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CREATED TO CREATE: WHY AI-CREATED WORKS SHOULD BE COPYRIGHTABLE AS WORKS MADE FOR HIRE

❖ NOTE ❖

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I. INTRODUCTION

Artificial intelligence (AI) is no longer confined to science fiction terms. From self-driving cars¹ and contract reviewing software² to automatic novel writers³ and artists,⁴ AI increasingly infiltrates our lives, creating monetary value⁵, purportedly taking jobs,⁶ and becoming of undoubtedly growing interest to businesses. While being itself copyrightable, AI has become capable of creating works “of its own.” AI has become capable of writing creative songs⁷ and making original paintings.⁸ Such works would be undisputedly subject to copyright if created by human authors. With the economic potential in such works,⁹ a

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1. See Tesla, *Autopilot*, TESLA.COM, <https://www.tesla.com/autopilot> (last visited April 11, 2020).
 2. See Beverly Rich, *How AI is Changing Contracts*, HARVARD BUSINESS REVIEW, <https://hbr.org/2018/02/how-ai-is-changing-contracts> (last visited April 11, 2020).
 3. See Adario Strange, *Japanese Team Helps A.I. Program Pass First Round of Novel Writing Contest*, MASHABLE, <https://mashable.com/2016/03/26/japan-a-i-novel/> (last visited April 11, 2020).
 4. See ING, *The Next Rembrandt*, <https://www.nextrembrandt.com> (last visited April 11, 2020).
 5. See Gil Pres, *63% Of Executives Say AI Leads To Increased Revenues And 44% Report Reduced Costs*, FORBES, <https://www.forbes.com/sites/gilpress/2019/11/29/63-of-executives-say-ai-leads-to-increased-revenues-and-44-report-reduced-costs/#7ba4b47914b3> (last visited April 11, 2020). The first AI work sold at Christie’s for \$432,500, see *Is Artificial Intelligence set to Become Art’s Next Medium?* CHRISTIE’S, <https://www.christies.com/features/A-COLLABORATION-between-two-artists-one-human-one-a-machine-9332-1.aspx> (last visited April 11, 2020).
 6. See Gil Pres, *Is AI going to be a Jobs Killer? New Reports About the Future of Work*, FORBES, <https://www.forbes.com/sites/gilpress/2019/07/15/is-ai-going-to-be-a-jobs-killer-new-reports-about-the-future-of-work/#1b56cef3afb2> (last visited April 11, 2020).
 7. See Shimon: Now a Singing, Songwriting Robot, GEORGIA TECH, <https://www.news.gatech.edu/2020/02/25/shimon-now-singing-songwriting-robot> (last visited April 11, 2020).
 8. See *A ‘New’ Rembrandt: From The Frontiers Of AI And Not The Artist’s Atelier*, ALL THINGS CONSIDERED, <https://www.npr.org/sections/alltechconsidered/2016/04/06/473265273/a-new-rembrandt-from-the-frontiers-of-ai-and-not-the-artists-atelier> (last visited April 11, 2020).
 9. See *supra* note 5.

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question arises about the legal regime of works created by AI. Namely, who (if anyone) should take credit for and hold copyright in AI-created works?

AIs are complex systems involving software, written by programmers, that are “taught” to recognize patterns from vast learning materials and create products independent from human input to various degrees. This Note will dwell upon works created mostly (if not entirely) by AI. This Note argues that the copyright in AI-created works should initially vest in persons responsible for arranging the AI (depending on the situation, programmers, their respective employers or other persons). To be consistent with the constructs of American copyright law, the *work made for hire* doctrine should be applied.

Part II of this Note will explain the issue of copyright in AI-created works, then move on to introduce the theoretical bases for copyright protection in general, and finally provide insight into the existing law and practice pertaining to the issue concerned. Part III of this Note will analyze the current legal landscape and apply it to the issue of AI and authorship. Finally, Part IV will recommend amendments to the existing legislation to extend copyright protection to AI-created works through the model of the works made for hire doctrine. Part V will conclude.

II. BACKGROUND

The issue of authorship in works created by computer systems is not a new one. In 1965, Abraham Kaminstein raised this question in the Register of Copyrights, but put forward no clear solution:

As computer technology develops and becomes more sophisticated, difficult questions of authorship are emerging . . . It is certain that both the number of works proximately produced or “written” by computers and the problems of the Copyright Office in this area will increase. The crucial question appears to be whether the “work” is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work . . . were actually conceived and executed not by man but by a machine.¹⁰

Since then, the “purely theoretical” question has turned into one of immediate practical value. Although there are numerous definitions pertaining to diverse AI algorithms, AI can generally be defined as “computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”¹¹ The scenario of AI-created art concerned in this Note is roughly the following: a software developer (most likely a team) writes software that is programmed to learn from (analyze patterns in) the voluminous data inputted into the system in order to

10. The Copyright Office, *Sixty-Eighth Annual Report Of The Register Of Copyrights* (1965).

11. See *Meaning of artificial intelligence in English*, LEXICO, https://www.lexico.com/definition/artificial_intelligence (last visited April 11, 2020).

produce new results not evident from the initial software code, but *based on* the analysis of the underlying inputted data, but *substantially different* from it.¹²

At this time, the U.S. Copyright Office (hereinafter “USCO”) only registers a copyright in works of human authorship.¹³ Therefore, under existing law, works wholly created by AI will most likely enter the public domain, which provides no reward for developers of AI who invest significant creative resources into bringing complicated computer systems to “life.” The existing American case law seems not to have encountered the issue of copyright attribution in AI-created works yet, and the lack of clear regulation may dangerously lead to the creation of inconsistent case law that will not consider this important issue.

A. Theoretical Underpinnings of Copyright Law

In modern copyright law, there are four leading doctrines explaining the necessity of copyright protection: altogether they are the Utilitarian,¹⁴ Labor (Lockean),¹⁵ Moral Rights,¹⁶ and Personhood (Hegelian) theories.¹⁷ Modern American copyright law serves two main purposes: (1) enabling authors to recoup the costs of creating their works; and (2) encouraging the dissemination of works by their authors who are assured that their work will not be unfairly taken advantage of.¹⁸ This *utilitarian* rationale dominates in the American copyright law¹⁹.

B. Copyrightability prongs under American law

U.S. copyright law is governed by the U.S. Constitution, the Copyright Act of 1976, and the relevant derivative case law. In order to be eligible for copyright protection, a work must satisfy several criteria, including those of fixation in any tangible medium of expression, originality, and authorship.²⁰ Issues of AI authorship are mainly concerned about originality and authorship.

12. Shlomit Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3a Era—the Human-Like Authors Are Already Here—A New Model*, MICH. ST. L. REV. 659, 676 (2017)

13. U.S. Copyright Office, *Compendium of U.S. Copyright Office Practices*, § 101 (3d ed. 2017), 50. Note that the USCO Compendium bearing such a conclusion does not have a binding effect and can possibly be overridden by any new regulation, at 8.

14. Julie E. Cohen, *Copyright as Property in the Post-Industrial Economy: A Research Agenda*, WISC. L. REV. at 141, 143 (2011).

15. Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 1004 (1982).

16. Jane C. Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary France and America*, 64 TUL. L. REV. at 991, 992 (1990).

17. Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L. J. at 1533, 1544-45 (1993).

18. Julie E. Cohen et al., *Copyright in a Global Information Economy* 7 (Wolters Kluwer, 4th ed. 2015).

19. See Jeanne C. Fromer, *An Information Theory of Copyright Law*, 64 EMORY L.J. 71, 73 (2014).

20. Copyright Act of 1976 17 U.S.C. § 102 (2018). See *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106 (9th Cir. 1970), *Durham Indus., Inc. v. Tomy Corp.*, 630 F.2d 905 (2d Cir. 1980).

1. Originality

The *originality* prong requires that a work must (1) be created independently, rather than copied from another existing work;²¹ and (2) should “entail a minimal degree of creativity.”²² As established in *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, a work must be distinguishable from other existing works.²³ In that case, mezzotint engravings based on, but distinguishable from, other works in the public domain were found copyrightable. Under *Feist Publications, Inc. v. Rural Telephone Service Co.*, the court held that in order to be copyrightable, works should display some minimal level of creativity.²⁴ In that case, white pages were denied copyright protection on the grounds that they lacked creativity in the selection, coordination, or arrangement of facts (phone numbers and addresses rendered in the alphabetical order). According to Feist, the originality bar is extremely low and is met even when the work is similar to another pre-existing one, provided that the “similarity is fortuitous, not the result of copying.”²⁵

2. Authorship

Under the Copyright Act of 1978, only works of *authorship* can be granted protection.²⁶ Authorship is not defined anywhere in the Act or case law.²⁷ The USCO’s practice has thus far construed it to mean *human* authorship.²⁸ Existing law and practice have refused copyright protection in strictly mechanical works (such as entirely random production of fabric designs by a computer program)²⁹ and strictly natural works (such as a selfie taken by a monkey).³⁰ In instances where the work is not (or is claimed not to have been) entirely created by a human being, the case law requires that in order to be copyrightable, the work should at least be given its final form by a natural person.³¹

3. Work Made For Hire Doctrine

The Copyright Act contains a work made for hire doctrine (hereinafter, “WMFH”) that by default vests the copyright in a work prepared by an employee within the scope of their employment and, in enumerated cases, commissioned works, in the employer/ordering

21. *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991), see *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99 (2d Cir. 1951); *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106 (9th Cir. 1970), see Nimmer, Melville B. Nimmer On Copyright : A Treatise on the Law of Literary, Musical and Artistic Property, and the Protection of Ideas § 2.01 (1978) (LEXIS Advance).

22. *Feist*, at 348.

23. *Alfred Bell*, at 102.

24. *Feist*, at 348.

25. *Id.* at 345.

26. 17 U.S.C. § 102(a) (2018).

27. See *supra*, *Compendium of U.S. Copyright Office Practices*, at 50.

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

29. See *supra*, *Compendium of U.S. Copyright Office Practices*, at 50, 63.

30. *Naruto*, *supra* note 28.

31. *Urantia Found. v. Maaherra*, 114 F.3d 955 (9th Cir. 1997). In this case, a book of religious teachings claimed to have descended from a divine source was granted copyright because it was arranged by people.

party.³² The WMFH doctrine is a legal fiction, which for the purposes of economic practicability³³ circumvents the default rule that copyright initially belongs to the immediate factual author.³⁴ Despite its broad reach under the WMFH doctrine, the employer nevertheless cannot exercise the already statutorily limited³⁵ “moral” rights to protection of works from distortion, destruction, or misattribution.³⁶

III. ANALYSIS

This Note thus far has reviewed the doctrinal bases for recognizing copyright and the approaches to copyrightability existing in modern practice. Next, this Note will apply these legal underpinnings to the situation where AI, in itself based on the underlying copyrightable software, creates sufficiently original works. The goal of this analysis section is to justify the copyright protection of AI-created works and to argue that the existing fundamentals of copyright law will not be disrupted by the introduction of new express policies in this regard.

A. Policy considerations: justification of copyright

In order to understand whether policy reforms are necessary, we will look into the theoretical underpinnings of copyright law, and namely, why copyright protection exists in the first place. American copyright law (as with American intellectual property law in general) is primarily based on the *utilitarian theory* of law and economics.³⁷ This means that the purpose of copyright protection is largely to financially incentivize authors to create, and investors/publishers to invest in creative processes, thus promoting “the progress of ... useful arts”³⁸ and to motivate willingness to assume the responsibility for possible intellectual property law infringements.³⁹

The cost of AI development is difficult to estimate but is no doubt immense.⁴⁰ Such costs include research and development, data scientist labor, and machine training that takes a long time and consumes tremendous amounts of computing power (for example, just training a single model of OpenAI’s word-predicting GPT-2 cost up to around \$40,000 in energy consumption).⁴¹ In order to foster the creation of AI systems, its arrangers should not only be able to recoup their costs, but also profit from their use.

32 17 U.S.C. § 201(b) (2018); *Community for Creative Non-Violence v. Reid*, 490 U.S. 730, 737–38 (1989).

33. Catherine L. Fisk, *Authors at Work: The Origins of the Work-for-Hire Doctrine*, 15 *Yale J.L. & Human.* (2003), at 70.

34. 17 U.S.C. § 201(a) (2018).

35. Colleen Fielkow, *Clashing Rights Under United States Copyright Law: Harmonizing an Employer’s Economic Right with the Artist Employee’s Moral Rights in a Work Made for Hire*, 7 *DEPAUL J. ART, TECH. & INTELL. PROP. L.* 218 (1997), at 8.

36. See *Carter v. Helmsley-Spear, Inc.*, 71 F.3d 77 (2d Cir. 1995).

37. Donald S. Chisum et al., *Principles of Patent Law* 50 (3d ed. 2004) (“[T]he predominant justification for American intellectual property law has been ... utilitarianism.”).

38. U.S. Const., art. I § 8.

39. Garrett Hardin, *The Tragedy of the Commons*, *SCIENCE*, 1243, 1243-48 (1968) (arguing that ownership is efficient to retain property).

40. See Robert Krajewski, *Costs Of AI Development - What You Need To Take Into Account?* IDEAMOTIVE, <https://www.ideamotive.co/blog/costs-of-ai-development> (last visited April 11, 2020).

41. *Id.*, see also Karen Hao, *Training a Single AI Model Can Emit As Much Carbon As Five Cars in Their Lifetimes*. MIT TECHNOLOGY REVIEW, <https://www.technologyreview.com/2019/06/06/239031/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes/> (last visited May 17, 2020).

Under the existing law, although the cost of putting together AI systems is great, and AI-created works can be valuable, the creation of art-generating AIs might not be sufficiently incentivized.⁴² Copyright protection would present an additional economic motivational factor for the development of art-creating AI. Thus, reforming the existing law to extend copyright protection to AI-created works is necessary and will be in tune with the dominant utilitarian doctrine adopted by American copyright law.

B. Copyrightability of AI-created works

Under the Copyright Act of 1976, copyright protection is granted only in (1) “original works (2) of *authorship*.”⁴³ This Note will now examine each of these copyrightability requirements in detail to prove that AI-generated works can satisfy them.

1. Originality

As extensively supported by case law, the *originality* prong requires that a work must (1) be created independently, rather than copied from another existing work,⁴⁴ and (2) should “entail a minimal degree of creativity.”⁴⁵ The originality bar is extremely low⁴⁶ making it easily met by AI systems.⁴⁷ Although AI is “trained” using huge databases of pre-existing art in the process of machine learning (ML), the resulting works are different and unpredictable from both the computer code and the inputted art.⁴⁸ This process is not much different from that described in the famous creativity manifesto—aimed at human authors—called *Steal Like an Artist*. “Every artist gets asked the question, ‘Where do you get your ideas?’ The honest artist answers, ‘I steal them.’”⁴⁹ “New” art is almost inevitably at least partially influenced by all the pre-existing artwork experienced by the author. “There is no new thing under the sun. Is there any thing [sic] whereof it may be said, see, this is new? It hath been already of old time, which was before us.”⁵⁰

2. Authorship

Under the Copyright Act of 1978, only works of *authorship* can be granted protection.⁵¹ Although it is not directly specified in the Act, both the case law⁵² and USCO practice⁵³ have

42. Pamela Samuelson, Allocating ownership rights in computer-generated works, 47 U. PITT. L. REV., 1185 (1985). See also Robert C. Denicola, Ex Machina: Copyright Protection for Computer Generated Works, 69 RUTGERS UL REV., 251 (2016).

43. 17 U.S.C. § 102(a) (2018). See *supra* Roth *Greeting Cards*.

44. See *supra* note 21.

45. *Feist*, at 348.

46. *Feist*, at 345.

47. 17 U.S.C. § 102(a) (2018). See Marcus Hutter, Universal Artificial Intelligence: Sequential Decisions Based On Algorithmic Probability 125-26, 2 (W. Brauer, G. Rozenberg & A. Salomaa eds., 2005).

48. Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 532, 538 (2015).

49. Kleon, Austin. *Steal Like an Artist: 10 Things Nobody Told You About Being Creative*, 2012. Reference to *learning* from the pre-existing art, not plagiarizing.

50. Ecclesiastes 1:8, 9. King James Version.

51. 17 U.S.C. § 102(a) (2018).

52. See *supra*, *Compendium of U.S. Copyright Office Practices*, at 50.

53. *Naruto*, *supra* note 28.

so far construed it to mean *human* authorship, while strictly mechanical “works” are refused copyright protection.⁵⁴ The established practice can dangerously lead to there being no copyright in the works created by AI because of the lack of an immediate human author. In the most optimistic set of events, the legal status quo will create contradicting case law as to the possibility of copyright protection in the AI-created works, leaving the people behind the AIs without the sufficient incentive to develop art-creating AI systems.

However, the existing law and practice were formed in the times when computers, let alone AI, either did not exist yet or were incapable of producing artwork that would satisfy the originality criterion. As confirmed by Congress, the term “works of authorship” was purposefully left undefined to provide for flexibility in the view of future (including technological) developments.⁵⁵ Therefore, it should not disrupt copyright law if the human authorship requirement is relaxed for qualifying AI works.

Arthur R. Miller once wittily noted that “behind every robot there is a good person.”⁵⁶ Every AI system too was once created by human authors of the software (and taught by data scientists, etc.). Even if we consider that AI operates independently from the humans who created or are running it, and the authorship in the works cannot be strictly and directly attributed to those people, there still exists a “sufficient nexus to human creativity”⁵⁷ in the resulting works, however remote. Thus, it is necessary and not disruptive to the existing American copyright doctrine to recognize AI-created works as “works of authorship.”

C. *Applicability of the work made for hire doctrine*

AI-created work should be a work of authorship protectable by copyright law. It is logical to grant copyright in AI-created works to the persons who made it all possible, i.e. the persons who wrote the software code for the AI. Although this “remote” attribution of authorship in AI-created works to the AI software programmers may seem unknown to copyright law, it is in fact strikingly similar to the already existing work made for hire doctrine, under which copyright in specified types of commissioned works vests in the employer or the organizer of the creative process, and not the immediate author.⁵⁸ Application of the WMFH doctrine to AI-created works would solve a number of issues because it: justifies the automatic vesting of the copyright not in the immediate author, but in the “employer”; eliminates the moral rights issue;⁵⁹ and circumvents the identity/entity issue of the immediate author (namely, “can the AI be deemed a legal entity?”).

54. See *supra* note 29.

55. *Garcia v. Google, Inc.*, 786 F.3d 733, 741 (9th Cir. 2015) See 1 Nimmer on Copyright § 2.03. See H.R. REP. NO. 1476, 94th Cong., 2d Sess. 116 (1976), reprinted in 1976 U.S.C.C.A.N. 5731, 5731.

56. *The Semiconductor Chip Protection Act of 1983: Hearings on S. 1201 Before the Subcomm. on Patents, Copyrights and Trademarks of the Senate Comm. on the Judiciary*, 98th Cong., 1st Sess. 86 (1983), at 88 (statement of Arthur R. Miller, Professor of Law, Harvard Law School).

57. See *supra* Urantia Foundation, at 958.

58. Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 STAN. TECH. L. REV. 5, at 26.

59. See *supra* note 36.

D. Who should own the copyright to AI-works?

If AI-created art is granted copyright protection, a question of authorship attribution logically arises. In the absence of statutory regulation, the creators of the art-generating AI are often the ones receiving profits from the use of such art,⁶⁰ which suggests that the allocation of copyright can be subject to contractual agreement. However, the establishment of a default policy rule would provide for greater protection and legal predictability.

It should be noted that art-creating AI algorithms vary greatly,⁶¹ and a case-by-case analysis should be conducted to determine which copyright allocation would be the most reasonable and just. This Note proposes to follow the British approach of granting copyright in computer-generated works to persons “responsible for arrangement necessary for creation”⁶² which in the case of “strictly AI-generated” works would mean the software programmers who created the AI. It is also worth mentioning that granting authorship to the AI itself is not practicable. AI systems do not need the incentive to create works (they are already programmed to)⁶³ and lack independent will or legal capacity to enforce any such rights.

IV. RECOMMENDATIONS

As proven in the analysis above, it is necessary to economically incentivize the development of art-creating AI systems by granting copyright in such art to the persons behind such AI systems. Works created by AI merit copyright protection, and the persons responsible for the implementation of an AI system, which in most cases would mean the software developers, should be deemed the authors.

This Note recommends that the WMFH doctrine should extend to give AI authorship to those who made the AI. Application of the WMFH doctrine would best serve the justification for copyright protection for AI-created works because it grants copyright protection to the person organizing/commissioning the work made by another within the pre-defined scope of the task. However, the current WMFH doctrine would not yet allow for this since the relationship between the AI and the programmer does not fall squarely into the employer-employee categories described in the Copyright Act § 101(1).⁶⁴ As suggested by the Supreme Court, the WMFH doctrine applies only in instances where the Congress has expressed a clear and explicit intent for it to apply.⁶⁵ Because of the nature of the WMFH doctrine, combined with the Supreme Court’s jurisprudence on the matter, any expansion of this doctrine to AI-created works would need explicit statutory basis⁶⁶ and would best be done through Congressional change.

60. Margot E. Kaminski, *Authorship, Disrupted: Ai Authors in Copyright and First Amendment Law*, 51 U.C. DAVIS L. REV. 589, 594 (2017).

61. *Id.*

62. U.K. Copyright, Designs & Patents Act 1988, c. 48, § 9(3). (Eng.)

63. Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185, 1199 (1986).

64. *See supra* Annemarie Bridy, at 27.

65. Shlomit Yanisky-Ravid, at 715.

66. *Id.*

Additionally, § 101(1) should be amended to include computer-generated works into the definition of WMFH. Such an approach is in tune with the most recent technological developments and has already been taken in other common law countries such as the U.K.⁶⁷ and New Zealand.⁶⁸ Therefore, it is advisable to include into § 101(1) definition of WMFH the third instance of such works:

A work made for hire is . . . (3) an otherwise qualifying for copyright protection, work generated by a computer in circumstances where there is no human author of such work. A person (persons) by whom the arrangements necessary for the creation of the work are undertaken will be deemed the initial author(s).

V. CONCLUSION

The emergence of works of art created by AI poses an important issue of copyright allocation in such works. Specifically it calls into question whether copyright law should be limited to human-created works of art. Although the existing legal landscape does not yet allow for human copyright ownership in AI-created works, it makes the most sense to amend the existing regulation by extending the WMFH doctrine in the view of the underlying utilitarian purpose of copyright law.

67. U.K. Copyright, Designs & Patents Act 1988, c. 48, § 9(3).

68. New Zealand Copyright Act of 1994 5(2)(a), available at: <http://www.legislation.govt.nz/act/public/1994/0143/latest/whole.html#DLM345638> (last visited April 11, 2020).