needed and in doing so explain the need for certain individuals to have ownership in the copyright process. These theories are welfare theory, personality theory, and fairness theory.[39]

The welfare theory of copyright law argues that the fundamental goal of copyright law should be to maximize social welfare.[40] This focus on the betterment for the greatest number of people in society is a utilitarian view of the operations of copyright law. This line of reasoning also aligns the most with the U.S Constitution which says the aim of copyright is to "promote the [p]rogress of [s]cience and useful [a]rts."[41] For this reason, welfare theory has found popularity in U.S. court decisions when it comes to questions of copyright.[42] Welfare theory takes a far more economical approach to copyright theory as the aim is on some goal for the future and not the philosophical desire to protect rights of authors.[43] The focus on the greater good for the most amount of people aligns well with AI art generators' abilities to decentralize and democratize art creation. Removing the skill gap and hours of necessary training that human artists must go through allows for more people to involve themselves in artistic creation.

Personality theory most directly points to the computer user in the AI art generation process as the deserving owner of copyright protections. Also known as the personhood theory, personality theory justifies copyright law in the sense that property is directly tied to the individual's self-expression and personal identity.[44] A person's sense of identity is directly tied to the resources that they own and the things that they create with such resources.[45] Personality theory has found most of its popularity in European civil law systems such as European Union member states.[46] Unlike the United States, which prefers a more welfare or fairness theory focus, the personality theory provides copyright owners with a moral right to be connected to their work.[47] In this theory, art serves as a materialization of the personal traits each individual is made of and, therefore, the art creative is a form containing a part of themselves.[48] By being an extension of their own persona,

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[39] Jessica Meindertsma, *Theories of Copyright*, OHIO STATE UNIV. LIBR. (May 9, 2014), https://library.osu.edu/site/copyright/2014/05/09/theories-of-copyright/.
[40] Christopher Buccafusco & Jonathan S. Masur, *Intellectual Property Law and the Promotion of Welfare*, COASE-SANDOR WORKING PAPER SERIES IN LAW AND ECON. 1, 1 (2017).
[41] U.S. CONST. art. I, § 8, cl. 8.
[42] *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1262–63 (10th Cir. 2008).
[43] *See* Buccafusco, *supra* note 40 at 2.
[44] Justin Hughes, *The Philosophy of Intellectual Property,* 77 Geo. L.J. 287, 330 (1988).
[45] *Id.*
[46] *See generally* Meindertsma*, supra* note 39.
[47] *Id.*
[48] Hughes, *supra* note 43, at 330.

the art in question is not necessarily classified as having been a result of labor, going against Lockean labor theory.[49]

Fairness theory would recognize a combination of both the computer user and the programmer as joint authorship in AI art generation. The fairness theory draws inspiration from scholars like John Locke, arguing that an individual has a right to ownership when they use effort to perform labor upon unowned and unvalued resources that then provides the resources with value.[50] Commonly backed by economic interest, fairness theory or labor theory, states that an individual is deserving of ownership because they have put in the work and effort to create the art.[51] The artist, having put in the effort, deserves a chance to monopolize their work and make a profit from the effort they put in..[52] The copyright is necessary because otherwise a person's art could be copied by others and the copier could make a profit from the efforts of the original author. This takes away the incentive from the original artist to create art because others could come in and use the original art while still taking away interest from the market for such art.[53] Fairness theory has a largely individualized approach, with a focus on the interest of the human effort put into the creation, and that effort deserves to be rewarded. Both the programmer and the computer user have demonstrated some form of effort in the creation of the art generated, whether in creation of the program or the text prompt. Therefore, it would reason that the fairness theory would see both individuals rewarded for the labor.

b. AI Machines – Originality

Even with such a low standard of creativity needed for copyright protection, critics of AI art generating technology still claim that such art does not rise to the standard. However, even that criticism is largely tied to how proficiently the AI program is used. A text prompt asking for a simple basketball may not rise to such creativity, although it may rise to the standard, as the bar set forth is extremely low, it remains unclear.[54] Criticism is mainly directed at scenarios that would see either human programmers or computer users as authors. However, the AI program may have already progressed enough to account for its own originality and bypass the precedent requiring a human author.

In *Feist*, the court recognized creativity in the selection and arrangement of the information, while barring facts from being copyrighted.[55] In the AI generation process, if the pictures downloaded to train the machine are considered the facts, then the AI program is making decisions of selection and arrangement with every work. The program determines what the computer user wants when they input the text prompt, but the program is making decisions on what works to pull from and how to arrange all of this information to create art that is unique. The bar for creativity is low for human artists, but AI programs are demonstrating the same level of decision making. In *Meshworks*, the court looked at lighting, angles, and background to determine creativity when the

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[49] *Id.* at 35.
[50] Alfred C. Yen, *Restoring the Natural Law: Copyright as Labor and Possession*, 51 OHIO STATE L.J. 517, 523 (1990).
[51] Jessica Meindertsma, *Theories of Copyright*, OHIO STATE UNIV. LIBR. (May 9, 2014), https://library.osu.edu/site/copyright/2014/05/09/theories-of-copyright/.
[52] *Id*.
[53] Alfred C. Yen, *Restoring the Natural Law: Copyright as Labor and Possession*, 51 OHIO STATE L.J. 517, 518 (1990).
[54] *Id*.
[55] *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, (1991).

primary focus of the creation of a work was just a copy of facts in the world.[56] The AI program makes determinations on backgrounds, lighting, angles, and various other aspects sometimes completely independent of the text prompt provided by the computer user. In this sense, the program demonstrates levels of independent decision-making in areas of art that have largely been considered the domain of human decision-making. With AI capable of providing minimum levels of creativity and independent creation, the only thing stopping AI from having copyright protections is the precedent of human authorship that was created during a time when the idea of technology being capable of human levels of thought and expression was seen as an impossibility. AI art generators are capable of satisfying the originality requirement for copyright protection, their only shortcoming being that they are not human.

Welfare theory is the only theory of copyright law that viably supports AI programs for having copyright protections. The societal benefits for all that come with the promotion and investment into AI technologies in all areas of life, not just art could be too good to ignore for some proponents of AI programs. However, in the U.S such an idea would still clash with the traditional precedent of requiring human authorship.

c. Programmers – Originality

The programmer of the AI machines is the first human interaction with the program that teaches the AI and provides the program with all the necessary data it uses to then make its decisions. It could be easily argued that without the programmer to provide the date then the AI program has no information to pull from into order to makes decisions of light, angle, background, and more. However, while the programmer provides AI with the ability to make those decisions, the programmer never really makes any such decisions directly related to the creation of the artwork only choosing what information to train the AI program on.

Welfare theory in the U.S. could see the computer programmers as the most likely candidate for copyright ownership as it provides an incentive for programmers to continue developing more advanced AI learning machines to generate art for the society as a whole, while still providing the necessary human component that the court looks for. In this instance, the more advanced the AI becomes then the more art can be produced and put out on the market driving a great economic impact. Such a position also encourages investment in other forms of AI which can have economic impacts on other sectors of the economy.

d. Computer User – Originality

Personality theory supports the computer user as the correct owner of copyright protections in regard to AI art generation. While the computer user may input either a small amount of text or a large descriptive text blurb, they serve as the main conduit for direct creative connection to the piece of art. While the programmers create the machine meant to identify pattern recognition for creation of the art, the spur of the moment creative nexus come from the computer user as they input the text prompt. Therefore, the art created from the AI generator would most likely be connected to the computer user under the personality theory.

[56] *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1260 (10th Cir. 2008).

e. Co-Authorship – Originality

The fairness theory could support programmers, computer users, or both the programmer and the computer user as having joint ownership of a copyright, seeing as neither individual could create the art without the other. The programmer needs the computer user to input the text prompt and spur the AI into action by cyphering through its database, while the computer user needs the programmer to put in the effort of creating the AI and training the machine using several trials. Each one has put in their own form of work and without both then the art piece in question would not be created. Therefore, an ideal use of the fairness theory would see both contributors as authors.

IV. Copyright Infringement

Legal battles have been brewing inside the United States that involve AI art technology infringing on already established copyrights. Once the two requirements for a copyright, originality and fixation are satisfied, the copyright owner is given five exclusive rights to the work that include the right of reproduction, right to derivative works, right of distribution, right of public performance, and right to public display. Copyright infringement is the act of violating one of the rights of a copyright holder.[57] Copyright infringement can be divided into two categories, direct and contributory infringement.

Direct infringement is when one person exercises one of the copyright holders right without authorization to do so.[58] The infringer is held to strict liability as their no consideration of intent or any state of mind.[59] In the ninth circuit, the Court held that the act of designing or implementing a machine that is capable of creating copies that would be copyright infringement is not direct infringement on their part when the users of the machine could just as easily copy not infringing work.[60] In the case, Netcom created a system that automatically created temporary copies of all date sent through the machine, but it was one of the users that sent the infringing messages to a friend's computer that was then copied by Netcom's computer where it was accessible by other users of the server.[61] The court likened Netcom's involvement to that of the owner of a copying machine that lets others make copies on the machine, deciding their analysis for Netcom should be under contributory liability and not direct liability.[62]

A direct infringer against a copyright must first be identified before another contributorily infringes on a copyright because there can be no one contributory liable without someone first being directly liable.[63] A contributory infringer can still be held liable if it can be shown that they had "knowledge of the infringing activity, induces, causes, or materially contributes to the infringing conduct of another."[64] For a contributory infringer to have knowledge of the infringing act, the court in *Netcom* held the defendant to whether they knew of the infringing use or should have known of the infringing use.[65] The defendant received notice before the infringing activity was complete, and therefore left a question of fact to where the defendant should have known. The court also stated that the contributory infringer's participation in the infringing action must be of

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[57] Religious Tech. Ctr. v. Netcom On-Line Commc'n Servs., Inc., 907 F. Supp. 1361, 1373 (N.D. Cal. 1995)
[58] *Id*. at 1367.
[59] *Id.*
[60] *Id.*
[61] *Id.*
[62] *Id.* at 1369.
[63] *Id.* at 1374.
[64] *Id.* at 1376.
[65] *Id.*

a substantial nature, holding that providing a service that allowed for the distribution of the infringing material even after knowledge of the infringing action was enough for Netcom to be held contributory liable.[66]

The analysis in *Netcom* would leave only the computer user of the AI programs as the only potential individual to be held directly liable for any sort of copyright infringement when the AI generated art is produced as they were the ones using the AI program to create the art. The programmers would argue that they are like the owners of the copying machine that allowed others to use the service.

However, the programmers could still be contributory liable. Like in *Netcom*, the AI programmer maybe should have known about the computer user's infringing activity given the nature of what the AI generator does, but that could only be conceivable if it can be shown that any art the AI art generator creates is infringing on the right of derivative works. Otherwise, the AI programmers would simply argue that the AI program was capable of creating non-infringing works and therefore had no knowledge that the infringement was certainly taking place. If knowledge could somehow be proven that the programmer did know of the infringing action, then it could also be argued that the programmer substantially participated in the infringing action since their creation of AI program is what makes it possible for the infringing artwork to be created in the first place. In *Netcom*, the court held that providing the service and system that allowed for the violation of the right was enough to provide a question of fact in the question of substantial participation.[67] In this instance, the AI programmer is certainly creating the system to perform the infringing act. Of course, all this potential for infringement is based on several assumptions that the artist could show a direct infringement against one of their rights by the computer user using the AI program.

A. Instances of Infringement

For our purposes, the question of copyright infringement during the generative AI art process can be broken down into two instances, the scanning of art and the creation of art.

a. Scanning – Right of Reproduction

The first potential instances of copyright infringement come before any art is generated, but it occurs during the machine learning process. Artists are claiming that their copyright protected original pieces or being taken from the internet without their consent and then being used in the datasets that are created to train AI programs. To input the protected works into the datasets they first have to be turned into models for the AI program to scan and break down into data. Artists are claiming that this replication of a work into a model is copyright infringement. Even though the medium may change as the art is scanned, the scan is still a copy of the artwork. Since the human artists are going after programmers and AI companies for direct infringement, there is no consideration for intent as they are held strictly liable. However, the programmers are using the Fair Use Doctrine as a defense.

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[66] *Id.*
[67] *Id.* at 1382.

b. Creating Art – The Right to Derivative Works

The second instance comes when the art is generated, and the work looks similar to an already protected work that was used to train the AI program. In January 2023, a group of artists sued both Stable Diffusion and Midjourney in an alleged copyright infringement case.[68] The claim was simple, these AI art generation programs took thousands of copyrighted images from the internet without the author's consent and used them to train their AI models that then produce pieces of art similar to the human artist's own works.[69] The AI programs would then go on to mimic the style of substance of these learned from pieces of art by reconfiguring them and creating infringing pieces of art.[70] Some supporters of AI art technology defend it by pointing out that human made artworks are broken down into data points to train the AI machines, the technologies ability to learn is based on the design of breaking down patterns into mathematical representations and then being able to recognize those patterns again through data.[71] Data is recognized as a fact and therefore cannot be copyrighted. The Plaintiffs in the case are claiming that the AI machines are serving as a technologically advanced collage machine that is matching different patterns from the art used to teach the machines and then create infringing works.[72] More specifically, the lawsuit claims that AI art programs are infringing on the artist right to derivative works.

A derivative work is a work "based upon one or more preexisting works, such as a … art reproduction, abridgment, condensation, or any other form in which a work may be recast, transformed, or adapted."[73] However, the author does not have a right to all works that may simply include ideas from the previous work. For a work to be classified as a derivative work, it must have "substantially copied from a pre-existing work."[74] The court has held that a work is derivate if, to avoid copyright infringement, the artist would need to ask the original artist for permission.[75] Different circuits have their own substantial similarity test, but two of the most prominent come from the Second and Ninth Circuits. The Second Circuit, in *Williams v. Crichton*, laid out a test that focused on removing the *scenes a faire* or non-protectable elements from a work and then comparing only what remains of the two works to determine substantial similarity.[76] The Ninth Circuit broke the substantial similarity test down into two parts−an extrinsic and intrinsic test.[77] The extrinsic test is an objective test comparing things like themes, mood, setting, characters, and essentially all objective forms of expression.[78] The intrinsic test is subjective and looks to whether an "ordinary, reasonable audience" could find the two works substantially similar based on the

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[68] James Vincent, *AI art tools Stable Diffusion and Midjourney targeted with copyright lawsuit*, THE VERGE (Jan. 16, 2023, 6:28 AM), https://www.theverge.com/2023/1/16/23557098/generative-ai-art-copyright-legal-lawsuit-stable-diffusion-midjourney-deviantart.
[69] *Id.*
[70] *Id.*
[71] *Id.*
[72] *Id.*
[73] 17 U.S.C. § 101.
[74] Pickett v. Prince, 52 F. Supp. 2d 893, 906 (N.D. Ill. 1999).
[75] *Id.*
[76] Williams v. Crichton, 84 F.3d 581, 588 (2d Cir. 1996),),) (, where the court held that Dinosaur World books were not substantially similar to the Jurassic Park works because nearly all similarities of the two works come from non-copyrightable elements..).
[77] Cavalier v. Random House, Inc., 297 F.3d 815, 822 (9th Cir. 2002).
[78] *Id.*

concept and feel of the works.[79] The Ninth Circuit The ninth circuit test does integrate the Second Circuit test into their extrinsic test.[80]

Using either the Second Circuit or Ninth Circuit test, the same problem arises when it comes to analyzing AI art technologies used with derivative works. These tests assume a comparison of one or two art pieces, maybe one or two more to the extreme, but the process becomes nearly impossible when one looks at what opponents of AI art generators claim the technology does. AI programs are taking small pieces from thousands of pictures and paintings from the internet and putting them together. With such a large quantity of pieces to choose from, it becomes extremely difficult to find a substantial similarity with one specific artist because if pieces could be identified they would be too small to be substantial.

B. Infringement Defense - The Fair Use Doctrine

The AI companies' and programmers' first defense against claims of copyright infringement is the Fair Use Doctrine, although most actively finding use during the scanning stage where the AI machines are copying the copyrighted works.

A copy of a copyright-protected work is not considered infringing when it is "for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research."[81] This test aligns with Congress's purpose for copyright which is "[t]o promote the Progress of Science and useful Arts."[82] The test for whether the use of a work is protected under Fair Use is based on four factors, including, the purpose and character of the use, the nature of the copyrighted work, the amount and substantiality of the portion used in relation to the copyrighted work, and the effect of the use upon the potential market for the copyrighted work.[83] In our scenario, using the copyrighted works to create models that can be turned into data for the AI program would be argued to fall under the category of research. Machine learning is a necessary research process for developing AI technologies.

When it comes to the first of the four factors, the purpose and character of the use, courts have largely focused on whether the use of the copyrighted work is "transformative."[84] The court warned of the dangers of taking the word transformative too seriously, essentially boiling it down to the user of the fair use doctrine needing to have a justification for using the copyrighted work.[85] In *Authors Guild*, Google's[86] In *Authors Guild*, Googles transformative purpose was to provide unavailable information about original books by providing snippets about the books online and providing a search function for certain words found in the book.[87] This transformative purpose limited the amount of information to the public while still providing necessary search functions for the users, and was considered highly transformative by the court, outweighing considerations about Google's commercial nature.[88] The court determined that both the snippet viewing and word search uses were non-infringing uses of the copyrighted material.[89]

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[79] *Id.*
[80] *Id.* at 822-23.
[81] 17 U.S.C.A. § 107 (West).
[82] U.S. Const. art. I, § 8, cl. 8.
[83] 17 U.S.C.A. § 107 (West).
[84] Authors Guild v. Google, Inc., 804 F.3d 202, 214 (2d Cir. 2015).
[85] *Id*. at 215.
[86] *Id*. at 215.
[87] *Id.*
[88] *Id.* at 215-219.
[89] *Id.* at 207.

Advocates for AI art generators likely make an argument that the machine learning process is an educational purpose. As in *Authors Guild v. Google*, the use of copyrighted material is transformative in the sense that the use of the material is justified in that it is being used for teaching AI machines through the machine learning process. The copyrighted artwork is not getting shown to the public at all, even less than the snippet viewing that Google was allowing. At the time of scanning, the AI companies do not have any commercial interest in using the copyrighted works as it being used as a training tool with no profits being made. Under such an analysis, it is likely that AI programmers' use of copyrighted work during the scanning process is likely to satisfy the first factor of the Fair Use test.

The second factor, the nature of the copyrighted work does not necessarily support fair use in this instance. *Authors Guild* recognized that the second factor tends to have the least impact on fair use determinations.[90] However, the court mentioned that copyrighted works of a more factual nature have a need to spread more than fiction or fantasy.[91] While the copyrighted works are being broken down into factual data points for the machine learning process, it is converting the expression and ideas of the users into those facts. It would therefore be unlikely that it could be argued that the nature of the copyrighted work was more factual and susceptible to fair use.

The third factor is complicated because while the model made for the AI program from the copyright protected work is substantial in that the AI programmers are scanning the entire copyrighted work; the court has held that "unchanged copying has repeatedly been found justified as fair use when the copying was reasonably appropriate to achieve the copier's transformative purpose…"[92] For this analysis, the focus seems to fall more on factors one and four.

For the fourth factor, if the question was solely about AI art generators, then the fourth factor would detract from the AI advocates argument because the machine learning process is going to directly impact the market for the original work with an influx of other art pieces that can mimic the same style and aesthetics. While the scanning process itself may not have a direct market impact on the copyrighted authors work, the machine learning ultimately teaches the machine to produce a work that could impact the market, capable of mimicking style and subject matter that could subtract from the demand for the copyrighted authors' work.

The court could decide that machine learning is protected by fair use, but that means an extremely large population of artist and creators would have to accept that some of their rights are not protected in an ever-growing field of technological development. However, for the courts not to protect machine learning under fair use would drastically hamstring efforts to advance and develop AI technologies in the U.S. with the added risk of scaring potential AI development projects out of the country.

Artificial intelligence art generation may have the potential to earn copyright protections, but it is unlikely that human artists will be able to successfully sue AI art generation programmers or users with copyright infringement. U.S. copyright laws are not prepared to handle such a decentralized and evolving form of art creation.

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[90] *Id.* at 220.
[91] *Id.*
[92] *Id.* at 221.

V. Public Policy Responses to AI

The U.S. Copyright Office released a policy statement in March of 2023 stating their position going forward that copyright protection would only be for creations made by humans.[93] While humans may manipulate AI generated art with the sufficient degree to be considered copyrightable outright, and unchanged AI art would not be open for copyright registration.[94] The Office also wants all applications to list if an AI has been used in the making of works, along with already submitted applications amending their statements to include AI use.[95]

The U.S. Copyright Office policy statement comes during a time of public outcry against most forms of artificial intelligence in the artistic world. AI use in movies, publications, and music leaves many artistic professionals wanting protection and job security. This decision would mostly align with some form of labor theory that values the work and effort that goes into the production of human art so those artists should be able to profit from such work. The winners in this decision are those human artists who want to protect the years of effort they have put in to learning their craft, while the losers would be large companies backing the rise of innovative AI technologies who have something to gain monetarily or culturally for the advancement of such technologies. However, a lesser-known loser of this decision could be argued to be the masses of people that never had the resources to learn the time-consuming and resource heavy skills that are required for creating art. Those masses had AI art generators to thank for an easily used and acquired form of creating art.

Court cases involving AI art generation are relatively new and slow moving as they must be careful undertaking a path into an unknown landscape of legal questions. However, a federal district court in Washington, D.C. has affirmed the U.S. Copyright Office's position by declaring that only humans qualify as authors in regard to copyrights.[96] The Office's statement came in response to a comic book seeking copyright protection that had AI created art mixed with human text.[97] The Federal District court had a more extreme question to consider when the art in question was fully created by AI technology, but the plaintiff sought to register copyright protection under a theory of work-for-hire doctrine that he employed the AI program in question.[98] In a work-for-hire scenario "copyright law deems the employer to be the 'author' for purposes of copyright ownership."[99] Such an argument not only involves recognizing a machine as an employee, but if the plaintiff's argument had been accepted then it would have resulted in a massive break from contemporary copyright law precedent as the U.S. would have recognized non-human authorship for the first time in its history. Such a decision, while certainly extreme, does have an appeal for some advocates of welfare and theory as creating an incentive for technological advancement in the Artificial Intelligence sphere. Supporters of fairness and personality theories would disagree as it does not recognize the hard work of humans that goes into the creation of art, and removes

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[93] Shanti Escaleante-De Mattei, *Artists Are Suing Artificial Intelligence Companies and the Lawsuit Could Upend Legal Precedents Around Art*, ART inIN AMERICA (May 5, 2023, 10:37 AM), https://www.artnews.com/art-in-america/features/midjourney-ai-art-image-generators-lawsuit-1234665579/.
[94] *Id.*
[95] *Id.*
[96] Lauren Leipold and& Owen Wolfe, *No Human, No Way: D.C. Federal Court Denies Copyright Protection for AI-Generated Art*, JDSUPRA, https://www.jdsupra.com/legalnews/no-human-no-way-d-c-federal-court-3831962/; *see also* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884); Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc., 528 F.3d 1258, 1260 (10th Cir. 2008).
[97] Escaleante-De Mattei, *supra* note 56.
[98] Leipold & Wolfe, *supra* note 59.
[99] Marvel Characters, Inc. v. Kirby, 726 F.3d 119, 137 (2d Cir. 2013))).

any sort of personal bond a human may have to the created art. The winners of such a decision would have been the companies that put more money into these AI programs with the hopes of earning a profit while seeing technology advance, leaving traditional artists disincentivized to create art at a drastically higher resource cost to what the AI programs could perform.

Human artists may not want AI art generation users to gain copyright protections in their works because it devalues their own art, but in the current climate they are far more concerned with preventing copyright infringement that they see occurring with the teaching of these AI programs.

A federal judge in a copyright infringement case against Stability Diffusion and AI programs has asked for plaintiffs to provide more evidence if they wish to assert claims of copyright infringement.[100] The plaintiffs are targeting the large dataset being used to train the AI programs, known as the LAION dataset, which consists of billions of images taken from the internet to train artificial intelligence programs.[101] The sheer number of images involved in the dataset make it extremely likely that art posted to the internet by plaintiff artists have found their way into the dataset. The sheer number of images found in the data set allows for the AI programs to extrapolate from so many sources that the likelihood of creating a substantial similarity to any one work created by a traditional artist seems unlikely.[102] An Artist's failure to attach copyright infringement to AI art generators may serve as a bigger devaluation in their work then even if the programs could gain copyright protection. What becomes the point of creating art to be sold when someone can take that art and use it to train AI to create a similar creation for almost no effort on the user's part? Such a decision certainly benefits the large companies involved in producing the AI programs because, while they might not be able to gain copyright protection, as long as they can avoid copyright infringement being tied to their programs then they still have economic incentives to develop these art generation AI and put them out into the world where the masses will still continue to use them, much like the current situation surrounding AI art generations.

Ultimately, the United States will have to make a decision on whose interests to protect. The United States' track record of following a line of reasoning that supports welfare theory by promoting economic interest and providing good for the most people would indicate that it is more likely that traditional artist will be unable to successfully bring a lawsuit against AI art generators copyright infringement in order to push advancements and investments in AI technology.

VI. Response to AI Art Generators Around the World

The United States may have its own unique set of copyright laws, but it is still helpful to examine how other countries are handling the question of AI copyright ownership, especially when no one seems to have all the answers.

A. United Kingdom

In the United Kingdom (UK), their copyright laws have historically protected human authorship in the copyright process. The 1988 Copyrights, Design, and Patent Act (CDPA) provides that, "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the

[100] Jose Antonio Lanz, *Human Artists Lose Ground in Legal Battle Against AI*, EMERGE (July 21, 2023), https://decrypt.co/149533/human-artists-lose-ground-in-legal-battle-against-ai.
[101] Escaleante-De Mattei, *supra* note 56.
[102] Lanz, *supra* note 62.

creation of the work are undertaken."[103] This leaves the UK with similar questions to the United States; without the AI having any chance of copyright ownership then the question of authorship still comes down to either the programmer, computer user, or leaving the art to the public domain. It also remains unclear if the AI learning process is considered copyright infringement. Courts in the UK are already attempting to answer some of these questions as Getty Images sued StabilityAI for copyright infringement.[104]

B. The European Union

The European Union (EU) is attempting to take the initiative on the international stage for writing up rules for AI technology. The EU is currently drafting the AI Act which would see AI technologies categorized into three risk levels, and also require companies that deploy AI technology to disclose any copyrighted material that is used in creating the AI technology, like any art used in the machine learning stage of an AI program.[105] The AI Act takes much of its inspiration for definitions and the like from the Berne Convention, which still has influence over much of the generative AI use in the European Union.[106]

The Berne Convention, along with the rest of EU copyright law, breaks the question of AI generated art copyright protection into four steps.[107] For an AI generated creation to be considered "work" it must be in the artistic domain, involve human intellectual effort, have originality, and have expression. AI generated art almost certainly falls within the artistic domain given its innate purpose, and the required human intellectual effort requirement can still be considered low without more dialogue. For the third criterion of originality, the Court of Justice of the European Union (CJEU) focuses on whether there was "sufficient creative space."[108] This means there was enough room in the creative process for the human author to demonstrate some form of creative choice. The CJEU broke down the creative process when being assisted by a machine into three stages: conception, execution, and redaction.[109]

The conception stage is the creation of the plan for the work where decisions are made about a work's style, format, and other design choices.[110] The second step, execution, is simply the act of morphing the design into an actual draft of the work.[111] In traditional art, this would be the actual act of painting a work. The third and final step, redaction, is the phase of the creative process where the draft created in the execution phase is refined by making corrective choices for the final product.[112]

There is a possibility for the program user to gain some form of copyright protection under EU copyright law, but the programmers are unlikely to gain protection. In the AI art generation

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[103] Copyright, Designs and Patents Act 1988, c. 49, § 9(3) (UK).
[104] Suzanne Bearne, *New AI systems collide with copyright law*, BBC NEWS (July 31, 2023), https://www.bbc.com/news/business-66231268.
[105] Supantha Mukherjee, Foo Yun Chee, & Martin Coulter, *EU proposes new copyright rules for generative AI*, REUTERS (Apr. 28, 2023, 2:51 AM), https://www.reuters.com/technology/eu-lawmakers-committee-reaches-deal-artificial-intelligence-act-2023-04-27/.
[106] P. Bernt Hugenholtz & João Pedro Quintais, *Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?*, 52 IIC 1190, 1193-94 (2021).
[107] *Id.* at 1200.
[108] *Id.* at 1201.
[109] *Id.*
[110] *Id.* at 1202.
[111] *Id.*
[112] *Id.* at 1203.

process, the computer user has some of the most involvement in the conception stage. This is the stage when they have the opportunity to input the text prompt that can determine subject, style, genre, and other features that are largely considered during this phase of the process. The user then has relatively limited involvement in the execution phase because of how the artwork is created and put down onto the medium is largely chosen by the program itself. Finally, the computer user once again has some control during the redaction phase because they can choose to alter colors or request additional changes from the AI. However, there is a question of whether the computer user shows any involvement in the redaction phase if he makes no changes to the art, especially given the fact that some AI programs would produce a completely different piece of art if even a single word was changed in the text prompt that was input into the program. While the CJEU has indicated that creative choices made by a human during the conception phase are important factors in finding for originality,[113] it would require the CJEU to accept most of the creative choices made during the conception phase with hardly any choices in the other stages of the AI art generation process.

C. Australia

Australia's copyright laws point towards a more extreme solution to AI copyright issues that would have a cultural impact by recognizing AI as a joint owner or allowing much of the work of AI generators into the public domain. In Australia, in 2012, the court held that computer code could not be copyrighted that was not solely authored by a human or coauthored by a human.[114] While this case was focused on code text, if the court followed the same line of reasoning for AI art generator case, neither AI programmers nor the computer users could claim to have solely created the art without the AI. This would leave the court with two options, either they would have to recognize the computer users and programmers as joint owners, or the art created would receive no protection and would enter into the public domain.

AI companies are also encountering another challenge in Australia that directly involves the question of whether the technology is capable of copyright infringement. The simple answer for Australia is yes. Australian copyright laws heavily restrict data mining, leaving no exceptions for data mining processes that allow for artificial machine learning.[115] Specifically, the law requires authorization from a copyright owner if AI programmers want to use the work in their machine learning data sets. To put that into context, the LAION dataset contains billions of pieces of art; such a conglomeration of works likely features thousands, if not millions, of artists would require companies to receive authorization from every single author.[116] Australian copyright laws already indicate that are not catering to the needs to AI companies and there users, so it is no surprise that they show no interest in providing AI generated works with copyright protections.

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[113] *Id.* at 1202.
[114] *Acohs Pty. Ltd. v Ucorp Pty. Ltd.*, (2012) 201 FCR 173. (Austl.).
[115] *See* Rita Matulionyte, *Australian Copyright Law Impedes the Development of Artificial Intelligence: What Are the Options?*, SSRN ((, Dec. 30, 2020),),, http://dx.doi.org/10.2139/ssrn.3720289.
[116] *See* Romain Beaumont, *LAION-5B: A NEW ERA OF OPEN LARGE-SCALE MULTI-MODAL DATASETS*, LAION BLOG (Mar. 31, 2022), https://laion.ai/blog/laion-5b/.

D. India

India is the first country to allow an AI art generating program to be a co-author in copyright registration.[117] The AI painting application, Raghav, was listed as the co-author for the artwork *Suryast*.[118] It is important to note that an application was also sent in that listed Raghav as the sole author of the work and that was rejected, but it still marks the first time that an AI program has been accepted as any form of author for a copyrighted work.[119] While it may not be the full authorship that some supporters of artificial intelligence were looking for, the decision serves as a small first step towards AI technology receiving some form of copyright rights. It urges the question that although AI technology may only be so advanced as to serve as co-authors in a copyrighted work, what type of advancements would be needed to see full ownership as a possibility?

E. Singapore

Singapore serves as one of the leading innovative countries on the Asian continent with it continuously being ranked in both innovation and intellectual property systems.[120] Historically, Singapore copyright laws were based on UK copyright laws up until 1987 when the Copyright Bill was passed.[121] Hence, Singapore intellectual thought on generative AI art shares many similarities with the UK system. While authorship in Singapore's copyright laws is generally held to require a human involvement by Singapore courts, the Copyright Act strays from officially stating such.[122] The court has limited what is considered authorship specifically in ways that may hinder AI programmers' abilities to gain copyright protection for generated AI art. The court held that collecting facts about racehorses for a diagram about racehorses did not constitute authorship because the collector of the facts only demonstrated "preparatory efforts."[123] This would mean that AI programmers who gather data and information into order to train the AI through machine learning would be unlikely to gain copyright protections because their work would be merely preparatory. By process of elimination, this would leave only the computer user as the only potential candidate for gaining copyright protection in AI generated art. Otherwise, the art would be considered left to the public domain.

VII. Conclusion

AI art generation technology has challenged long held understandings about copyright protection and copyright infringement laws. Copyright protection laws are struggling to decide who in the AI art creation process should be endowed with authorship. Human artists are attempting to use copyright infringement claims against the machine learning process before AI

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[117] Shradha Prakash, *Copyright ownership of AI generated content in India*, SUJATA CHAUDHRI IP ATTORNEYS (Mar. 16, 2023), https://www.sc-ip.in/post/copyright-ownership-of-ai-generated-content-in-india?utm_campaign=article&utm_content=articleoriginal&utm_medium=syndication&utm_source=mondaq&utm_term=Intellectual-Property.
[118] *Id.*
[119] *Id.*
[120] Tal Dadia et al., *Can Ai Find Its Place Within the Broad Ambit of Copyright Law?*, 10 BERKELEY J. ENT. & SPORTS L. 37, 52 (2021).
[121] *Id.*
[122] *Id.* at 57.
[123] *Id.* at 59.

art creation has occurred, and against the actual AI art output that potentially may violate derivative work rights.

In matters of copyright protection, the long-held belief that only humans can have authorship in copyrighted works is standing strong, but that still leaves the potential for programmers of the AI or the computer users of the AI to be copyright owners, with the added possibility that neither gains copyright ownership. The United States has typically followed welfare theory in their understanding of copyright laws and therefore seems likely to grant the programmers or users copyright protection to stimulate economic incentives for more AI technology research and advancement.

AI companies and programmers are looking to use the Fair Use Doctrine to protect themselves against copyright infringement claims targeting machine learning. The U.S. must balance the already established rights of human artists with the potential investment and advancement opportunities that comes with artificial intelligence research residing in the country.

Human artists are also fighting an uphill battle to argue copyright infringement against the AI art pieces created because the large quantity of data that goes into teaching the AI programs make it difficult to identify any substantial similarity with one specific piece of art.

Ultimately, traditional U.S. copyright law may possibly grant AI generated art copyright protections given a track record of promoting the welfare of the country in order to promote economic interests, but the incentives for the market and the inherent nature of the AI generating technology makes it difficult for human artists to target such AI programs for copyright infringement.