

ARTIFICIAL INTELLIGENCE AS ARTIST: WHY AND HOW U.S. COPYRIGHT LAW SHOULD EXTEND TO AI[♦]

INTRODUCTION

In the first episode of a 1989 Polish television show, *Dekalog*, a professor of computer programming stood in front of his class and said, “[This] device has both intelligence and consciousness. It selects, which is an act of choosing I believe that a suitably programmed computer can have its own taste, aesthetic preferences, personality.”¹ In the thirty years since, the intelligence of machines—and society’s corresponding utilization of them—has grown exponentially. Today, it is commonplace for most people to carry highly intelligent mobile technology throughout the day. Our cell phones contain cunning algorithms that have the ability to inform and influence human behavior.²

The existence of such algorithms, however, is not limited solely to the ambit of cellular technology. Rather, these complex calculations are often found in various technologies, ones that can create art, music, and pieces of journalism.³ For example, one company has designed a fully-automated computer platform that is capable of generating two-thousand news articles per second.⁴ Another group of researchers from Rutgers University has developed a machine that, when exposed to eighty-thousand paintings from the past several centuries, was capable of creating its own novel images.⁵ These works, although traditionally entitled to copyright protection when created by people, raise an important question regarding the intellectual property rights associated with autonomous, machine-made creations: namely, whether such novel works, authored by artificially intelligent (AI) technology and not humans, should be afforded copyright protection.

[♦] Permission is hereby granted for noncommercial reproduction of this Note in whole or in part for education or research purposes, including the making of multiple copies for classroom use, subject only to the condition that the name of the author, a complete citation, and this copyright notice and grant of permission be included in all copies.

¹ *Dekalog: One* (Telewizja Polska television broadcast, Dec. 10, 1989).

² T.C., *What are algorithms?*, *ECONOMIST* (Aug. 30, 2017), <https://www.economist.com/the-economist-explains/2017/08/29/what-are-algorithms> [<https://perma.cc/5JKT-T6AL>] (“In a nice bit of symmetry, some of the most advanced algorithms are not written by humans at all, but by other algorithms.”).

³ Ross Miller, *AP’s ‘robot journalists’ are writing their own stories now*, *VERGE* (Jan. 29, 2015, 11:55 AM), <https://www.theverge.com/2015/1/29/7939067/ap-journalism-automation-robots-financial-reporting> [<https://perma.cc/4ESV-25MQ>].

⁴ *Id.*

⁵ Michael Andor Brodeur, *Can art be created by algorithms?*, *BOS. GLOBE* (Aug. 4, 2017), <https://www.bostonglobe.com/arts/2017/08/03/can-art-created-algorithms/2MGWapvSfJVJOI8Sq1OIPO/story.html>.

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1]

While the Copyright Act, in its current form and in conjunction with the relevant case law, appears to view humanness as an additional requirement for copyright protection eligibility, this Note argues that this protection should be extended to include the coverage of non-human authors as well—specifically, AI authors. Further, this Note recommends a solution for how to implement this potentially controversial expansion of copyright protection.

This Note proceeds in four parts. Part I examines the meaning of authorship within the context of copyright law; it explores the current definition of authorship, how that definition continues to evolve, and the distinction between the American understanding of the term “author” compared to the European perspective. Part II discusses the concept of creativity and considers whether non-humans are capable of being creative in the first place. Part III provides a brief historical introduction to the development of AI and demonstrates that such technology is capable of satisfying the requirements necessary for copyright protection. Finally, Part IV proposes a solution for how AI could be regulated if the Copyright Act was amended to include it.

I. WHO IS AN “AUTHOR”?

Pursuant to Article I, Section 8, Clause 8, of the United States Constitution, Congress has the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”⁶ The framers’ goal in drafting the Copyright (or Intellectual Property Right) Clause was to incentivize the creation of art and inventions by creating a predictable mechanism under which artists and inventors could expect to be paid for their time and ingenuity—an “engine of free expression.”⁷

The Copyright Clause has since been codified into law, with its most recent iteration being the Copyright Act of 1976. This statute states, in relevant part, that “[c]opyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or

⁶ U.S. CONST. art. I, § 8, cl. 8.

⁷ *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 558 (1985) (“By establishing a marketable right to the use of one’s expression, copyright supplies the economic incentive to create and disseminate ideas.”); *see Mazer v. Stein*, 347 U.S. 201, 219 (1954) (“The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Arts.’”).

2020] ARTIFICIAL INTELLIGENCE AS ARTIST

device.”⁸ However, conspicuously missing from the Copyright Act’s list of definitions are the terms “original works” and “authorship,” two gaps that federal courts have filled in through jurisprudence.⁹

One way in which the federal courts have attempted to fill these gaps is by holding that, to be eligible for copyright protection, the author must be human. In an early twentieth-century case, *Bleistein v. Donaldson Lithographing Co.*, the Supreme Court opined that “[t]he copy is the personal reaction of an individual upon nature. Personality always contains something unique. It expresses its singularity even in handwriting, and a very modest grade of art has in it something irreducible, which is one *man*’s alone.”¹⁰

Similarly, in *Urantia Foundation v. Maaherra*, the Court of Appeals for the Ninth Circuit held that “a work is copyrightable if copyrightability is claimed by the first *human beings* who compiled, selected, coordinated, and arranged the [work].”¹¹ This language suggests that only human beings are capable of satisfying the scope of the authorship requirement necessary for copyright protection.

This limitation on eligibility is further cemented in the Compendium of U.S. Copyright Office Practices. That publication states in relevant part that the Copyright Office, when determining whether or not a particular work is copyrightable, must begin its inquiry by asking: “Was the work created by a human author?”¹² This question, the Compendium explains, is pertinent because any work that lacks human authorship automatically fails to satisfy the overall “authorship” requirement necessary for copyright protection. Because a work of non-human authorship would *not* qualify as a work of “authorship” under the

⁸ 17 U.S.C. § 102(a) (2012), <https://www.govinfo.gov/content/pkg/USCODE-2012-title17/pdf/USCODE-2012-title17-chap1-sec102.pdf> [<https://perma.cc/UYE2-Q5X6>].

⁹ See generally *id.* § 101, <https://www.govinfo.gov/content/pkg/USCODE-2012-title17/pdf/USCODE-2012-title17-chap1-sec101.pdf> [<https://perma.cc/VYA2-823X>].

¹⁰ *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 250 (1903) (emphasis added).

¹¹ *Urantia Found. v. Maaherra*, 114 F.3d 955, 958 (9th Cir. 1997) (emphasis added); see 11 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 808.7(C) (2019) (“A motion picture must contain creative human authorship. A motion picture created by a non-human author, created by a purely mechanical process, or generated solely by preexisting software is not copyrightable.”); see also Russ Pearlman, *Recognizing Artificial Intelligence (AI) as Authors and Inventors Under U.S. Intellectual Property Law*, 24 RICH. J.L. & TECH. i, 12 (2018), https://jolt.richmond.edu/files/2018/04/Pearlman_Recognizing-Artificial-Intelligence-AI-as-Authors-and-Inventors-Under-U.S.-Intellectual-Property-Law.pdf [<https://perma.cc/8587-H7XQ>] (“[B]ack in 1956 when [inventors] Klein and Bolitho attempted to register the computer-generated song *Push Button Bertha*, the Copyright Office rejected them out-of-hand, instructing them that no one had ever registered music written by a machine before. By 1973, this was fortified into the practices of the Copyright Office, such that copyrightable works must owe their origin to a ‘human agent.’ This remains the practice of the Copyright Office today.” (internal footnotes omitted)).

¹² U.S. COPYRIGHT OFFICE, *COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES* § 302 (3d ed. 2017), <https://www.copyright.gov/comp3/docs/compendium.pdf> [<https://perma.cc/GT96-FHKX>].

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1

Copyright Act, the Copyright Office will not register works produced by, or owing their origin to, nature, animals, plants, divine or supernatural beings, machines or mere mechanical processes.¹³ It even expressly prohibits photographs taken by monkeys and murals painted by elephants.¹⁴ Further, the Copyright Act includes a “limited term” provision,¹⁵ which indicates the end of a natural life, and also a provision for an author’s widow or widower, characteristics that also imply an author must be human.¹⁶

Another important facet of authorship was codified in the Copyright Act of 1909: the works made for hire doctrine. This amendment marked a general shift in the legislature’s conception of who or what qualified as an author under the Copyright Act—the word “author” could now include employers who contracted others to make works.¹⁷ While case law discussing this changing notion of authorship in between the original Copyright Act of 1790 and the amended Copyright Act of 1909 is scant, the District Court of Pennsylvania held in *Binns v. Woodruff* that one who employed others to create an elaborately decorated print of the Declaration of Independence could not obtain a copyright because he had neither designed, drawn, nor engraved the work and thus was not an author as required by the statute.¹⁸ Interestingly, despite this decision and its interpretation of the statute, between 1790 and 1800, forty-four to forty-nine percent of copyright registrations were requested by a person other than the author himself.¹⁹

¹³ *Id.* § 313.2.

¹⁴ *Id.*; see also *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

¹⁵ 17 U.S.C. § 302(a) (2012), <https://www.govinfo.gov/content/pkg/USCODE-2012-title17/pdf/USCODE-2012-title17-chap3-sec302.pdf> [<https://perma.cc/7SWF-E4H9>].

¹⁶ *Id.* § 304(a)(C) (2012), <https://www.govinfo.gov/content/pkg/USCODE-2012-title17/pdf/USCODE-2012-title17-chap3-sec304.pdf> [<https://perma.cc/SAS4-42YZ>]; see Dane E. Johnson, *Statute of Anne-imals: Should Copyright Protect Sentient Nonhuman Creators?*, 15 ANIMAL L. 15, 20 (2008), <https://law.lclark.edu/live/files/23776-15-johnsonpdf> [<https://perma.cc/C232-EUME>].

¹⁷ Copyright Act of 1909, ch. 320, § 62, 35 Stat. 1075, 1088 (repealed 1978), <https://www.loc.gov/law/help/statutes-at-large/60th-congress/session-2/c60s2ch320.pdf> [<https://perma.cc/G8EH-RLFE>].

¹⁸ *Binns v. Woodruff*, 3 F. Cas. 421, 423 (C.C.D. Pa. 1821); see Catherine L. Fisk, *Authors at Work: The Origins of the Work-for-Hire Doctrine*, 15 YALE J.L. & HUMAN. 1, 15 (2003), https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1715&context=faculty_scholarship [<https://perma.cc/LL96-E7FS>].

¹⁹ Fisk, *supra* note 18, at 15 (“A significant number of registrations were for works other than the kinds of books that typically would have an individual author; they included maps and charts, dictionaries, and directories. It is reasonable to suppose that among these, some employers were registering the copyright to works that persons in their employ had created, at least in part. It is unclear whether all those registrations were pursuant to an express assignment by the employed author.” (internal footnote omitted)).

2020] ARTIFICIAL INTELLIGENCE AS ARTIST

The foregoing tends to suggest that, from copyright law's inception, there existed a proclivity toward assigning ownership to individuals who may or may not have met the strict definition of a work's "author" under the standard established in an 1884 case, *Burrow-Giles Lithographic Co. v. Sarony*. There, the U.S. Supreme Court held that an author is the person "to whom anything owes its origin; originator; maker."²⁰ Despite that seemingly narrow characterization, the works made for hire doctrine persisted. It was not, however, without its detractors. For instance, in a 1961 report, Abraham Kaminstein, who at the time was the Register of Copyrights, criticized the Copyright Act's inclusion of employers in its definition of author "on the ground that the employer is not in fact the author and should not be designated as such."²¹ Congress finally addressed the diverging views regarding the works made for hire doctrine in the Copyright Act of 1976 Act by retaining the provision that allows employers to be authors of works created by their employees within the scope of their employment, but narrowing the specifications under which the employer, or "commissioning party," might be deemed an author.²²

Further reflecting this evolution of the authorship standard, in 1979, the Congress of the National Commission on New Technological Uses of Copyrighted Works (CONTU) issued a report to "assess the need for possible changes in the copyright law to recognize copyright ownership in works created by the application or intervention of computers."²³ Specifically, the report stated that there was "no reasonable basis for considering that a computer in any way contributes authorship to a work produced through its use."²⁴ CONTU went on to compare computers to powerful typewriters and concluded that there must be at least minimal creative *human* effort during the production of the work.²⁵

However, in July 1990, the World Intellectual Property Organization (WIPO) Committee of Experts discussed a provision that

²⁰ *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57 (1884); see Maria A. Pallante, *The Curious Case of Copyright Formalities*, 28 BERKELEY TECH. L.J. 1415, 1415 n.1 (2013), <https://www.copyright.gov/about/office-register/CuriousCaseofCopyrightFormalities.pdf> [<https://perma.cc/G9ML-WHUN>] ("The United States made registration optional in 1976, removed the condition of copyright notice in 1989, and removed the requirement to renew registration in 1992.").

²¹ HOUSE COMM. ON THE JUDICIARY, 87TH CONG., REPORT OF THE REGISTER OF COPYRIGHTS ON THE GENERAL REVISION OF THE U.S. COPYRIGHT LAW 87 (Comm. Print 1961), https://www.copyright.gov/history/1961_registers_report.pdf [<https://perma.cc/J9T8-W44E>]; see generally WILLIAM F. PATRY, PATRY ON COPYRIGHT § 3:19 (2019).

²² PATRY, *supra* note 21, § 3:19.

²³ Evan H. Farr, *Copyrightability of Computer-Created Works*, 15 RUTGERS COMPUTER & TECH. L.J. 63, 66 (1989) (citing NAT'L COMM'N ON NEW TECH. USES OF COPYRIGHTED WORKS, FINAL REPORT 43-44 (1978) [hereinafter *CONTU FINAL REPORT*]).

²⁴ CONTU FINAL REPORT, *supra* note 23, at 44.

²⁵ Johnson, *supra* note 16, at 20.

defined “computer-produced work” as “a work that is produced by means of computers, where the identification of the various creative contributions and the authors thereof is impossible . . . [because the contributions of the authors are merged in the totality of the work].”²⁶ Significantly, the proposed draft stated that the original owner of the economic rights and the owner of the “moral rights” should be the entity “‘by whom or by which the arrangements necessary for the creation of the work are undertaken,’ or the person or entity ‘at the initiative and under the responsibility of whom or of which the work is created and disclosed.’”²⁷ Although this proposal, at the time it was originally offered, was considered “premature,” it signifies the emergence of the potential for legal recognition of non-human authors.

The debate over the copyrightability of a work created by a non-human author reemerged in 2011 when a monkey named Naruto picked up a wildlife photographer’s camera and took a picture of himself—colloquially referred to as a “selfie.” In 2015, People for the Ethical Treatment of Animals (PETA) filed a copyright infringement complaint against the wildlife photographer, David Slater, after he published the selfie.²⁸ This controversial dispute was ultimately settled out of court after U.S. District Court Judge William Orrick held that Naruto lacked standing to bring the case.²⁹ Notably, Judge Orrick, citing both the U.S. Copyright Office’s Compendium of Practices and case law, wrote that “[i]f Congress and the President intended to take the extraordinary step of authorizing animals as well as people and legal entities to sue, they could, and should, have said so plainly,” and the Copyright Act in its current form had not given this authorization to animals.³⁰ However, while it is true that the Compendium outright prohibits authorship rights to animals, there exists persuasive evidence suggesting that animals share “art-like behaviors” similar to those of a human and possess an “inherent need to express themselves aesthetically.”³¹ It appears that this debate over “authorship” in the context of copyright suggests that its definition is far from permanently settled.

²⁶ Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977, 1051 (1993).

²⁷ *Id.* at 1051 (internal quotations omitted).

²⁸ See *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

²⁹ Jason Slotkin, ‘Monkey Selfie’ Lawsuit Ends With Settlement Between PETA, Photographer, NPR (Sept. 12, 2017, 1:46 PM), <https://www.npr.org/sections/thetwo-way/2017/09/12/550417823/-animal-rights-advocates-photographer-compromise-over-ownership-of-monkey-selfie> [<https://perma.cc/92HB-D4S3>].

³⁰ *Naruto*, 888 F.3d at 425; see U.S. COPYRIGHT OFFICE, *supra* note 12; see also *Cetacean Cmty. v. Bush*, 386 F.3d 1169 (9th Cir. 2004).

³¹ Johnson, *supra* note 16, at 31, 34.

2020] ARTIFICIAL INTELLIGENCE AS ARTIST

II. THE SPIRIT OF AN AUTHOR

European ideology places great emphasis on the moral relationship between authors and their works.³² This so-called “moral rights theory” is deeply rooted in the eighteenth century’s Romantic movement, in which art was “an extreme assertion of the self and the value of individual experience . . . together with the sense of the infinite and the transcendental.”³³ Philosophers like Kant believed “literary works were external embodiments of authorial personality or will.”³⁴ Under the European theory, authors were considered spiritually bound to their works; it is therefore natural and fair that they should reap the benefits of their labor, labor that is inextricably intertwined with their soul.³⁵

In contrast, U.S. copyright law developed under a more utilitarian theory.³⁶ Under utilitarianism, while the grant of an exclusive right in an author’s own work still incentivizes creation, the rationale for that exclusivity is far removed from the humanity of the author. Instead, the utilitarian rationale concentrates on what is in the best interest of the most people;³⁷ the author is incentivized to create new works for the benefit of society as a whole.³⁸ The law here is not focused on the “humanness” of authors or on their connection to their art. Rather, it concerns the benefits to the audience at large, in addition to the benefits authors themselves receive from copyright protection.³⁹

³² See generally Mark A. Lemley, *Romantic Authorship and the Rhetoric of Property*, 75 TEX. L. REV. 873, 890 (1997).

³³ THE OXFORD COMPANION TO ENGLISH LITERATURE 842 (Margaret Drabble ed., Oxford Univ. Press 5th ed. 1985).

³⁴ JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 12 (4th ed. 2015).

³⁵ See Margot E. Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, 51 U.C. DAVIS L. REV. 589, 597-98 (2017), https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2_Kaminski.pdf

[<https://perma.cc/B475-RQYW>] (“A natural rights theory of copyright . . . suggests that (human) authors deserve rewards for the labor they put into their creations. A moral rights, or personhood, theory of copyright suggests that (human) authors imbue their creations with an aspect of their personality, so that if the creation is stolen or harmed, an author’s personhood is afflicted. Each of these theories arguably depends on the humanness of an author.”).

³⁶ See COHEN ET AL., *supra* note 34; see also Kaminski, *supra* note 35, at 603 (“[T]he U.S. copyright system has already moved far enough away from romantic authorship for algorithmic authorship to be, perhaps surprisingly, not fundamentally disruptive.”).

³⁷ *Utilitarianism*, OXFORD DICTIONARY OF ENGLISH (3rd ed. 2010) (“The doctrine that an action is right in so far as it promotes happiness, and that the greatest happiness of the greatest number should be the guiding principle of conduct.”).

³⁸ Kaminski, *supra* note 35, at 597.

³⁹ *Id.* at 599 (“It changes the nature of the conversation from being about rewarding humans for creative endeavors to calibrating policy to a level that benefits society as a whole, including the human audiences of algorithmically authored works.”); see Jessica Litman, *Lawful Personal Use*, 85 TEX. L. REV. 1871, 1879-82 (2007), <https://repository.law.umich.edu/cgi/viewcontent.cgi?article=1218&context=articles> [<https://perma.cc/38ZH-49RY>] (“In order for the creation and dissemination of a work of authorship to mean anything at all, someone needs to read the book, view the art, hear the music,

Zorina Khan, a researcher of patents and copyrights, wrote of utilitarian incentives: “Ordinary people [are] stimulated by higher perceived returns or demand-side incentives to make long-term commitments to inventive activity,” and that “their patterns of patenting were procyclical and . . . responded to expected profit opportunities.”⁴⁰ Put differently, the theory behind the utilitarian incentive to create new works posits that, if a person knows they will be paid for their work, they will be incentivized to *create* the work in the first place because it will be worth both the financial and time costs that went into producing the work. It also suggests that the more citizens in a society are creating work, the better off the society will be.

To that end, it appears that the works made for hire doctrine was drafted in the spirit of utilitarianism.⁴¹ The doctrine encourages efficiency because it is simply easier to assign all copyright protection to, say, Microsoft, than to each employee software developer or collaborator working on different portions of a program. When Microsoft creates its software, it owns the completed work and does not have to negotiate licenses with each individual “author,” drastically reducing transaction costs.⁴² This doctrine makes it much easier to not only delegate the creation of works on a large scale, but makes those works easily accessible to those seeking to acquire licenses.

Unless there is a compelling argument that AI has a soul or some otherwise spiritual connection to the works it creates, it seems that a utilitarian approach to copyright, rather than the European “moral rights theory,” would be more receptive of AI as authors.⁴³ If the rationale for copyright protection is to benefit the public by creating as many works as possible, then surely works produced by AI can only add to the public

watch the film, listen to the CD, run the computer program, and build and inhabit the architecture. . . . [C]opyright law encourages authorship at least as much for the benefit of the people who will read, view, listen to, and experience the works that authors create, as for the advantage of those authors and their distributors.”).

⁴⁰ B. ZORINA KHAN, *THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790-1920*, at 187-88 (2005); see Marshall Phelps, *Do Patents Really Promote Innovation? A Response To The Economist*, FORBES (Sept. 16, 2015, 2:42 PM), <https://www.forbes.com/sites/marshallphelps/2015/09/16/do-patents-really-promote-innovation-a-response-to-the-economist/#7529a2671921> [<https://perma.cc/SA33-86TJ>].

⁴¹ COHEN ET AL., *supra* note 34.

⁴² *Id.*

⁴³ Jared Vasconcellos Grubow, *O.K. Computer: The Devolution of Human Creativity and Granting Musical Copyrights to Artificially Intelligent Joint Authors*, 40 CARDOZO L. REV. 387, 390-92 (2018), <http://cardozolawreview.com/wp-content/uploads/2018/11/40.1.10.Grubow-1.pdf> [<https://perma.cc/3N7N-TACA>] (“The cases that shaped the definition of legal authorship show that courts favor this utilitarian theory of authorship. In the end, the cases reveal that the conception of authorship has devolved from genius, to artistry, to personality, to pure algorithmic intelligence. This devolution will, in turn, allow for AIs to elevate their status.” (internal footnote omitted)).

2020] ARTIFICIAL INTELLIGENCE AS ARTIST

good. If AI-created works can be afforded copyright protection, this incentivizes the human developers behind AI to make the greatest amount of and most productive programs possible at the lowest cost.

III. AUTHORS' WORKS MUST BE FIXED AND ORIGINAL

In order to be eligible for copyright protection, a work must be “fixed in a tangible medium of expression.”⁴⁴ The rationale behind this requirement is that it both promotes the goals of copyright, by requiring the work to be lasting and not ephemeral, and gives the work a chance to benefit the public—a more utilitarian objective.⁴⁵ Generally, this is an easy threshold to meet. The Compendium cites some easy examples: an article is fixed to the paper it is written on; a sculpture is fixed in its bronze rendering; audiovisual work can be fixed on film.⁴⁶ Only inherently changing works, like gardens, will not pass the bar for fixation.⁴⁷

Another requirement for copyrightability is that a work must be “an *original* work of authorship.”⁴⁸ Courts have struggled to quantify the level of originality that is sufficient to accomplish copyright’s goals.⁴⁹ However, an important facet of copyright law, which bears directly on the issue of a work’s originality, is the idea-expression dichotomy.⁵⁰ In *Baker v. Selden*, the Supreme Court explored this dichotomy in detail and concluded that, while ideas are *not* copyrightable, one’s expression of those ideas is.⁵¹ That means that a work is only considered original if the way its author expressed their idea, not the idea itself, meets a minimum threshold of creativity.

A closely related copyright doctrine to the idea-expression dichotomy is the merger doctrine.⁵² The merger doctrine stands for the proposition that, where there exists only one way, or very few ways, to express an idea, the idea and the expression merge, and copyright cannot

⁴⁴ 17 U.S.C. § 101 (2012) (“A work is ‘fixed’ in a tangible medium of expression when its embodiment in a copy or 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. A work consisting of sounds, images, or both, that are being transmitted is ‘fixed’ for purposes of this title if a fixation of the work is being made simultaneously with its transmission.”).

⁴⁵ COHEN ET AL., *supra* note 34 (distinguishing European law, which, in adopting a moral rights theory, has no fixation requirement because, under such an approach, the mere creation of an ephemeral work establishes rights in the author).

⁴⁶ COMPENDIUM, *supra* note 12, at § 305.

⁴⁷ See *Kelley v. Chi. Park Dist.*, 635 F.3d 290 (7th Cir. 2011).

⁴⁸ 17 U.S.C. § 102(a) (emphasis added).

⁴⁹ COHEN ET AL., *supra* note 34.

⁵⁰ *Id.* at 90.

⁵¹ *Baker v. Selden*, 101 U.S. 99 (1879).

⁵² COHEN ET AL., *supra* note 34, at 96.

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1]

be used to bar another party from using the same expression.⁵³ However, in cases where there exists several ways to express an idea but a limited variation on that expression, courts may conclude that while the expression itself is copyrightable, the owner of that copyright is entitled only to a “thin” copyright in that precise expression.⁵⁴

The Supreme Court confronted the issues of originality and authorship in *Burrow-Giles Lithographic Co. v. Sarony*.⁵⁵ In that case, Sarony, a photographer, had taken a photograph of famed writer and dandy Oscar Wilde. The defendant subsequently reproduced the image of Wilde in print through a process called lithography.⁵⁶ The defendant argued that the photographer did not have a valid copyright in the image because he was not the author of the photograph, on the basis that a photograph is merely a two-dimensional reproduction of the image of some natural person or object.⁵⁷ The Court, however, rejected this notion and instead concluded that photographs fall within the subject matter protected by copyright; more precisely, the Court held that photographs are indistinguishable from other subjects of copyright (like designs, engravings, etching, cuts, and other prints) and as such cannot be deemed ineligible for purposes of copyright protection.⁵⁸ The Court concluded that while Sarony’s photograph of Wilde did not prohibit others from photographing Wilde, it did preclude others from reproducing *his* photograph of Wilde.⁵⁹

IV. CREATIVITY

The photographer John Loori once wrote that “[c]reativity is our birthright. It is an integral part of being human, as basic as walking, talking and thinking.”⁶⁰ Human beings gravitate toward the romantic notion that to be creative is to be human.⁶¹ It is an unsettling thought, therefore, that perhaps human creativity is governed less by freedom of

⁵³ *Id.*; see *Morrissey v. Proctor & Gamble Co.*, 379 F.2d 675, 678-79 (1st Cir. 1967).

⁵⁴ COHEN ET AL., *supra* note 34, at 97.

⁵⁵ *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57 (1884).

⁵⁶ *Id.*

⁵⁷ *Id.*

⁵⁸ *Id.* at 56.

⁵⁹ *Id.*

⁶⁰ JOHN DAIDO LOORI, *THE ZEN OF CREATIVITY: CULTIVATING YOUR ARTISTIC LIFE 1* (2005).

⁶¹ Kaminski, *supra* note 35, at 594; see Grubow, *supra* note 43, at 403 (“[W]e must first accept that the human creative decision-making process is not unique or significant because only our underlying genetic programming drives it. This unpopular idea clashes with the romantic conception of authorship and creativity which is rooted in humanism: worship of all things human [H]umans take action not because they freely choose to do so, but because the triggering of their unconscious, genetic, neurological algorithm tells them to.”).

2020] CARDOZO ARTS & ENTERTAINMENT

choice, and more as a result of algorithms. Indeed, our brains function similarly to the ways in which computer programs generate their output.⁶²

Take, for example, music. One jazz musician has said:

On the next gig, you . . . come back with that blues scale completely memorized and even some patterns that you memorized from a favorite Charlie Parker solo. You find some licks in his solo that you like and commit it to memory You realize that at any given time in your solo, you are aware of all seven notes at the same time. What's more, this familiarity means that you are intensely aware of the fact that the next note you play depends on the previous notes you played. The likelihood for playing one of those seven notes is conditioned by memory and repertoire, and this is happening in real time.⁶³

As Shakespeare wrote, "What's past is prologue."⁶⁴ Even if it is beyond the realm of conscious perception, memory undoubtedly informs creative output. In his book *How to Create a Mind*, Ray Kurzweil, one of the most famous futurists and Google's director of engineering, wrote that human brains are basically computers. He posited that while it is not fully understood how it operates, the human mind has achieved the "critical capability" to create "arbitrarily complex structures of ideas" using pattern recognition that has evolved biologically over time.⁶⁵

In a 1958 essay, Hungarian-American mathematician John Von Neumann wrote that, even though the building blocks and architecture of computers *appear* to be radically different than human minds, applying a concept of universality of computation (that is, "the concept that a general-purpose computer can implement any algorithm"⁶⁶), an advanced machine could simulate the processing of a brain.⁶⁷ The reverse is not

⁶² Kaminski, *supra* note 35; *see also* Johnson, *supra* note 16, at 24 (quoting Tal Vigderson, *Hamlet II: The Sequel? The Rights of Authors vs. Computer-Generated "Read-Alike" Works*, 28 LOY. L.A. L. REV. 401, 417 n.104 (1994), <https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1888&context=llr&ei=C9zQT72fAdS-2AX42cXVDA&usg=AFQjCNGadCu6llyG9rong1xECZCA7hhfw> [https://perma.cc/3CE7-R4CY]) ("[S]eventeenth-century philosopher René Descartes had essentially predicted as impossible a computer with the ability to think, that 'no machine could arrange words 'to reply appropriately to everything that may be said in its presence.'").

⁶³ STEPHON ALEXANDER, *THE JAZZ OF PHYSICS: THE SECRET LINK BETWEEN MUSIC AND THE STRUCTURE OF THE UNIVERSE* 175 (2016).

⁶⁴ WILLIAM SHAKESPEARE, *THE TEMPEST* act 2, sc. 1.

⁶⁵ RAY KURZWEIL, *HOW TO CREATE A MIND: THE SECRET OF HUMAN THOUGHT REVEALED* 8 (2012).

⁶⁶ *Id.* at 182.

⁶⁷ *Id.* at 192-93. Von Neumann also presciently realized that while the speed of neural processing in human brains is quite slow—at about one hundred calculations per second—the "brain compensates for this through massive parallel processing." *Id.* Moreover, these mechanisms can be "simulated through digital ones because digital computation can emulate analog values to any

possible—that is, a brain could not simulate a machine—because while there is “considerable plasticity” in human brains (which is what makes learning possible), there is far greater plasticity in computers, which can change their methodology entirely simply by modifying their software.⁶⁸

That computers and brains are at some level equivalent is not an uncontroversial assertion. The Google search “the brain is not a computer” generates thousands of hits, including many from ardent defenders of the sanctity of the human mind.⁶⁹ Kurzweil, however, rebukes that approach,⁷⁰ arguing instead that “[i]t is true that a computer and a word processor exist at different conceptual levels, but a computer can become a word processor if it is running word processing software and not otherwise. Similarly, a computer can become a brain if it is running brain software.”⁷¹ Currently, the National Institutes of Health is sponsoring a major initiative called the Human Connectome Project,⁷² with the goal of creating a three-dimensional map of connections that can be observed in the human brain.⁷³ Similar research projects are bringing scientists closer, ideally, to being able to recreate a brain.⁷⁴

Kurzweil, among other leading scientists, believes brains are governed by algorithms, much like the ones found in computers. But what *is* an algorithm? Its basic dictionary definition is: “A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.”⁷⁵ There is a tendency to assume that algorithms are number-centric, but they’re really built by logic. Every algorithm—no matter how seemingly convoluted—can be reduced to three operations: AND, OR, and NOT.⁷⁶ Of course, the combination of these operations becomes much bigger the more complex the goal is—adding two and two to get four versus beating a master at chess.⁷⁷ The

desired degree of precision,” as well as stimulate the brain’s massive parallelism because of computers’ speed advantages. *Id.*

⁶⁸ *Id.* at 193.

⁶⁹ *Id.* at 181.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.* at 129.

⁷³ *Id.*

⁷⁴ *Id.*

⁷⁵ *Algorithm*, LEXICO.COM, <https://en.oxforddictionaries.com/definition/algorithm> [<https://perma.cc/RZ9D-WEK5>].

⁷⁶ PEDRO DOMINGOS, *THE MASTER ALGORITHM: HOW THE QUEST FOR THE ULTIMATE LEARNING MACHINE WILL REMAKE OUR WORLD 2* (2015).

⁷⁷ *Id.*

2020] CARDOZO ARTS & ENTERTAINMENT

apparatus might be different, but the human mind employs algorithms much the same way a computer does, and vice versa.⁷⁸

As one commentator wrote, “All creativity is . . . algorithmic in the sense that we could encode the work as a program making completely explicit what the creator did to produce it.”⁷⁹ That is, one could take the final product and work backwards through the steps and choices the creator took in guiding his creative method. None of this detracts from the awe-inspiring creative endeavors humans have undertaken, but instead suggests that creativity can be mapped scientifically. If creativity can be mapped this way, then perhaps it could be duplicated in non-human entities, supporting the notion that AI can be creative, too.⁸⁰

V. THE HISTORY AND DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

It may be unpalatable, even in direct contradiction, to what our culture has widely perceived to be “art,” but the works that computer programs create appear decreasingly “random” and more like what we see in a fine arts museum or listen to on the radio.⁸¹ While humans are responsible for the initial invention and implementation of the programs that create these works, increasingly, algorithms are taking over. One inventor noted that the process of creating narrative news articles is simple: “We ask what the basic facts are, what’s important, and what kind of story we should be writing”⁸² After this “human” process is complete, algorithms go to work.⁸³

⁷⁸ *Id.*; see YUVAL NOAH HARARI, *HOMO DEUS: A BRIEF HISTORY OF TOMORROW* 84-85 (2017) (“Over the last few decades biologists have reached the firm conclusion that [] man . . . is also an algorithm.”).

⁷⁹ James Grimmelmann, *There’s No Such Thing as a Computer-Authored Work - And It’s a Good Thing, Too*, 39 COLUM. J.L. & ARTS 403, 409 (2016), <https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=2617&context=facpub> [<https://perma.cc/J9LB-DZDM>].

⁸⁰ See Chris Wilson, *I’ll Be Bach*, SLATE (May 19, 2010, 3:20 PM), http://www.slate.com/articles/arts/music_box/2010/05/ill_be_bach.html [<https://perma.cc/QLK7-R43D>] (“Audiences have been moved to tears by melodies created by algorithms. And yet, it’s not exactly that Cope has created a computer than can write music like a human. The way he sees it, it’s that humans compose like computers.”).

⁸¹ See Brodeur, *supra* note 5.

⁸² See Rachel Arndt, *This Article Was Not Written By A Computer*, FAST COMPANY (Nov. 8, 2011), <https://www.fastcompany.com/1678779/this-article-was-not-written-by-a-computer> [<https://perma.cc/P297-G4HR>].

⁸³ See *id.*; see also Lucia Moses, *The Washington Post’s robot reporter has published 850 articles in the past year*, DIGIDAY (Sept. 14, 2017), <https://digiday.com/media/washington-posts-robot-reporter-published-500-articles-last-year> [<https://perma.cc/S8UN-EJPW>].

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1

Nowadays, it is taken for granted that computers are the means by which AI is developed, but this was not necessarily always the case.⁸⁴ Artificial intelligence, as the term itself indicates, requires both intelligence and an “artifact”; the most successful artifact in creating AI is the modern computer.⁸⁵ Artificial intelligence, in general, refers to computers that execute menial operations that would normally be done by humans, only faster. To be capable of “cognitive computing,” an AI must process information and then use that information to create new programs.⁸⁶ Processing information is referred to as “soft” AI, and creating new programs is called “hard” AI.⁸⁷ A program that is fully capable of reasoning like a human has not yet been invented or, at least, is not yet on the market.⁸⁸

The first modern computer was built in 1940 as a means to decode German messages during World War II. This computer eventually led to the creation of ten machines called *Colossus*, which, by the end of the war, were in everyday use.⁸⁹ Fast-forward about ten more years, and a computer was finally invented that could yield profits for its manufacturer, IBM.⁹⁰ Artificial intelligence made significant strides in the 1950s. The inventor of *Colossus*, Alan Turing, began writing chess programs for computers. Two graduate students at Harvard created the first neural network computer—a network that simulated forty neurons.⁹¹ In 1957, a researcher optimistically stated:

It is not my aim to surprise or shock you—but the simplest way I can summarize is to say that there are now in the world machines that

⁸⁴ See STUART RUSSELL & PETER NORVIG, *ARTIFICIAL INTELLIGENCE: A MODERN APPROACH* 14 (3d ed. 2009).

⁸⁵ *Id.*; see MAX TEGMARK, *LIFE 3.0: BEING HUMAN IN THE AGE OF ARTIFICIAL INTELLIGENCE* 9, 44 (2017); see also Max Tegmark, *Friendly Artificial Intelligence: the Physics Challenge*, AAAI WORKSHOPS 2015 (Apr. 1, 2015), <https://arxiv.org/pdf/1409.0813.pdf> [<https://perma.cc/8J4J-W4HC>] (“[A]n AI has the following incentives: [(1)] Capability enhancement[—](a) Better hardware (b) Better software (c) Better world model[—and (2)] Goal retention.”).

⁸⁶ David E. Chamberlain & Timothy B. Poteet, *Artificial Intelligence and the Practice of Law or Can a Computer Think Like a Lawyer?*, in 2016 TEX. B. CLE, BUS. DISP., ch. 25, at 1.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ RUSSELL & NORVIG, *supra* note 83.

⁹⁰ *Id.*; see Alexis C. Madrigal, *IBM's First 100 Years: A Heavily Illustrated Timeline*, ATLANTIC (June 16, 2011), <https://www.theatlantic.com/technology/archive/2011/06/ibms-first-100-years-a-heavily-illustrated-timeline/240502/> [<https://perma.cc/4KVY-CHV9>].

⁹¹ See RUSSELL & NORVIG, *supra* note 83, at 16. Alan Turing was also famous for his invention of the “Turing machine.” The Turing machine was a thought experiment that proved that computation is based on a straightforward mechanism: “Because the Turing machine (and therefore any computer) is capable of basing a future course of action on results it has already computed, it is capable of making decisions and modeling arbitrarily complex hierarchies of information.” KURZWEIL, *supra* note 64, at 186-87.

2020] CARDOZO ARTS & ENTERTAINMENT

think, that learn and that create. Moreover, their ability to do these things is going to increase rapidly until—in a visible future—the range of problems they can handle will be coextensive with the range to which human mind has been applied.⁹²

That researcher, Herbert Simon, also (ultimately incorrectly) predicted that a computer would prove a new, important mathematical theory and become a chess champion by 1968.⁹³ This unbridled optimism was common among scientists of the day.⁹⁴ Although a computer hadn't beaten a world chess champion by 1968, IBM's *Deep Blue* program did ultimately defeat grand master Gary Kasparov in 1997.⁹⁵ Similarly, in 2018, Google's *AlphaGo* beat Chinese champion Kie Je at the notoriously abstract and complex game Go.⁹⁶

Interestingly, scientists agree that we haven't necessarily gotten any *smarter* at coding since the early days of modern computers and AI. If that is the case, what made that *AlphaGo* computer win possible in 2018 and not 1968? An idea cultivated in 1965, called "Moore's Law," posits that the memory and speed of computers double every two years.⁹⁷ This idea has led some futurists to make predictions—ones that are perhaps more realistic than those made in the 1950s—about how the next century could pan out in this field. Some predict tremendous innovations that could alter human civilization profoundly.⁹⁸ One of these potential changes is referred to as the "singularity": the point in time when AI become smarter than human beings.⁹⁹ Kurzweil claims that the

⁹² RUSSELL & NORVIG, *supra* note 83, at 20-21.

⁹³ *Id.* at 21.

⁹⁴ *Id.*; see Rockwell Anyoha, *The History of Artificial Intelligence*, SCI. NEWS, (Aug. 28, 2017), <http://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/> [https://perma.cc/5V82-BHQZ] ("In 1970 Marvin Minsky told Life Magazine, 'from three to eight years we will have a machine with the general intelligence of an average human being.'").

⁹⁵ Anyoha, *supra* note 93.

⁹⁶ *Id.*; see ALPHAGO (Moxie Pictures Inc. 2017) ("With more board configurations than there are atoms in the universe, the ancient Chinese game of Go has long been considered a grand challenge for artificial intelligence.").

⁹⁷ Anyoha, *supra* note 93; see Carla Tardi, *Moore's Law*, INVESTOPEDIA, <https://www.investopedia.com/terms/m/mooreslaw.asp> [https://perma.cc/Y753-ZQX6] (last updated Sept. 5, 2019) ("Moore's Law refers to [co-founder of Intel, Gordon] Moore's[.] perception that the number of transistors on a microchip doubles every two years, though the cost of computers is halved [Although the recent pace has slowed for Moore's Law,] the doubling of installed transistors on silicon chips occurs closer to every 18 months instead of every two years.").

⁹⁸ Christianna Reedy, *Kurzweil Claims That the Singularity Will Happen by 2045*, FUTURISM (Oct. 5, 2017), <https://futurism.com/kurzweil-claims-that-the-singularity-will-happen-by-2045/> [https://perma.cc/PP7U-82QY].

⁹⁹ *Id.*; see Chamberlain & Poteet, *supra* note 85 ("Exceeding common human brain power is nothing new. Calculators do that. . . . there is a leap from common algorithms used in, for example, our cell phones, to 'hard' artificial intelligence, which involves the ability of the algorithm to reason automatically, including propagating its own algorithms.").

singularity will occur by 2045, a prediction consistent with that of another renowned futurist, Masayoshi Son, who predicts 2047 as the year of the dawn of super-intelligent machines.¹⁰⁰ The ramifications, both legally and socially, in a society in which computers are smarter and more powerful than humans are outside the scope of this Note, but it is worth noting that technology is heading at an ever-increasing rate toward super-intelligent AI.¹⁰¹ A colleague of Alan Turing, Irvin J. Good, wrote in 1965 that “the first ultraintelligent machine is the last invention that man ever need make.”¹⁰² As technology advances and adapts, so must copyright law—and this may include rethinking the definition of an “author.”¹⁰³

VI. LEGAL THEORY IN THE REALM OF AI

In the spring of 2016, the Columbia Journal of Law & the Arts published an article illustratively titled, “There’s No Such Thing as a Computer-Authored Work—And It’s a Good Thing, Too.”¹⁰⁴ Author James Grimmelmann argued that “new copyright doctrines for computer-generated works are a terrible idea” because “the danger of claiming that there is ‘a’ rule for computer-generated works is that it blinds us to the immense diversity that category encompasses.”¹⁰⁵

Indeed, Grimmelmann’s is not necessarily a new approach to reconciling copyright law with the works produced by computers. Most legal scholarship has argued that the programmer and/or the user should be the ones protected by copyright. However, one 1997 article introduced a dynamic new caveat: What if the computer was akin to the character Data from the television show *Star Trek: The Next Generation*?¹⁰⁶ Data was an android¹⁰⁷ who struggled to attain not intellectual property rights

¹⁰⁰ See Reedy, *supra* note 97.

¹⁰¹ Compare DOMINGOS, *supra* note 75, at 283 (“Relax. The chances that an AI . . . will take over the world are zero. . . . [U]nlike humans, computers don’t have a will of their own. They’re products of engineering, not evolution.”), with RAY KURZWEIL, THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY 40 (2005) (“[F]uture machines will be human, even if they are not biological Most of the intelligence of our civilization will ultimately be nonbiological. By the end of this century, it will be trillions of trillions of times more powerful than human intelligence. However, to address often-expressed concerns, this does not imply the end of biological intelligence, even if it is thrown from its perch of evolutionary superiority.”).

¹⁰² KURZWEIL, *supra* note 64, at 280.

¹⁰³ *Id.*

¹⁰⁴ Grimmelmann, *supra* note 78.

¹⁰⁵ *Id.* at 415.

¹⁰⁶ Andrew J. Wu, *From Video Games to Artificial Intelligence: Assigning Copyright Ownership to Works Generated by Increasingly Sophisticated Computer Programs*, 25 AIPLA Q. J. 131 (1997).

¹⁰⁷ Taylor Soper, *Q&A: Star Trek’s ‘Data’ on autism, space travel, and the link between humanity and technology*, GEEKWIRE (May 30, 2013, 10:20 AM), <https://www.geekwire.com/2013/brent-spiner-star-trek/> [<https://perma.cc/X4JB-UW3W>].

2020] CARDOZO ARTS & ENTERTAINMENT

per se but “rights as an intelligent being rather than Starfleet property.”¹⁰⁸ Interestingly, Data also dabbled in myriad artistic expressions: theater, music (specifically, guitar, oboe, flute, and violin), tap dance, ballroom dance, and painting.¹⁰⁹ He was also skilled at games like poker, blackjack, and three-dimensional chess.¹¹⁰

The 1997 article, written by Andrew J. Wu, opined that Data is a prime (and rare) example of a situation in which AI should be attributed as the “sole author.”¹¹¹ Wu wrote:

The AI will be the sole owner in situations such as the episodes of *Star Trek: The Next Generation* where the AI character “Data” creates music, art, or other copyrightable work. Again following the rule: (1) The programmer of the AI (whoever designed Data) fails the fixation requirement because Data’s art work is not repeatable or predictable; (2) there is no “user” of Data (in other words, Data produces art work on his own); (3) joint ownership is not applicable because there is no user; (4) the works generated by Data meet the section 102 requirements (sculpture or painting would meet fixation and originality for Data as easily as they would for a human); and (5) the AI possesses the discretion over whether to produce future works, and therefore, the Copyright Office or courts should award copyright protection to the AI, which would encourage the AI to create future creative works.¹¹²

Wu advocated that, beyond this narrow category recognizing only “Data”-like machines as authors, programmers or users should be afforded copyright protection as joint authors.¹¹³ Star Trek’s Data might seem like a product of a faraway, science-fiction universe, but if futurists like Kurzweil are correct, then the singularity—and thus Data’s existence—might be imminent.¹¹⁴

In 2018, author Russ Pearlman published an article in which he argued that artificial intelligence should be recognized under intellectual property law in order to incentivize investment in AI and eliminate the confusion over the source of creativity (a user? a programmer? or the program itself?).¹¹⁵ However, Pearlman cautioned that these rights should

¹⁰⁸ *STARFLEET PERSONNEL FILE: Data, STAR TREK*, https://www.startrek.com/database_article/data [<https://perma.cc/6U7F-SM9T>].

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ Wu, *supra* note 105, at 176.

¹¹² *Id.*

¹¹³ *Id.* at 175-76.

¹¹⁴ Reedy, *supra* note 97.

¹¹⁵ Pearlman, *supra* note 11, at 51.

be assigned only to natural or legal persons.¹¹⁶ This would be achieved through explicit license agreements or implicit agreements.¹¹⁷

VII. AI SHOULD BE GIVEN COPYRIGHT PROTECTION

As previously discussed, because the Copyright Act and its associated materials in the Compendium explicitly maintain that authors must be “human,” the first step to including artificial intelligence in copyright law is to amend the law itself. Arguably, there is case law throughout American jurisprudence and even statutory evidence, in addition to social and technological trends, that strongly support this type of change.

When one imagines giving a computer legal rights—like the ones usually afforded to a natural person—one might conceive of giving those rights to something that kind of looks like a natural person: a robot in the shape of a human, that communicates like a human, that is as intelligent as a human, and is perhaps only lacking in human emotion. Technology could still be a while off from creating machines that look and behave in this way.¹¹⁸ Even now, though, there are algorithms and programs producing works that are deserving of copyright protection.

A potential issue in conferring copyright protection on AI-created works is that, in its current iteration, this right eventually expires. The Copyright Clause reads “by securing for *limited Times*,” and Congress has interpreted that to mean that copyright protection shouldn’t last forever.¹¹⁹ After a fixed amount of time, generally initiated by the death of its author, a work previously afforded copyright protection will be released into the public domain and can then be reproduced.¹²⁰ Detractors might argue that artificial intelligence isn’t “alive,” and thus there is no proper way of determining how long its copyrights should last. Interestingly, this argument is unique to AI; it cannot be applied to other non-human authors, like animals, who die and whose copyright protection could therefore be measured like that of a human’s.

However, there are many situations in which it is impossible to measure the life of a work’s author or authors, and so the law compensates by creating standard terms in those cases. For example, the copyright in an anonymous work, a pseudonymous work, or a work made

¹¹⁶ *Id.* at 47-48.

¹¹⁷ *Id.* at 48; *see* Grubow, *supra* note 43 (arguing that AI musicians should be considered joint legal authors with their natural human co-musicians).

¹¹⁸ KURZWEIL, *supra* note 64, at 34.

¹¹⁹ U.S. CONST. art. I, § 8, cl. 8 (emphasis added).

¹²⁰ COHEN ET AL., *supra* note 34, at 669.

2020] CARDOZO ARTS & ENTERTAINMENT

for hire endures for a term of 120 years from the year of creation or 95 years from the year of its publication, whichever expires first.¹²¹ Significantly, the duration of these works' protection is not contingent on the span of a human life. In addition, some researchers believe that measuring technological life can be accomplished with a great deal more precision than measuring human life.¹²² This position would render the duration argument against copyright protection for AI moot.

Could work created by artificially intelligent technology pass any of the bars set forth by case law with respect to originality? The team at Rutgers, led by Ahmed Elgammal, would likely argue that its algorithm indeed produces "original" art.¹²³ Its program does not just copy old art but also creates new compositions. Elgammal has written that the images "do not look like traditional art, in terms of standard genres."¹²⁴ Another company, Articoolo, writes articles using artificial intelligence and even goes so far as to say it "creates unique content from scratch, simulating a human writer."¹²⁵ Another programmer-musician created a platform that can create musical compositions, and he claims that "most people can't tell the difference between real Bach and the Bach-like compositions his computer can produce."¹²⁶

There are countless other AI that could be considered to be creating original works. An AI named "Benjamin" created a bizarre film by piecing together thousands of hours of old movies with green-screen footage of professional actors.¹²⁷ The leader of the team that engineered Benjamin calls himself "the director of the director," acknowledging Benjamin as the "auteur."¹²⁸ Similarly, in 2016, a team from the Sony CSL Research Lab used their program, Flow Machines, to compose a

¹²¹ *Id.*

¹²² Johnson, *supra* note 16, at 21.

¹²³ See Rene Chun, *It's Getting Hard to Tell If a Painting Was Made by a Computer or a Human*, ARTSY (Sept. 21, 2017, 10:58 AM), <https://www.artsy.net/article/artsy-editorial-hard-painting-made-computer-human>.

¹²⁴ *Id.*

¹²⁵ ARTICOOLO, <http://articoolo.com/> [<https://perma.cc/WB24-PJBZ>]; see Mike O'Brien, *Can artificial intelligence create content as well as a human?*, CLICKZ (Mar. 13, 2018), <https://www.clickz.com/ai-create-content-human/212515/> [<https://perma.cc/HS62-CPX3>]; see also David Pogue, *Is Art Created by AI Really Art?*, SCI. AM. (Feb. 1, 2018), <https://www.scientificamerican.com/article/is-art-created-by-ai-really-art/>.

¹²⁶ Wilson, *supra* note 79.

¹²⁷ Lauren Goode, *AI Made a Movie—and the Results are Horrifyingly Encouraging*, WIRED (June 11, 2018, 3:00 PM), <https://www.wired.com/story/ai-filmmaker-zone-out/> [<https://perma.cc/89PY-XGCB>].

¹²⁸ *Id.* ("We wanted . . . technology as augmentation rather than replacing humans . . .").

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1

cheery pop song called “Daddy’s Car.”¹²⁹ While the lyrics were written by a human, the melody and parts of the orchestration and mix were written by the AI¹³⁰ Yet another AI, crafted by researchers at the Georgia Institute of Technology, can improvise its own dance moves based on its observation of human dancers.¹³¹

The programs mentioned above—in addition to other AI not addressed by this Note—should certainly pass the “originality” test established by now-Supreme Court Justice Neil Gorsuch in *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.* There, he maintained that “[i]f an artist affirmatively sets out to be unoriginal—to make a copy of someone else’s creation, rather than to create an original work—it is far more likely that the resultant product will, in fact, be unoriginal.”¹³²

There is no doubt that an identical reconstruction of a work, created by an artificial intelligence, even if it differed in size or dimension, would lack the originality to qualify under the *Meshwerks* test. However, why should the arrangement of words set forth by articles written by the algorithm at articoolo.com, or the art being created by the AI at Rutgers, be deemed *unoriginal* merely because its author is a non-human? Like the painter who has studied centuries of great artwork, who puts brush to canvas and creates an original—albeit influenced—work, a machine that has been exposed to thousands of paintings should, under the same principle, create works that ought to be considered legally original.

Moreover, a work can still be considered original for purposes of copyright protection even if another person has already created a near-identical work, as long as the second work is not copied from the first.¹³³ The mere fact that another person or entity sparked the creative process

¹²⁹ Jesse Emspak, *Robo Rocker: How Artificial Intelligence Wrote Beatles-Esque Pop Song*, LIVE SCI. (Sept. 30, 2016), <https://www.livescience.com/56328-how-artificial-intelligence-wrote-pop-song.html> [<https://perma.cc/EG7S-F2P7>].

¹³⁰ *Id.*

¹³¹ Laura Geggel, *Forget Taking Over the World. All this AI Wants to Do Is Dance*, LIVE SCI. (May 5, 2016), <https://www.livescience.com/54651-artificial-intelligence-virtual-dancer-partner.html> [<https://perma.cc/Z2WW-M29Z>]. Notably, however, such works may not be able to pass the “fixation” requirement necessitated by copyright law, absent their capture in some tangible medium of expression.

¹³² *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1268 (2008); see *Mannion v. Coors Brewing Co.*, 377 F. Supp. 2d 444 (S.D.N.Y. 2005).

¹³³ Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 STAN. TECH. L. REV. 5, 13 (2012), <https://web.law.columbia.edu/sites/default/files/microsites/kernochan/09.materials-Bridy.pdf> [<https://perma.cc/GA4N-D68X>] (“[E]mbrace of rules and constraints, however, can productively be understood as a means of making a virtue of necessity; it isn’t as if writers (or any other kind of artist, for that matter) can ever really break free of rules . . . all cultural production is inherently derivative and algorithmic.” (internal footnotes omitted)).

2020] CARDOZO ARTS & ENTERTAINMENT

does not mean the ensuing work is not original. One commentator pointed out that “[t]he law should be interested in how the work was generated, not in any inherent characteristics of the author’s personality.”¹³⁴ In other words, the law should focus on the resulting product, not the *way* in which it was produced. It should thus follow that a work produced by AI should be considered original if it meets the same standards by which a work would be deemed original had it been created by a human author. This could be analyzed by using the famous Turing Test, created by its namesake Alan Turing. This test measures the ability of a computer program to convince a person interacting with it that it is actually a person, too.¹³⁵ For example, in the Rutgers project, the AI-created art was often rated as more “novel” and “aesthetically pleasing” than human-created pictures.¹³⁶ Clearly, some AI are already passing the Turing Test when it comes to art.¹³⁷

Finally, a constitutional originalist might argue that the framers did not intend to grant intellectual property rights to non-human authors, and they would therefore have no standing to receive protection. Nevertheless, since the writing of the Constitution, standing has been conferred upon a number of non-human entities, including municipalities, partnerships, trusts, and corporations.¹³⁸ Additionally, Congress has

¹³⁴ Ralph D. Clifford, *Random Numbers, Chaos Theory, and Cognition: A Search for the Minimal Creativity Standard in Copyright Law*, 82 DENV. U. L. REV. 259, 272 (2004), https://scholarship.law.umassd.edu/cgi/viewcontent.cgi?article=1084&context=fac_pubs [<https://perma.cc/XQ9F-R4NC>] (“[B]eing in a creative situation is irrelevant to evaluating whether an expression satisfies the intellectual creativity requirement of the law as, again, it is the results that are important. For example, although many institutions of higher education have established highly creative environments in which to work, this does not mean that a telephone directory created at one of these institutions is copyrightable.” (internal footnotes omitted)).

¹³⁵ Erik Sherman, *Can a Computer Be Creative?*, UNDARK (May 20, 2016), <https://undark.org/2016/05/20/turing-test-computer-artificial-intelligence-creativity/> [<https://perma.cc/P27J-URSK>].

¹³⁶ Chun, *supra* note 122.

¹³⁷ Compare RUSSELL & NORVIG, *supra* note 83, with Sherman, *supra* note 134. At a contest hosted by the Neukom Institute for Computational Science at Dartmouth College in 2016, “researchers submitted programs that would write sonnets or stories, or compose dance music. . . . The intent [of this contest] was not to see machines create great art, but rather something within the range of what people might do”—i.e., to determine whether the average layperson could tell whether a human or a machine created the work. Sherman, *supra* note 134. Significantly, “[thirty-nine] percent of the audience judged the winning music entry as created by a human.” Moreover, although the source of authorship for the stories was far less deceptive, “one of the three short story judges was fooled . . . once by a computer-written story” *Id.* Thus, while Turing may have anticipated that within forty years, artificial intelligence programs would be capable of fooling judges sixty percent of the time, “[t]here [i]s clearly more work to do.” *Id.*

¹³⁸ Adam Kolber, *Standing Upright: The Moral and Legal Standing of Humans and Other Apes*, 54 STAN. L. REV. 163, 196 (2001); see Pearlman, *supra* note 11, at 22 (“[T]he law does not contemplate the idea of legal personhood for an AI system. . . . Nevertheless, the law recognizes legal personhood for business corporations and government entities—legal persons that certainly

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1

moved beyond a strict interpretation of the text to extend the categories of protected works to include sound recordings and motion pictures—the kinds of works, too, that the framers could not have foreseen.

AI could also overcome the “fixation” requirement fairly easily. For example, the paintings generated by the Rutgers AI are fixed either by virtue of being saved on a hard drive, or by being printed out on canvas or simply a sheet of paper.¹³⁹ Because there are many ways that the fixation requirement of the Copyright Act could easily be met by AI, there is no really compelling argument that fixation would be an obstacle for AI to achieve copyright protection.

VIII. HOW AI COULD BE GRANTED COPYRIGHT PROTECTION

AI should be treated as authors if they create original, fixed works by the standards already established in United States copyright law. Clearly, though, this poses a practical problem: AI do not have the requisite autonomy to either litigate infringement or compensate for injury if they infringe the work of others. This has been an issue for other non-human entities as well, but the law has carved out space to make sure there is some liability for those entities (think again of municipalities, partnerships, trusts, and corporations). The law has also done this for human beings that similarly lack legal autonomy, like minor children and incapacitated individuals, by appointing them guardians ad litem.¹⁴⁰ This tends to indicate that the problem of a lack of autonomy is not insurmountable.

For example, recall from Part I the “monkey selfie” case, *Naruto v. Slater*. According to the settlement between PETA and Slater, the wildlife photographer agreed to donate twenty-five percent of profits from the photograph to charities that protect Naruto’s species—crested macaque—and their Indonesian habitat.¹⁴¹ Monkeys, too, obviously lack the autonomy to litigate, but PETA’s solution in this case was clever and fulfilled copyright law’s utilitarian policy goals. Requiring Slater to donate a percentage of his profits to charity ultimately benefitted people (and monkeys) at large, and one could argue that society is better off with more monkey selfies.

lack the intelligence and will of humans. Such ‘legal persons’ often hold constitutional rights and duties such as the right to sue or be sued or the free exercise of religion based on the close relationship they have with their human shareholders.” (internal footnotes omitted)).

¹³⁹ See *Williams Elecs., Inc. v. Arctic Int’l, Inc.*, 685 F.2d 870 (3d Cir. 1982).

¹⁴⁰ Johnson, *supra* note 16, at 34.

¹⁴¹ Slotkin, *supra* note 29.

2020] CARDOZO ARTS & ENTERTAINMENT

A possible solution for protecting the work of AI could achieve these same outcomes by following a scheme that is similar to the one that is used in the music industry. If an AI creates a work deemed original and fixed enough to warrant copyright protection, a publisher (analogous in this case to a music publisher) would send the work to a licensing company (let's call it "AI Works"). Section 115 of the Copyright Act makes licensing of musical compositions—subject to certain limitations—compulsory.¹⁴² That is, anyone in the public can basically do a "cover" of a copyrighted musical composition for a small fee, and the owner of the copyright *must* allow them to do so. Similarly, any works deposited with AI Works would have a licensing mandate. Anyone could copy, reproduce, and distribute a select work or works authored by an AI by giving notice to the company and paying a fee. The fee would go in part toward litigation expenses and the cost of any injuries incurred, and in part toward a scholarship or grant fund for programmers and scientists working on AI. Not only would this solve the problem of AI's lack of autonomy, but it would create an incentive for programmers and scientists to engineer AI capable of creating works of art.

This solution would also work in situations where the relationship between the original programmer and the work produced is so attenuated that it would be difficult or impossible to determine the original programmer. In the works made for hire situation, for example, an

¹⁴² 17 U.S.C. § 115 (2018), <https://www.govinfo.gov/content/pkg/USCODE-2018-title17/pdf/USCODE-2018-title17-chap1-sec115.pdf> [<https://perma.cc/GE79-WTEP>]; see *Bridgeport Music, Inc. v. Dimension Films*, 401 F.3d 647, 656 (6th Cir. 2004) ("The provisions, for example, for compulsory licensing make it possible for 'creators' to enjoy the fruits of their creations, but not to fence them off from the world at large." (internal citation omitted)); see also U.S. Copyright Office, *Compulsory License for Making and Distributing Phonorecords*, COPYRIGHT.GOV, <https://www.copyright.gov/circs/circ73.pdf> [<https://perma.cc/K6FC-WGXR>] (last modified Sept. 2019). A compulsory license enables a licensee to "[m]ake and distribute phonorecords of an eligible nondramatic musical work, where the primary purpose is distribution to the public for private use, as opposed to a public performance," and/or "[a]uthorize others to engage in the making and distributing of the phonorecords." U.S. Copyright Office, *supra* note 12, at 3. Moreover, individuals who meet the statutory requirements for a compulsory license may "[m]ake a musical arrangement of the work to the extent necessary to conform it to the style or manner of interpretation of the performance involved." *Id.* However, absent permission from the copyright owner, the holder of a compulsory license is not permitted to "[m]ake, reproduce, or distribute a sound recording publicly distributed in phonorecords[;] [d]istribute phonorecords intended for use in background music systems, jukeboxes, broadcasting, or any other public use[;] [c]hange the basic melody or fundamental character of the work in the arrangement[;] nor [c]laim copyright protection in [their] arrangement as a derivative work [T]o obtain a compulsory license to reproduce and distribute . . . phonorecords, [an individual] must (1) serve a timely Notice of Intention to Obtain a Compulsory License (NOI), either on the copyright owner or on the Copyright Office if the identity or address of the copyright owner is unknown; and (2) when the copyright owner is known, make monthly royalty payments and provide monthly statements of account to the copyright owner." *Id.*

employer asks for some work, and the hired employee must submit in writing that he or she is willing to relinquish his or her copyright in the work. While that relationship may be attenuated in theory, the addition of the contractual element makes it clear and straightforward. In a situation involving AI-authored works, however, there would not be a contractual relationship clearly delineating the relationship between a work produced by AI and the researcher who originally designed the AI or fed it information. Therefore, placing all works created by AI under the auspices of a licensing company removes the messy undertaking of untangling prior relationships.

Because AI theoretically doesn't have an end-of-life point, and there is thus no way to measure the duration of a copyright owner's interest in the work, a different structure would have to be set up to determine this length of time. Because AI do not have estates, or an interest in protecting works for their offspring, it would be logical that the works should enter the public domain earlier than human-authored works.

To that end, is it desirable to protect an AI's work in the first place? There are many reasons that AI-authored works should be afforded copyright protection. First, it is easier to offer protection to an AI's work than to attempt to assess at what stage of production an individual's work rose to the level of originality and fixation that they could be deemed the "author" of the work. And even if that determination was clear, there are often many people involved in the development of AI. That reality serves as an additional factor complicating the author analysis. Was it the person who wrote the original program? Was it the person feeding the AI information (like the programmers who selected which paintings to feed the Rutgers program)? It is far more practical to allow the end-product of this process to belong to the AI. No one would argue that a jazz musician—merely because they listened to and memorized the works of great artists before them—should not own their work; not every modern jazz composition belongs to Charlie Parker.

Second, the recognition of AI authorship and subsequent extension of copyright protection for their creative works is simply the next logical step. Despite the fact that AI can create works that cannot be discerned from human-created works, the law arbitrarily denies AI (and animals, for that matter) copyright protection just *because*. In the spirit of social and technological "progress" (a word that fittingly is found in the Copyright Clause), the law ought to be adapted to allow for more types of authors.

Further, any fears about AI replacing artists and others in the workforce are essentially unfounded. First, AI is a booming and growing

2020] CARDOZO ARTS & ENTERTAINMENT

market that is creating jobs.¹⁴³ Second, at the Turing Test competition at Dartmouth College, mentioned in Part VII, it was very clear—at least in regard to certain art forms—which works were created by AI and which were written by humans. The following is the winning sonnet, written by a program called Marjan:

People picking up electric chronic.
The balance like a giant tidal wave,
Never ever feeling supersonic,
Or reaching any very shallow grave.

An open space between awaiting speed,
And looking at divine velocity.
A faceless nation under constant need,
Without another curiosity.

Or maybe going through the wave equation.
An ancient engine offers no momentum,
About the power from an old vibration,
And nothing but a little bit of venom.

Surrounded by a sin Omega T,
On the other side of you and me.¹⁴⁴

While its use of iambic pentameter is admirable, AI hasn't (yet) reached a level of reasoning that can properly evoke the kind of visceral human reaction that is associated with truly great works of art. One algorithm, for example, can generate movies after being fed a few snippets of text.¹⁴⁵ While these films are not Oscar-worthy, they could be

¹⁴³ Pearlman, *supra* note 11, at 1 (explaining that in 2017 “alone, over 550 startups using AI as a core part of their products raised \$5 billion in funding, and over 60% of all such funding went to American companies”).

¹⁴⁴ *PoetiX*, NEUKOM INST. TURING TESTS CREATIVE ARTS, <http://bregman.dartmouth.edu/turingtests/poetix> [<https://perma.cc/NJ5R-HWUF>]; *cf.* WILLIAM SHAKESPEARE, SONNET 18 (“Shall I compare thee to a summer’s day? Thou art more lovely and more temperate: Rough winds do shake the darling buds of May, And summer’s lease hath all too short a date: Sometime too hot the eye of heaven shines, And often is his gold complexion dimm’d; And every fair from fair sometime declines, By chance, or nature’s changing course, untrimm’d; But thy eternal summer shall not fade Nor lose possession of that fair thou ow’st; Nor shall death brag thou wander’st in his shade, When in eternal lines to time thou grow’st. So long as men can breathe or eyes can see, So long lives this, and this gives life to thee.”).

¹⁴⁵ Matthew Hutson, *New algorithm can create movies from just a few snippets of text*, SCI. (Feb. 23, 2018, 4:35 PM), <https://www.sciencemag.org/news/2018/02/new-algorithm-can-create-movies-just-few-snippets-text> [<https://perma.cc/6KUW-6YGV>].

CARDOZO ARTS & ENTERTAINMENT

[Vol. 38:1

useful in other ways, like for recreating crime scenes and car accidents.¹⁴⁶ It is clear that AI creates works of art at the same level as humans do. As one author put it: “[N]ot for any profound reason, but for the same reason that James Cameron was bad at making movies when he was born: this is a skill that takes time to learn.”¹⁴⁷ It is possible that AI will never rise to the same level of art-making as humans, but they should be granted copyright protection nonetheless.

CONCLUSION

Since its inception, copyright law in the United States has not made room for non-human authors. Of course, this makes sense: How could the Founding Fathers have possibly conceived of the advanced (and constantly advancing) artificial intelligence that has so ingeniously been developed? But the law is ever-evolving and ever-adapting, or so it should be. The Founding Fathers also could not have anticipated phonorecords, motion pictures, or photographs, but the law has made way to include those categories for protection.

Because AI have proven their capability to create original, fixed works sufficient to satisfy copyright law—and because copyright in the United States qualifies the work product, not the character of the author—they should also be permitted to be authors under the law and to own the exclusive rights to their works. This could be done via publishers and a conglomeration of the works in the form of a company, which would supply compulsory licenses to whoever wanted to use the AI’s work. In turn those funds would be used for either litigation or scholarships to encourage programmers to create more AI capable of art. AI is not something to fear, but something that can be used to “promote the Progress of Science and useful Arts.”¹⁴⁸

*Eliza Calvin**

¹⁴⁶ *Id.*

¹⁴⁷ TEGMARK, *supra* note 84, at 9.

¹⁴⁸ U.S. CONST. art. I, § 8, cl. 8.

* JD Candidate, Cardozo School of Law (2020), B.A. Major in English, concentration in Creative Writing, University of Massachusetts, Lowell (2014). I would like to thank the entire editing staff of volume 38. I would also like to thank my wonderful family, especially my mother, for their unwavering support and faith in me.