

DISRUPTING CREATIVITY: COPYRIGHT LAW IN THE AGE OF GENERATIVE ARTIFICIAL INTELLIGENCE

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Abstract

Over the last few years, due largely to breakthroughs in deep learning technologies, artificial intelligence (AI) has begun to step into the shoes of human content generators and make valuable creative works at scale. Before the end of the decade, a significant amount of art, literature, music, software, and web content will likely be created by AI rather than traditional human authors. Yet the law lags behind this technological evolution by prohibiting copyright protection for AI-generated works. The predominant narrative holds that even if AI can automate creativity, this activity is not the right sort of thing to protect, and that protection would even harm human artists.

AI-generated works challenge beliefs about human exceptionalism and the normative foundations of copyright law, which until now have offered something for everyone. Copyright can be about ethics and authors and protecting the sweat of a brow and personality rights. Copyright can also be about the public interest and offering incentives to create and disseminate content. But copyright cannot have it all with AI authors—there is valuable output being generated, but by authors with no interests to protect.

This Article argues that American copyright law is, and has traditionally been, primarily about benefiting the public interest rather than benefiting authors directly. As a result, AI-generated works are precisely the sort of thing the system aims to protect. Protection will encourage people to develop and use creative AI which will result in the production and dissemination of new works. Taken further, attributing authorship to AI that functionally does the work of a traditional author will promote transparency, efficient allocations of rights, and even counterintuitively protect human authors. AI-generated works also promise to radically impact other fundamental tenets of copyright law such as infringement, protection of style, and fair use. How the law should respond to AI activity has lessons more broadly for thinking about what rules should apply to people, machines, and other sorts of artificial authors.

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INTRODUCTION

The role of artificial intelligence (AI) in the creative economy has changed dramatically.¹ Due to advances in computing power and software designs, as well as the growth of big data useful for training machine learning-based algorithms, AI has evolved from assisting to automating the creative process.² Moreover, AI is now stepping into the shoes of content generators and creating valuable original content in a

1. World Intell. Prop. Org., Revised Issues Paper on Intellectual Property Policy (IP) and Artificial Intelligence (AI), WIPO/IP/AI/2/GE/20/1 REV., at 1 (2020) [hereinafter WIPO, Revised Issues], https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf [<https://perma.cc/3GGP-QU9K>].

2. *Id.* at 7.

commercially relevant way.³ Before the end of the decade, a significant amount of art, literature, news stories, music, software, and web content will likely be AI-generated.⁴

This technological evolution will result in seismic social and economic impact.⁵ It will prove equally disruptive to the law,⁶ including in the field of intellectual property (IP).⁷ AI behaving like a person raises numerous challenges in all areas of IP; and with copyright, it has now become critically important to resolve how legally to treat creative work made by a machine: can an AI-generated work receive copyright protection? Who would own the copyright? Who, or what, would be the author? Is it copyright infringement to use protected works to train algorithms or to create AI-generated works?

These questions have been explored in academic literature for decades.⁸ Most commentators believe that AI-generated works should not receive protection, either for moral reasons—because AI-generated works are not the right sort of thing to protect—or for economic ones—because AI does not respond to financial incentives to create output, because protection is unnecessary for other reasons, or because there are

3. See *id.*; Claudio Cocorocchia et al., *How Do Emerging Technologies Affect The Creative Economy?* (Apr. 4, 2018), <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/how-do-emerging-technologies-affect-the-creative-economy> [https://perma.cc/4P26-3Q7A]; see also GOV'T OF CANADA, A CONSULTATION ON A MODERN COPYRIGHT FRAMEWORK FOR ARTIFICIAL INTELLIGENCE AND THE INTERNET OF THINGS 11–12 (2021), www.ic.gc.ca/eic/site/693.nsf/eng/00316.html [https://perma.cc/6833-T68E] (“Aided by increasingly more sophisticated [text and data mining], machine learning, and other technological advancements, AI can now create content previously attributable only to human persons. At this time, the creation of a work or other subject matter by AI typically involves some degree of human input; either programmers or users must instruct an AI application to perform its task. But over time, an AI system’s capacity to independently generate works or other subject matter is expected to continue to increase. For example, there are now AI applications that can write movie scripts, software and music, and draw animation with little human input beyond the development of the AI itself.”).

4. See Nick Bilton, *The New Generation of A.I. Apps Could Make Writers and Artists Obsolete*, VANITY FAIR (June 2, 2022), www.vanityfair.com/news/2022/06/the-new-generation-of-ai-apps-could-make-writers-and-artists-obsolete [https://perma.cc/F55G-UG2W]; see also EUROPOL INNOVATION LAB, FACING REALITY? LAW ENFORCEMENT AND THE CHALLENGE OF DEEPFAKES 2 (2022) (“Experts estimate that as much as 90% of online content may be synthetically generated by 2026.”).

5. See ANAND S. RAO & GERARD VERWEIJ, SIZING THE PRIZE 1 (2017), <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf> [https://perma.cc/H4HV-N7BV] (estimating that by 2030, AI could stimulate over \$15 trillion of economic activity and growth globally).

6. See RYAN ABBOTT, THE REASONABLE ROBOT: ARTIFICIAL INTELLIGENCE AND THE LAW 3–4 (2020) (explaining that, in many contexts, the law discriminates between AI and human behavior in ways that are socially harmful).

7. See sources cited *supra* note 3 (indicating that AI will have far-reaching impacts on the field of intellectual property).

8. See *infra* Section II.F (exploring academic perspectives on AI-generated works).

greater costs associated with protection.⁹ More practically, the U.S. Copyright Office (USCO) has implemented a “Human Authorship Requirement” since at least 1973 that has prohibited the registration of copyright for AI-generated works.¹⁰ While the Copyright Act does not explicitly state that an author must be a human being, or that human creativity is a requirement for copyright, there is a long history of jurisprudence framing creativity in human-centric terms.¹¹ There is no case law, at least in the United States, involving copyright protection of an AI-generated work.¹² Although, it should be noted that other types of artificial authors—artificial persons largely in the form of corporations and sovereign nations—have qualified as authors under the Copyright Act for over a century.¹³

This Article argues that AI-generated works should receive copyright protection because they are precisely the sort of things designed to be protected. Copyright law, while often framed in terms of benefiting authors, has primarily broader and more utilitarian social goals: promoting the generation and dissemination of works.¹⁴ While critics are of course correct that AI is not motivated to work by the prospect of copyright protection, that argument is a straw man. Rather than motivating machines directly, copyright protection will motivate people upstream of the creative act to use and develop AI that will result in more production and dissemination of works.¹⁵

This Article goes further to claim that AI should be recognized as an author for copyright purposes. Doing so is not a matter of providing legal rights to machines. An AI is not a legal person and cannot have rights or obligations, and the costs of providing rights to AI would likely outweigh any potential benefits.¹⁶ Rather, accepting AI authors would promote

9. *See id.*

10. U.S. COPYRIGHT OFF., COMPENDIUM (FIRST) OF U.S. COPYRIGHT OFFICE PRACTICES §§ 2-287, 2-290 (1973) [hereinafter COMPENDIUM (FIRST)].

11. U.S. COPYRIGHT OFF., COMPENDIUM (THIRD) OF U.S. COPYRIGHT OFFICE PRACTICES § 306 (2021) [hereinafter COMPENDIUM (THIRD)]; *see infra* Section II.C.

12. Letter from U.S. Copyright Rev. Bd., U.S. Copyright Off., to Ryan Abbott, Esq., Couns. for Dr. Stephen Thaler (Feb. 14, 2022), <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf> [<https://perma.cc/B8X5-QVGL>]; *cf.*, *e.g.*, *Nova Prods. Ltd. v. Mazooma Games Ltd.*, [2006] EWHC 24 (Ch) 355–56 (UK) (finding copyright protection extends to an AI-generated work under the United Kingdom’s Copyright Act).

13. *See* Copyright Act, ch. 320, § 8, 35 Stat. 1075, 1077 (1909) (current version at 17 U.S.C. § 304).

14. *See* discussion *infra* Section III.B (discussing the history and purpose of copyright law).

15. *See* Samantha Fink Hedrick, *I “Think,” Therefore I Create: Claiming Copyright in the Outputs of Algorithms*, 8 N.Y.U. J. INTELL. PROP. & ENT. L. 324, 345 (2019) (arguing that providing copyright protection to AI-generated works will motivate owners to create more of and disseminate those works).

16. *See* ABBOTT, *supra* note 6, at 127–28 (exploring direct criminal punishment of AI and concluding there would be substantial costs and uncertain benefits).

transparency, appropriate entitlement, and policymaking. Identifying AI authors would even protect the moral rights of human authors. Allowing someone to take credit for work done by an AI would not be unfair to the AI because the AI has no self-interest (or interests at all), but it would be unfair to other human authors. It would equate legitimate human creativity with someone simply asking an AI to perform a task.

The remainder of this Article proceeds in three parts. Part I explores the state of the art in AI and the rapid development and acceleration of generative AI technologies. Part II examines copyright law in the context of AI-generated works. Part III argues that both the protection of AI-generated works and AI authorship are consistent with the primary goals of copyright law, and it considers how AI-generated works will impact other areas of copyright law.

In considering AI authorship, this Article explores foundational legal questions. Does copyright exist primarily to benefit authors or the public? Does copyright exist to protect moral rights or to solve market failures? Until the advent of AI authors, there was less need to resolve these questions because copyright is pluralistic. Copyright law can be framed in terms of aiding certain types of authors, even if its financial benefits flow disproportionately to corporate interests.¹⁷ But AI authorship forces choices to be made about copyright that have implications in other areas, including for infringement, fair use, and the protectability of style. It also has important implications for the law generally: how the law should accommodate advances in technology, the role of purposive versus textual statutory interpretation, and whether the law should discriminate between human and AI behavior.

I. THE STATE OF AI TECHNOLOGY AND AI AUTHORS

A. *Advances in AI*

Many of the terms associated with AI and IP lack standardized definitions, which is perhaps unsurprising given that the term “artificial intelligence” itself still lacks a standardized definition more than sixty

17. See Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1198 (1996) (explaining that the beneficiaries of copyright law “often are not struggling authors but faceless corporate assignees”); Johnathan Tasini, *Extending Copyright Helps Corporations, Not Artists*, L.A. TIMES (Mar. 3, 2002, 12:00 AM), <https://www.latimes.com/archives/la-xpm-2002-mar-03-op-tasini-story.html> [<https://perma.cc/AM5S-FZB2>] (reporting that “virtually all” copyrights are owned by corporations that exert monopolistic control over information and content); Cory Doctorow, *In Serving Big Company Interests, Copyright is in Crisis*, ELEC. FRONTIER FOUND. (Jan. 21, 2020), www.eff.org/deeplinks/2020/01/serving-big-company-interests-copyright-crisis [<https://perma.cc/2Q2E-BNV8>] (advocating for reduced term protection because longer terms only benefit a handful of corporations that own almost all copyrights).

years since its introduction.¹⁸ This Article defines AI as an algorithm or machine capable of completing tasks that would otherwise require cognition.¹⁹

AI is also categorized in terms of general AI versus narrow (or specific) AI. Narrow AI refers to current technologies that perform a dedicated purpose, while general AI refers to a hypothetical future AI capable of performing any (or nearly any) intellectual task a person could.²⁰ For example, AI exists that can operate a vehicle,²¹ but that same AI could not play a game of chess without someone separately programming it with that capability.²² Of course, narrow AI exists on a spectrum.²³ A relatively narrow AI system might only be capable of optimizing a car suspension, while a less narrow system might be capable of optimizing a range of industrial components.²⁴ Plus, even narrow AI can have super-human capabilities. For instance, AI can now outperform people at every traditional board game²⁵ and it is working hard at dominating video games.²⁶ This year has proved AI to be a powerhouse

18. The term “artificial intelligence” was first coined by computer scientist John McCarthy in 1955. See JOHN MCCARTHY ET AL., A PROPOSAL FOR THE DARTMOUTH SUMMER RESEARCH PROJECT ON ARTIFICIAL INTELLIGENCE 11 (1955), <http://jmc.stanford.edu/articles/dartmouth/dartmouth.pdf> [<https://perma.cc/3P2V-EE3Q>]. In a proposal for the Dartmouth Artificial Intelligence Conference, which he organized, McCarthy defined AI as follows: “For the present purpose the artificial intelligence problem is taken to be that of making a machine behave in ways that would be called intelligent if a human were so behaving.” *Id.* The conference proceeded “on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.” *Id.* at 2.

19. See *infra* Section I.C (illustrating that current AI is capable of creating content that otherwise would have required human input).

20. See WIPO, Revised Issues, *supra* note 1, at 3–4.

21. See, e.g., Lora Kelley, *A Robotaxi Experiment*, ATLANTIC DAILY (Aug. 29, 2023), <https://www.theatlantic.com/newsletters/archive/2023/08/robotaxis-self-driving-cars-san-francisco/675170/#> [<https://perma.cc/ZZN5-RY8U>] (reporting that autonomous vehicles, in the form of driverless taxis, have deployed in San Francisco).

22. See Jared Toporek, *The Hardest Part of Building Software is not Coding, it's Requirements*, STACK OVERFLOW BLOG (June 26, 2023), <https://stackoverflow.blog/2023/06/26/the-hardest-part-of-building-software-is-not-coding-its-requirements/> [<https://perma.cc/4BD5-H9Z3>].

23. See *Narrow AI*, DEEPAI, deepai.org/machine-learning-glossary-and-terms/narrow-ai [<https://perma.cc/98NA-35Y9>].

24. See Michael L. Littman et al., GATHERING STRENGTH, GATHERING STORMS: THE ONE HUNDRED YEAR STUDY ON ARTIFICIAL INTELLIGENCE (AI100) 2021 STUDY PANEL REPORT 29, 31 (2021), https://ai100.stanford.edu/sites/g/files/sbiybj18871/files/media/file/AI100Report_MT_10.pdf [<https://perma.cc/88ER-F3DG>].

25. See, e.g., Brandon Walker, *The Games That AI Won*, TOWARDS DATA SCI. (Mar. 14, 2020), towardsdatascience.com/the-games-that-ai-won-ff8fd4a71efc [<https://perma.cc/J4DY-ARS>].

26. See, e.g., Nick Statt, *OpenAI's Dota 2 AI Steamrolls World Champion E-sports Team with Back-To-Back Victories*, VERGE (Apr. 13, 2019, 5:05 PM), www.theverge.com/2019/4/13/18309459/openai-five-dota-2-finals-ai-bot-competition-og-e-sports-the-international-champion

tool for generating creative content, too.²⁷ Experts are divided on when, or if, general AI will exist.²⁸ Some thought leaders, such as Ray Kurzweil, believe that it will not be long until an AI exists that can broadly operate at human-like intellectual levels which will allow AI to improve its own capabilities and will lead to exponential improvement.²⁹

While a wide variety of AI structures are used in modern commercial products, commercial services, and some hybrid architectures, machine learning-based models for AI authors now dominate the AI landscape.³⁰ Machine learning is based on “the idea that systems can learn from data, identify patterns and make decisions with minimal human intervention.”³¹ Many AI algorithms, particularly those used in deep learning systems, are capable of self-improvement and automation of their own refinement.³² The key element of these algorithms or AI models is their ability to learn and adapt, as they are fed large amounts of data in the training process and adjust their internal parameters, known as weights, to improve their output’s match with desired results.³³ The weights of a trained machine learning model are essentially a set of numeric values that the model uses to make predictions or decisions.³⁴

Many of the recent advances in AI functionality have come because of improvements to machine learning systems driven by improvements in software design, hardware capabilities, and increased access to data

[<https://perma.cc/4655-PGVX>]; see also Nick Statt, *Deepmind’s Starcraft 2 AI is Now Better than 99.8 Percent of All Human Players*, VERGE (Oct. 30, 2019, 2:00 PM), www.theverge.com/2019/10/30/20939147/deepmind-google-alphastar-starcraft-2-research-grandmaster-level [<https://perma.cc/6SF3-4MLX>] (stating that an AI is now capable of besting the vast majority of players in the more complex videogame StarCraft 2).

27. See, e.g., *Online ChatGPT: Optimizing Language Models for Dialogue*, OPENAI, <https://online-chatgpt.com> [<https://perma.cc/6M7B-MKLV>]; *Dall-E 2*, OPENAI, <https://openai.com/dall-e-2/> [<https://perma.cc/4BMP-2UC7>]; see also Jennifer A. Kingston, *Runway Brings AI Movie-making to the Masses*, AXIOS (May 5, 2023), <https://www.axios.com/2023/05/05/runway-generative-ai-chatgpt-video> [<https://perma.cc/PTD5-A2TC>] (explaining how generative AI is being used in film and television to automate previously laborious tasks, including for scenes in the 2022 Oscar-winning movie *Everything Everywhere All at Once*).

28. Cam Dilmegani, *When Will Singularity Happen? 1700 Expert Opinions of AGI [2023]*, AIMULTIPLE (Aug. 13, 2023), <https://research.aimultiple.com/artificial-general-intelligence-singularity-timing/> [<https://perma.cc/D8SW-FBJJ>].

29. See RAY KURZWEIL, *THE SINGULARITY IS NEAR: WHEN HUMANS TRANSCEND BIOLOGY* 8–9 (2005).

30. See Ivano Lauriola et al., *An Introduction to Deep Learning in Natural Language Processing: Models, Techniques, and Tools*, 470 NEUROCOMPUTING 443, 443–44 (2022).

31. *Machine Learning: What It Is and Why It Matters*, SAS, www.sas.com/en_us/insights/analytics/machine-learning.html [<https://perma.cc/8RDY-5SE4>].

32. *Id.*

33. *Weight (Artificial Neural Network)*, DEEPAI, <https://deeptai.org/machine-learning-glossary-and-terms/weight-artificial-neural-network> [<https://perma.cc/IE93-2E9A>].

34. *Id.*

used to train such systems.³⁵ These advances have led to the development of systems like AlphaGo and AlphaFold that have been able to master the complex game of Go and determine a protein's 3D shape from its amino-acid sequence, respectively.³⁶ These breakthroughs were possible because of massive R&D investments.³⁷ The pace of innovation has been staggering particularly with large language models (LLMs), a class of deep-learning architectures that can generate content using large datasets, such as GPT-4 which was released in early 2023.³⁸

B. *AI-Assisted vs. AI-Generated Creativity*

Many of the terms in the world of AI creativity, like AI itself, lack standardized definitions. “Generative art” is an industry term used without focus on authorship or copyright law, and it typically refers to a work made, in whole or part, using an autonomous system (i.e., a system automating a task).³⁹ Generative art does not entirely mesh with terms like “AI-assisted” and “AI-generated,” which are also used to refer to works created using AI but more often in legal than creative contexts.⁴⁰ Even within legal settings, these terms are not used consistently, which is a significant issue for regulators drafting rules for works created using

35. See The Physics arXiv Blog, *AI Machines Have Beaten Moore's Law Over the Last Decade, Say Computer Scientists*, DISCOVER MAG. (Feb. 21, 2022, 5:00 PM), <https://www.discovermagazine.com/technology/ai-machines-have-beaten-moores-law-over-the-last-decade-say-computer> [https://perma.cc/S2D9-X66K].

36. *Id.*; Ewen Callaway, *'It Will Change Everything': Deepmind's AI Makes Gigantic Leap in Solving Protein Structures*, NATURE (Nov. 20, 2020), <https://www.nature.com/articles/d41586-020-03348-4> [https://perma.cc/H8HW-XZSM].

37. See, e.g., DANIEL ZHANG ET AL., STANFORD UNIV., THE ARTIFICIAL INTELLIGENCE INDEX REPORT 2022, at 3 (2022), https://aiindex.stanford.edu/wp-content/uploads/2022/03/2022-AI-Index-Report_Master.pdf [https://perma.cc/2S34-VDWL] (noting “[t]he private investment in AI in 2021 totaled around \$93.5 billion—more than double the total private investment in 2020”).

38. MICHAEL CHUI ET AL., MCKINSEY & CO., THE ECONOMIC POTENTIAL OF GENERATIVE AI: THE NEXT PRODUCTIVITY FRONTIER 5 (2023), <https://www.mckinsey.com/~media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/the%20economic%20potential%20of%20generative%20ai%20the%20next%20productivity%20frontier/the-economic-potential-of-generative-ai-the-next-productivity-frontier-vf.pdf?shouldIndex=false> [https://perma.cc/JVM9-3YJR] (“ChatGPT was released in November 2022. Four months later, OpenAI released a new large language model, or LLM, called GPT-4 with markedly improved capabilities. Similarly, by May 2023, Anthropic’s generative AI, Claude, was able to process 100,000 tokens of text, equal to about 75,000 words in a minute—the length of the average novel—compared with roughly 9,000 tokens when it was introduced in March 2023.”).

39. MATT PEARSON, GENERATIVE ART: A PRACTICAL GUIDE USING PROCESSING 4 (2011) (“With more traditional art forms—sculpture, painting, or film, for example—an artist uses tools to fashion materials into a finished work. This is clearly doing it the hard way. With generative art, the autonomous system does all the heavy lifting; the artist only provides the instructions to the system and the initial conditions.”).

40. See, e.g., WIPO, Revised Issues, *supra* note 1, at 4.

AI.⁴¹ This is because there are greater risks of inadvertently unharmonized rules in different jurisdictions and of rules being developed without a clear understanding of their underlying regulatory subject matter. A camera filter and an autonomous text generator such as ChatGPT pose different challenges.⁴²

This Article uses the term “AI-assisted work” to mean a work created using AI for which a natural person, and not AI, functionally qualifies as an author of the work under traditional criteria. AI/human-generated work means a work functionally co-authored by an AI and a human being. The term “AI-generated” refers to a work created using AI where no natural person qualifies as an author under traditional criteria. As discussed further below, under current USCO policies, AI-generated works are ineligible for copyright registration, while AI-assisted works are eligible for copyright registration, with only the human-generated portion of an AI/human-generated work eligible for copyright protection.⁴³

This definition of AI-generated work is consistent with the definition of “computer-generated work” in the United Kingdom’s Copyright, Designs and Patents Act.⁴⁴ The United Kingdom was the first country to explicitly provide statutory copyright protection for such works, which it has done since 1988.⁴⁵ For an AI-generated work, the “person by whom the arrangements necessary for the creation of the work are undertaken”⁴⁶

41. *Id.* (definitions of AI-Assisted and AI-generated from WIPO); *see also* U.S. Copyright Off., Sixty-Eighth Ann. Rep. Reg. Copyrights 4–5 (1966) (listing definitions from a recent USPTO Consultation on AI-Generated Works and noting the lack of standardized definitions).

42. ChatGPT is a large transformer model that facilitates the translation of one language to another; real-time response to commands; and even the generation of code, art, poetry, and music from written and spoken text by recognizing and replicating patterns and context in its large data sets. *Online ChatGPT: Optimizing Language Models for Dialogue*, *supra* note 27. For more information on transformer models, *see* Lauriola et al., *supra* note 30, at 446.

43. Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16191–16192 (Mar. 16, 2023) (to be codified at 37 C.F.R. pt. 202) [hereinafter Copyright Registration Guidance]. This approach does not recognize the contribution of the AI or any financial benefits (e.g., co-ownership of copyright) that might flow to the AI’s owner. The AI-human joint authorship scenario has been discussed in other papers. *See, e.g.*, Daniel J. Gervais, *The Machine as Author*, 105 IOWA L. REV. 2053, 2068, 2093–94, 2106 (2020); Jane C. Ginsburg & Luke Ali Budiardjo, *Authors and Machines*, 34 BERKELEY TECH. L.J. 343, 365 (2019).

44. Copyright, Designs and Patents Act 1988, ch. 48, §§ 1, 178 (UK) [hereinafter CDPA]. AI-generated works have historically been referred to as computer-generated works, but the former is now the more popular term. *See, e.g.*, WIPO, Revised Issues, *supra* note 1, at 3–4. The terms are used synonymously in this Article.

45. *Artificial Intelligence Call for Views: Copyright and Related Rights*, Gov.UK (Mar. 23, 2021), <https://www.gov.uk/government/consultations/artificial-intelligence-and-intellectual-property-call-for-views/artificial-intelligence-call-for-views-copyright-and-related-rights>; CDPA § 1.

46. CDPA § 9(3).

is legally deemed (or fictionalized) to be the author. In other words, the law treats the producer of the work as the legal author, even though they are not the factual author. The work then gets a shortened period of statutory protection: fifty years from the date of creation, rather than seventy years, plus the life of an author for human-generated works.⁴⁷ It would be difficult to base the term of protection on the life of an AI that never dies (and never lives).

The line between AI-assisted and AI-generated works is often blurry. Generative art, for example, has a long history dating back to at least the 1960s, when Vera Molnár and Georg Nees used software to infuse controlled randomness into their artwork.⁴⁸ In the 1960s and 1970s, generative art became more mainstream when abstract painter Harold Cohen created AARON, a machine that could first draw and then paint with little—if any—intervention.⁴⁹ Modernly, text-to-image art-generating models capable of creating artistic and photorealistic images from natural language inputs, such as DALL·E 2, Midjourney, and Firefly, are publicly available.⁵⁰ A user types a text prompt and the AI uses the words to create an image that matches the text.⁵¹ Text-prompted image generation has raised significant questions regarding how much creative input is necessary for authorship,⁵² so much so that the USCO has been holding listening sessions on the topic⁵³ and has published

47. *Id.*; *id.* § 12(7) (“If the work is computer-generated the above provisions do not apply and copyright expires at the end of the period of 50 years from the end of the calendar year in which the work was made.”).

48. See *Generative Art: Origins, Artists, and Exemplary Works*, INVALUABLE (Sept. 19, 2019), www.invaluable.com/blog/generative-art/ [<https://perma.cc/RUR4-UR7G>].

49. See Paul Cohen, *Harold Cohen and AARON*, AI MAG., Winter 2016, at 63, 64, <https://onlinelibrary.wiley.com/doi/epdf/10.1609/aimag.v37i4.2695> [<https://perma.cc/5U3B-SV V6>].

50. See *Dall-E 2*, *supra* note 27; Charlie Snell, *How is it So Good? (DALL-E Explained Pt. 2)*, MACH. LEARNING AT BERKELEY (Apr. 7, 2021), <https://mlberkeley.substack.com/p/dalle2> [<https://perma.cc/B4P3-83UP>]; Aditya Ramesh et al., *Hierarchical Text-Conditional Image Generation with CLIP Latents*, ARXIV 1, 3 (Apr. 13, 2022), <https://doi.org/10.48550/arXiv.2204.06125> [<https://perma.cc/43DH-T5B6>]; MIDJOURNEY, <https://www.midjourney.com/> [<https://perma.cc/5XFY-Y4SB>]; ADOBE FIREFLY (BETA), <https://firefly.adobe.com/> [<https://perma.cc/M7 ZN-RGK3>].

51. See, e.g., Brad Dwyer, *OpenAI’s CLIP is the Most Important Advancement in Computer Vision This Year*, ROBOFLOW BLOG (Sept. 13, 2021), blog.roboflow.com/openai-clip/ [<https://perma.cc/Y424-Z2HN>].

52. See Raphaël Millière, *AI Art Is Challenging the Boundaries of Curation*, WIRED (July 17, 2022, 7:00 AM), www.wired.com/story/dalle-art-curation-artificial-intelligence/ [<https://perma.cc/Q7U8-NDZH>]; Jessica Rizzo, *Who Will Own the Art of the Future?*, WIRED (July 27, 2022, 11:44 AM), www.wired.com/story/openai-dalle-copyright-intellectual-property-art/ [<https://perma.cc/KTF8-B5PZ>].

53. *Spring 2023 AI Listening Sessions*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/ai/listening-sessions.html> [<https://perma.cc/EFP2-AD24>]; *Copyright and Artificial Intelligence*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/ai/> [<https://perma.cc/XP5N-V2N6>].

guidance on submitting works created with AI-generated material for copyright protection.⁵⁴ The guidance has controversially required applicants to disclose AI-generated content in applications, and “AI-generated content that is more than *de minimis* should be explicitly excluded from the application.”⁵⁵

In 2022, *Cosmopolitan Magazine* (Cosmo) used DALL·E 2 to design what they claimed was the first ever magazine cover created by AI.⁵⁶ The magazine’s editorial staff tried numerous text prompts that generated images the staff rejected, until the prompt “wide-angle shot from below of a female astronaut with an athletic feminine body walking with swagger toward camera on Mars in an infinite universe, synthwave digital art” was successfully used to create a cover image.⁵⁷

The cover of the magazine states that the image took only twenty seconds to make.⁵⁸ While this is true of the initial image generation, it does not tell the full story of the cover’s creation. As mentioned, a human team spent time experimenting with different prompts.⁵⁹ Also, once an image was selected, an unreleased experimental feature was used to improve the overall composition by manipulating the proportions of the image.⁶⁰ The human team then went on to design the rest of the magazine cover.⁶¹ As digital artist Karen Cheng noted, “[t]his sure is a lot of human effort for an AI-generated magazine cover.”⁶² It is unclear who, if anyone, is an author of the Cosmo cover image. According to the USCO’s guidance, Cosmo is now required to disclose the use of AI in a registration and the USCO might deny registration for the image entirely.⁶³ But imagine that no AI had been used in the making of the

54. Copyright Registration Guidance, 88 Fed. Reg. at 16190.

55. *Id.* at 16193 (alteration in original).

56. Gloria Liu, *The World’s Smartest Artificial Intelligence Just Made Its First Magazine Cover*, COSMOPOLITAN MAG. (June 21, 2022), <https://www.cosmopolitan.com/lifestyle/a40314356/dall-e-2-artificial-intelligence-cover/> [<https://perma.cc/WC4B-3PRY>].

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.*

62. *Id.*

63. See Copyright Registration Guidance, 88 Fed. Reg. at 16193; see also Letter from Suzanne V. Wilson et. al., U.S. Copyright Off. Rev. Bd., to Tamara S. Pester, LLC, Second Request for Reconsideration for Refusal to Register Théâtre D’opéra Spatial (Sept. 5, 2023), <https://www.copyright.gov/rulings-filings/review-board/docs/Theatre-Dopera-Spatial.pdf> [<https://perma.cc/J2V6-FRKR>] (In this instance the Board concluded that any AI-generated material that is more than *de minimus* must be disclaimed and stated, “Because the Work here contains AI-generated material, the Board starts with an analysis of the circumstances of the Work’s creation, including Mr. Allen’s use of an AI tool. According to Mr. Allen, the Work was created by 1) initially generating an image using Midjourney (the ‘Midjourney Image’), 2) using Adobe Photoshop to ‘beautify and adjust various cosmetic details/flaws/artifacts, etc.’ in the Midjourney Image, and 3) upscaling the image using Gigapixel AI. After considering the application, the

image and that a human editor had given an in-house artist prompts for a cover image design. The editor gives numerous prompts, rejecting each image the artist subsequently produces, until finally the editor provides the same text prompt given to DALL·E 2, and the human artist produces the same image. The human artist would certainly be an author.⁶⁴ But what about the editor, or the person who then modified the author's image for the magazine cover?

In practice, copyright authorship disputes are usually highly fact dependent, based on who did what, and when.⁶⁵ The predominant view is that to qualify as an author, each co-author must make an independently copyrightable contribution.⁶⁶ Copyright protects the original expression of an idea, but not the idea underlying a work.⁶⁷ Whether the editor would be a joint author thus depends on whether the text prompt is considered the expression of an idea or just an idea subsequently expressed by the artist.⁶⁸ Different cases with similar facts sometimes have held an editor to be an author and sometimes have not.⁶⁹ However, the subsequent formatting work is unlikely to qualify anyone for joint authorship.⁷⁰

C. Types of AI-Generated Works

Contemporary AI systems can generate written, visual, and auditory creative content—with little to no human input—that is indistinguishable from works created by people.⁷¹ As discussed above in the Cosmo example, a text-to-image generator such as DALL·E 2 can create an

deposit, and Mr. Allen's correspondence, the Board concludes that the Work contains an amount of AI-generated material that is more than *de minimis* and thus must be disclaimed. Specifically, the Board concludes that the Midjourney Image, which remains in substantial form in the final Work, is not the product of human authorship.”)

64. See *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991) (discussing that “[t]o qualify for copyright protection, a work must be original to the author,” meaning it was “independently created by the author” and needs “at least some minimal degree of creativity”).

65. See, e.g., *S.O.S., Inc. v. Payday, Inc.*, 886 F.2d 1081, 1086 (9th Cir. 1989).

66. *Ashton-Tate Corp. v. Ross*, 916 F.2d 516, 521 (9th Cir. 1990) (“Even though this issue is not completely settled in the case law, our circuit holds that joint authorship requires each author to make an independently copyrightable contribution [to the joint work].”). There are also complex rules dealing with joint authorship. “A ‘joint work’ is a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.” 17 U.S.C. § 101. “[O]ne must supply more than mere direction or ideas: one must ‘translate[] an idea into a fixed, tangible expression entitled to copyright protection [to be a joint author.]’” *S.O.S.*, 886 F.2d at 1087 (alteration in original) (internal citation omitted).

67. 17 U.S.C. § 102(b).

68. *Id.*

69. See, e.g., *Baker v. Selden*, 101 U.S. 99, 106–07 (1879).

70. Mere formatting does not qualify for copyright protection. COMPENDIUM (THIRD), *supra* note 11, at § 313.3(e).

71. See WIPO, Revised Issues, *supra* note 1, at 4.

image within seconds with just a text prompt.⁷² Like a human artist who may have taken years to perfect their artistic style by observing other artists, generative AI systems learn to create original works after being trained on data including text and images. DALL·E 2 was trained on over 650 million image and text pairs.⁷³ This AI is not just copying other images or combining images together—researchers found a way to help the AI model understand context. Through a process called Aesthetic Quality Comparison, OpenAI, the company responsible for ChatGPT and DALL·E 2,⁷⁴ trained a model to predict human aesthetic judgments using a large video dataset.⁷⁵ This allows DALL·E 2 to design a piece of art consistent with how, generally, humans perceive the world.⁷⁶ This is, of course, different than the AI itself perceiving the world in the same way as people.⁷⁷

DALL·E 2 and other hyper-realistic image-generating models were initially restricted to research purposes or only available to a very limited audience with strict terms of use due to concerns about malicious actors misusing the technology.⁷⁸ In August 2022, Stability AI released Stable Diffusion, a model similar to DALL·E 2, but open source with the mission of democratizing access to these historically gatekept technologies.⁷⁹ Since that time, the number of models and access to the public has increased dramatically.⁸⁰ AI is even capable of developing images autonomously by combining language and image generating models. For example, Botto is an AI artist that autonomously creates and presents 350 pieces of art every week without human intervention.⁸¹ Botto creates its own text prompts, titles, and even artwork descriptions;

72. See *Dall·E 2*, *supra* note 27.

73. See Ramesh et al., *supra* note 50, at 23.

74. See *Transforming Work and Creativity With AI*, OPENAI, <https://openai.com/product> [<https://perma.cc/B24E-KP2E>].

75. Ramesh et al., *supra* note 50, at 13.

76. *Id.* at 13–14.

77. See Will Douglas Heaven, *This Horse-riding Astronaut is a Milestone on AI's Long Road Towards Understanding*, MIT TECH. REV. (Apr. 6, 2022), www.technologyreview.com/2022/04/06/1049061/dalle-openai-gpt3-ai-agi-multimodal-image-generation/ [<https://perma.cc/HYM6-N53Y>].

78. See *DALL·E Content Policy*, OPENAI (Sept. 19, 2022), <https://labs.openai.com/policies/content-policy> [<https://perma.cc/GUR7-3NDP>]; *DALL·E Terms of Use*, OPENAI (Mar. 14, 2023), <https://labs.openai.com/policies/terms> [<https://perma.cc/7BJU-BVGA>] (displaying the general policies of OpenAI rejecting inappropriate usage of the services that infringe on other's rights).

79. *Stable Diffusion Public Release*, STABILITY AI (Aug. 22, 2022), <https://stability.ai/blog/stable-diffusion-public-release> [<https://perma.cc/7ERG-M7DY>].

80. Davide Castelvecchi, *Open-source AI Chatbots are Booming — What Does This Mean for Researchers?*, NATURE (June 20, 2023), <https://www.nature.com/articles/d41586-023-01970-6> [<https://perma.cc/MC7X-6Y3Q>].

81. *Governed by BottoDAO*, BOTTO, www.botto.com [<https://perma.cc/TLB3-UU6U>].

the only intervention at this point by humans is the selection of which descriptions to use, and the only purpose of having a human in the loop is to censor models trained on language from the internet.⁸²

Aside from artwork, AI generates news stories,⁸³ website content,⁸⁴ poetry,⁸⁵ and books.⁸⁶ It can also translate these works into almost any language; while it does not (yet) translate at the level of a professional translator, AI-based translations are nearly instantaneous and are usually free.⁸⁷ AI can even author code. Codex is an AI that can produce code in nearly a dozen programming languages from natural language.⁸⁸ Currently, it can be used to code simple programs, websites, and games using text commands.⁸⁹ AI can also compose and produce music.⁹⁰ An AI called Artificial Intelligence Virtual Artist (AIVA) is recognized by

82. *Botto's Art Engine*, B DOCS, <https://docs.botto.com/details/bottos-art-engine> [<https://perma.cc/5AMF-BAGK>]. For an unfortunate example of what happens when text from the internet is provided to AI without censorship, see Peter Lee, *Learning From Tay's Introduction*, MICROSOFT (Mar. 25, 2016), blogs.microsoft.com/blog/2016/03/25/learning-tays-introduction/ [<https://perma.cc/BQ3M-S3ME>] (apologizing for inappropriate and offensive tweets created by the AI, "Tay").

83. See, e.g., Mara Veitch, *How AI is Becoming an Integral Part of the News-Making Process*, LSE BLOGS (Jan. 25, 2021), <https://blogs.lse.ac.uk/polis/2021/01/25/how-ai-is-becoming-an-integral-part-of-the-news-making-process/> [<https://perma.cc/AUN5-DD7G>].

84. See, e.g., Fiza Bashir, *Examples of Copy Generated by Artificial Intelligence*, CRAFTLY.AI (Aug. 17, 2022), <https://www.craftly.ai/blog/examples-of-copy-generated-by-artificial-intelligence> [<https://perma.cc/88N5-J39D>]; COPY SHARK, <https://www.copyspark.ai/> [<https://perma.cc/843D-KESU>].

85. See, e.g., Carmine Starnino, *Robots are Writing Poetry, and Many People Can't Tell the Difference*, THE WALRUS (May 30, 2022, 9:46 PM), <https://thewalrus.ca/ai-poetry/> [<https://perma.cc/2T3V-6T34>].

86. See, e.g., Soumya Kundu, *Interesting Novels Written by Artificial Intelligence*, MEDIUM (Aug. 1, 2020), <https://medium.com/the-research-nest/interesting-novels-written-by-artificial-intelligence-d407e330fe07> [<https://perma.cc/88M2-VJBZ>]; see also Nicole Buckler, *AI-Written Books: Can Artificial Intelligence Write a Novel?*, BEINCRYPTO (Oct. 10, 2022, 4:22 AM), <https://beincrypto.com/ai-written-books-can-artificial-intelligence-write-novel/> [<https://perma.cc/T7F5-6ZVU>] (highlighting areas where AI excels and needs improvement as it learns to tell stories). For an example of AI producing (almost) award winning books, see Natalie Shoemaker, *Japanese AI Writes a Novel, Nearly Wins Literary Award*, BIG THINK (Mar. 24, 2016), bigthink.com/technology-innovation/a-japanese-ai-wrote-a-novel-almost-wins-literary-award/ [<https://perma.cc/BX8K-93ZX>].

87. See, e.g., *Reducing Language Barriers with Technology to Offer Free Auto-Translation for Books And Manuscripts*, SPRINGER NATURE (Oct. 18, 2021), <https://group.springernature.com/gp/group/media/press-releases/free-auto-translation-service-for-book-authors/19767218> [<https://perma.cc/D86T-4626>].

88. Wojciech Zaremba et al., *OpenAI Codex*, OPENAI (Aug. 10, 2021), <https://openai.com/blog/openai-codex/> [<https://perma.cc/D4UM-WQ59>].

89. *OpenAI Codex Software Can Turn English Instruction into Programming Code*, OMICSTUTORIALS, <https://omicstutorials.com/openai-codex-software-can-turn-english-instruction-into-programming-code/#:~:text=OpenAI%20uses%20Codex%20to%20demonstrate,and%20handle%20data%20science%20queries> [<https://perma.cc/4MQS-FU6D>].

90. See, e.g., AIVA, <https://aiva.ai> [<https://perma.cc/B5XZ-FDMJ>].

SACEM, a French non-profit association that collects and distributes payments based on artists' rights,⁹¹ as a classical music composer that autonomously produces musical pieces used in soundtracks for film, advertising, and video games.⁹² In some cases, AI systems can purportedly compose music at the level of a human composer.⁹³ Though, without reference to copyright law, for works created using generative AI to be eligible for a Grammy award, "the human authorship component of the work submitted must be meaningful and more than de minimis."⁹⁴

Whatever legal or philosophical commentators have to say about AI-generated works, they have market value. The first artwork auctioned at a major auction house to be explicitly advertised as AI-generated, the *Portrait of Edmond Belamy*, sold for \$432,500 in 2018.⁹⁵ The first four works generated by the AI Botto sold for over €1 million combined.⁹⁶ Sophia, Hanson Robotics' most famous robot, made a self-portrait in 2021 that sold for nearly \$700,000.⁹⁷ Other generative art has likewise commanded very high prices. For example, Art Blocks, a generative art platform and market founded in November 2020, has facilitated over 251,720 sales with a combined value of about \$1.41 billion.⁹⁸

Generative AI, investments in the technology, and its implications have been a hot topic of conversation for the last year.⁹⁹ In just the first

91. See *Royalties: All About Distribution*, SACEM, <https://createurs-editeurs.sacem.fr/en/Sacem-and-i/royalty-distribution> [<https://perma.cc/5L9C-DN3D>].

92. Stefan Leadbeater, *How AI is Revolutionizing the Classical Music Industry: An Analysis of the Musical AI by AIVA Technologies*, TELEFÓNICA TECH. (July 26, 2019), <https://telefonicatech.com/en/blog/how-ai-is-revolutionising-the-classical-music-industry-an-analysis-of-the-musical-ai-by-aiva-technologies> [<https://perma.cc/9UC2-9YPY>].

93. See Bartu Kaleagasi, *A New AI Can Write Music as Well as a Human Composer*, FUTURISM (Mar. 9, 2017), <https://futurism.com/a-new-ai-can-write-music-as-well-as-a-human-composer> [<https://perma.cc/PA7E-AKNL>].

94. THE RECORDING ACADEMY, 66TH GRAMMY AWARDS RULES & GUIDELINES 14 (2023), https://naras.a.bigcontent.io/v1/static/66_Rulebook9 [<https://perma.cc/9BWX-MXCV>].

95. See *Is Artificial Intelligence Set to Become Art's Next Medium?*, CHRISTIE'S (Dec. 12, 2018), <https://www.christies.com/features/a-collaboration-between-two-artists-one-human-one-a-machine-9332-1.aspx> [<https://perma.cc/LVW3-V52K>]; Gabe Cohn, *AI Art at Christie's Sells for \$432,500*, N.Y. TIMES (Oct. 25, 2018), www.nytimes.com/2018/10/25/arts/design/ai-art-sold-christies.html [<https://perma.cc/Z54P-NJKG>].

96. Josephine Joly, 'Botto', the Robot Creating Works of Art, Makes Its First Million at Auction, EURONEWS (Nov. 30, 2021, 6:54 PM), <https://www.euronews.com/culture/2021/11/30/botto-the-robot-creating-works-of-art-makes-its-first-million-at-auction> [<https://perma.cc/WQR6-P5RY>].

97. Mike Ives, *The Latest Artist Selling NFTs? It's a Robot.*, N.Y. TIMES (Mar. 25, 2021), <https://www.nytimes.com/2021/03/25/arts/sophia-robot-nft.html> [<https://perma.cc/24T3-6DLT>].

98. *Art Blocks*, DAPPRADAR, <https://dappradar.com/ethereum/collectibles/art-blocks> [<https://perma.cc/6ESX-HY64>].

99. Benjamin Larsen & Jayant Narayan, *Generative AI: A Game-changer that Society and Industry Needs to be Ready For*, WORLD ECON. F. (Jan. 9, 2023), <https://www.weforum.org/agenda/2023/01/davos23-generative-ai-a-game-changer-industries-and-society-code-developers/>

half of 2023, AI startups raised about \$23 billion.¹⁰⁰ This included Inflection AI raising \$1.3 billion in a round led by Microsoft and Nvidia and Anthropic raising \$1.25 billion and announcing a partnership with Amazon.¹⁰¹ Microsoft also announced a planned acquisition of forty-nine percent of OpenAI, for \$10 billion.¹⁰² On the economic potential of generative AI, the consulting firm McKinsey stated, “Our latest research estimates that generative AI could add the equivalent of \$2.6 trillion to \$4.4 trillion annually across the 63 use cases we analyzed—by comparison, the United Kingdom’s entire [gross domestic product] in 2021 was \$3.1 trillion.”¹⁰³ These figures are significant, but the creative economy is one of the largest and most important in the world.¹⁰⁴

II. AI-GENERATED WORKS AND COPYRIGHT LAW

A. Thaler v. Perlmutter

Despite years of academic commentary on the protectability of AI-generated works, until very recently, there has never been a case in the United States either alleging copyright infringement of an AI-generated work or challenging the Copyright Office’s Human Authorship Requirement.¹⁰⁵ There are a few possible reasons for this. It may be that copyright applicants obtained registrations without disclosing their works were AI-generated, and litigants may have prosecuted claims without the origins of their works coming to light.¹⁰⁶ Perhaps more likely, the lack of

[<https://perma.cc/T3D9-XWXS>]; Cristina Criddle & Tim Bradshaw, *Investors Seek to Profit From Groundbreaking ‘Generative AI’ Start-ups*, FIN. TIMES (Dec. 9, 2022), <https://www.ft.com/content/9c5f7154-5222-4be3-a6a9-f23879fd0d6a> [<https://perma.cc/9YY2-9Y78>]; CHUI ET AL., *supra* note 38, at 4–5.

100. Cindy Gordon, *AI Start-Up Investments Bucking Venture Capital Decline Trends*, FORBES (Aug. 31, 2023, 5:50 PM), <https://www.forbes.com/sites/cindygordon/2023/08/31/ai-start-up-investments-bucking-venture-capital-decline-trends/?sh=5216c2e940aa> [<https://perma.cc/U4FS-XJG9>].

101. Camilla Hodgson & Richard Waters, *Amazon to invest up to \$4bn in AI start-up Anthropic* (Sept. 25, 2023), <https://www.ft.com/content/1621f6ee-41da-48a7-98c9-fa161883dc6f> [<https://perma.cc/Y98R-4XCU>].

102. Ryan Browne, *Microsoft Reportedly Plans to Invest \$10 Billion in Creator of Buzzy A.I. Tool ChatGPT*, CNBC (Jan. 10, 2023, 6:44 PM), <https://www.cnbc.com/2023/01/10/microsoft-to-invest-10-billion-in-chatgpt-creator-openai-report-says.html> [<https://perma.cc/MSQ9-P9XV>].

103. CHUI ET AL., *supra* note 38, at 3.

104. See Alison Buckholtz, *The Creative Economy Takes Center Stage*, UNCTAD (Dec. 10, 2021), <https://unctad.org/news/creative-economy-takes-center-stage> [<https://perma.cc/5G89-HC8N>].

105. See generally Letter from U.S. Copyright Rev. Bd. to Ryan Abbott, *supra* note 12 (affirming the Registration Program’s denial of registration in an applicant’s second request for reconsideration of a computer-generated work when the Copyright Act of 1976 requires some level of human creativity).

106. Franklin Graves, *U.S. Copyright Office Backtracks on Registration of Partially AI-Generated Work*, IPWATCHDOG (Nov. 1, 2022, 12:15 PM), <https://ipwatchdog.com/2022/11/>

case law is due to AI-generated works having lacked value. While an AI making a mediocre song may be an exciting technical landmark, if that song is not going to generate meaningful streaming revenue, there is little point in incurring significant legal expenses to litigate over copyright.

*Thaler v. Perlmutter*¹⁰⁷ is part of the Artificial Inventor Project.¹⁰⁸ The project, led by Ryan Abbott, one of this Article’s coauthors, is

a series of pro bono legal test cases seeking intellectual property rights for AI-generated output in the absence of a traditional human inventor or author. It is intended to promote dialogue about the social, economic, and legal impact of frontier technologies such as AI and to generate stakeholder guidance on the protectability of AI-generated output.¹⁰⁹

In 2019, the Copyright Office refused to register an AI-generated 2D artwork—*A Recent Entrance to Paradise*—created by an AI named the Creativity Machine.¹¹⁰ The applicant, Stephen Thaler, applied to register the work as its owner because he is the owner, user, and developer of the Creativity Machine.¹¹¹ After the work was rejected, Thaler filed two requests for reconsideration appealing the refusal, and, on February 14, 2022, the Copyright Office finally affirmed the rejection in a final agency action.¹¹² The main justification for the denial of registration was that the work lacked a human author.¹¹³ The Review Board concluded, “[H]uman authorship is a prerequisite to copyright protection in the United States and . . . the Work therefore cannot be registered.”¹¹⁴ In June 2022, Thaler sued the Copyright Office in federal court to compel the registration of

01/us-copyright-office-backtracks-registration-partially-ai-generated-work/id=152451/ [https://perma.cc/VC6Y-VPNA] (discussing the copyright registration of a comic book called *Zarya of the Dawn*, in which the images were AI-generated).

107. No. 1:22-cv-01564, 2023 WL 5333236 (D.D.C. Aug. 18, 2023).

108. *Patents and Applications*, ARTIFICIAL INVENTOR PROJECT, https://artificialinventor.com/patent-applications/ [https://perma.cc/4DLC-REV6].

109. *Id.* Two patent applications filed in 2018 for inventions made by AI in the absence of a traditional human inventor have since resulted in a granted patent with the AI listed as the inventor and the AI’s owner as the patent owner as well as a series of landmark judicial decisions about inventorship and patentability. See Alexandra George & Toby Walsh, *Artificial Intelligence is Breaking Patent Law*, NATURE (July 22, 2020), https://www.nature.com/articles/d41586-022-01391-x [https://perma.cc/A2UZ-KGW8]. For an updated list of cases, see *Patents and Applications*, *supra* note 108; Ryan Abbott & Elizabeth Rothman, *AI-Generated Output and Intellectual Property Rights: Takeaways from the Artificial Inventor Project*, 45(4) EUR. INTELL. PROP. REV. 215 (2023).

110. Letter from U.S. Copyright Rev. Bd. to Ryan Abbott, *supra* note 12.

111. *Thaler*, 2023 WL 5333236, at *1; *Stephen L. Thaler, Ph.D.*, IMAGINATION ENGINES, www.imagination-engines.com/founder.html [https://perma.cc/TJU2-G9CW].

112. Letter from U.S. Copyright Rev. Bd. to Ryan Abbott, *supra* note 12.

113. *Id.* at 3.

114. *Id.*

the work with the Creativity Machine listed as the author and with Thaler as the owner of the copyright.¹¹⁵

While this copyright case was ongoing, independent applicants had been testing the system by attempting to register works created using text-to-image generators. One artist, Kristina Kashtanova, registered a comic book called *Zarya of the Dawn*, with images created using the generative AI system Midjourney.¹¹⁶ The USCO initially registered the work on September 15, 2022.¹¹⁷ However, after Kashtanova announced the registration of a work created using Midjourney on social media, the USCO subsequently contacted them asking for details about the use of AI in the creation of the work and notified them that the Office was considering cancelling the registration.¹¹⁸ On February 21, 2023, the USCO announced:

The Office has completed its review of the Work’s original registration application and deposit copy, as well as the relevant correspondence in the administrative record. We conclude that Ms. Kashtanova is the author of the Work’s text as well as the selection, coordination, and arrangement of the Work’s written and visual elements. That authorship is protected by copyright. However, as discussed below, the images in the Work that were generated by the Midjourney technology are not the product of human authorship. Because the current registration for the Work does not disclaim its Midjourney-generated content, we intend to cancel the original certificate issued to Ms. Kashtanova and issue a new one covering only the expressive material that she created.¹¹⁹

Following the decision on the registration of *Zarya of the Dawn*, on March 16, 2023, the USCO released “Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence”¹²⁰ discussed further in Section II.C below.

On August 18, 2023, after cross motions for summary judgment were filed in *Thaler v. Perlmutter*, the court granted the Copyright Office’s request for summary judgment on the grounds that “[h]uman authorship

115. *Thaler*, 2023 WL 5333236, at *1.

116. Sam Eichner & Aya Hatori, *A New Dawn for Copyright in AI-Generated Works?*, PILLSBURY: INTERNET + SOCIAL MEDIA (Mar. 9, 2023), <https://www.internetandtechnology.com/zarya-copyright-ai-generated-works/> [<https://perma.cc/7GCQ-78CW>].

117. U.S. COPYRIGHT OFF., REGISTRATION RECORD VAU001480196 (2022), <https://publicrecords.copyright.gov/detailed-record/34309499> [<https://perma.cc/8SQE-MD89>].

118. Graves, *supra* note 106.

119. Letter from Robert Kasunie, Assoc. Reg. of Copyrights, U.S. Copyright Off., to Van Lindberg, Esq., Couns. for Kristina Kashtanova (Feb. 21, 2023), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [<https://perma.cc/NSJ4-A3FK>].

120. Copyright Registration Guidance, 88 Fed. Reg. at 16190.

is a bedrock requirement of copyright.”¹²¹ Judge Beryl A. Howell, citing *Goldstein v. California*, acknowledged that the “Plaintiff correctly observes that throughout its long history, copyright law has proven malleable enough to cover works created with or involving technologies developed long after traditional media of writings memorialized on paper.”¹²² However, Judge Howell declined to extend protection to works created autonomously by AI, stating:

Copyright is designed to adapt with the times. Underlying that adaptability, however, has been a consistent understanding that human creativity is the sine qua non at the core of copyrightability, even as that human creativity is channeled through new tools or into new media. . . . Non-human actors need no incentivization with the promise of exclusive rights under United States law, and copyright was therefore not designed to reach them. The understanding that ‘authorship’ is synonymous with human creation has persisted even as the copyright law has otherwise evolved.¹²³

The case is currently under appeal with the U.S. Court of Appeals for the D.C. Circuit.

B. *Authors, Writings, and Originality*

Congress is empowered to regulate copyrights through the Copyright Clause of the Constitution.¹²⁴ The clause enables Congress “[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.”¹²⁵ Congress has done so by passing the Copyright Act, which protects “original works of authorship fixed in any tangible means

121. *Thayler v. Perlmutter*, No. 1:22-cv-01564, 2023 WL 5333236, at *4, *7 (D.D.C. Aug. 18, 2023).

122. *Id.* at *3.

123. *Id.* at *3–4. Based on this assumption the court found:

Given that the work at issue did not give rise to a valid copyright upon its creation, plaintiff’s myriad theories for how ownership of such a copyright could have passed to him need not be further addressed. Common law doctrines of property transfer cannot be implicated where no property right exists to transfer in the first instance. The work-for-hire provisions of the Copyright Act, too, presuppose that an interest exists to be claimed.

Id. at *6.

124. U.S. CONST. art. I, § 8, cl. 8. This clause is also sometimes referred to as the “Patent Clause” or the “Patent and Copyright Clause.”

125. *Id.* (text is generally given its eighteenth century meaning of knowledge or learning).

of expression.”¹²⁶ Neither the Constitution nor the Copyright Act defines the terms “writings” or “authors.”¹²⁷

Statutory interpretation is a complex exercise, and there is considerable controversy about whether and to what extent courts should employ textualist versus purposive approaches.¹²⁸ In general, however, interpretation is supposed to begin and end with the text if the text is plain and unambiguous.¹²⁹ Given an undefined term, the U.S. Supreme Court generally applies a word’s “ordinary meaning.”¹³⁰ There are many canons or techniques employed to determine ordinary meaning, including looking to common usage of a word, case law, parallel reasoning, etc.¹³¹ Courts also typically reference dictionary definitions, which vary. Here, Merriam-Webster defines an “author” as, “one that originates or creates something,”¹³² and “one” is defined as “a single person or thing.”¹³³ Literally, the Copyright Act is agnostic to the humanity of an author. If a text is ambiguous—for example, if it could be reasonably interpreted in more than one manner—courts more liberally attempt to determine legislative intent, which can include looking to legislative history and purpose.¹³⁴

The Copyright Act also does not quantify the level of creativity required for originality, but numerous courts have considered the issue.¹³⁵ In what has become the leading case on originality, *Feist Publications v. Rural Telephone Service*,¹³⁶ the Supreme Court noted that originality is a “bedrock principle of copyright” and “the very premise of copyright

126. 17 U.S.C. § 102.

127. *Goldstein v. California*, 412 U.S. 546, 561 (1973).

128. See generally Richard H. Fallon Jr., *Three Symmetries Between Textualist and Purposivist Theories of Statutory Interpretation — and the Irreducible Roles of Values and Judgment Within Both*, 99 CORNELL L. REV. 685 (2014) (analyzing textualist and purposivist approaches to statutory interpretation).

129. *BedRoc Ltd. v. United States*, 541 U.S. 176, 183 (2004).

130. See *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012).

131. See Fallon Jr., *supra* note 128, at 707–10.

132. *Author*, MERRIAM-WEBSTER DICTIONARY (2023).

133. *One*, MERRIAM-WEBSTER DICTIONARY (2023).

134. See generally Fallon Jr., *supra* note 128 (discussing the methods that courts use to determine legislative intent).

135. At various times, courts have waxed philosophical about originality being associated with an author’s personality, genius, or creativity. For instance, in *Bleistein v. Donaldson Lithographing Co.*, the Supreme Court stated, “The copy is the personal reaction of an individual upon nature. Personality always contains something unique . . . something irreducible, which is one man’s alone. That something he may copyright[.]” 188 U.S. 239, 250 (1903); cf. *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 102–03 (2d Cir. 1951) (stating that “[o]riginal” in copyright law means only that the particular work “owes its origin to the author” and that “[o]riginality in this context means little more than a prohibition of actual copying”) (internal quotations marks omitted).

136. 499 U.S. 340 (1991).

law.”¹³⁷ It held that information alone without some creativity cannot be protected by copyright,¹³⁸ and that “some minimal degree of creativity” is required, although “the requisite level of creativity is extremely low” such that even a “slight amount” will suffice.¹³⁹ “The vast majority of works make the grade quite easily, as they possess some creative spark, ‘no matter how crude, humble or obvious’ it might be.”¹⁴⁰ Creativity does not need to “be presented in an innovative or surprising way,” but it “cannot be so mechanical or routine as to require no creativity whatsoever.”¹⁴¹ In *Feist*, organizing a telephone book alphabetically was found to be too mechanical to be protectable, even though the process was performed by a person.¹⁴²

As Part I has demonstrated, AI-generated works can meet the minimal creativity standards required for a work to qualify as original—at least if creativity is being considered objectively based on the work.¹⁴³ Although no case explicitly holds that an AI-generated work is unprotectable, numerous judicial decisions have framed creativity and originality in human-centric terms.¹⁴⁴

C. *The Human Authorship Requirement*

In 1973, the Copyright Office first published its policy of denying registrations for AI-generated works.¹⁴⁵ The most recent iteration, published in 2021, states:

The U.S. Copyright Office will register an original work of authorship, provided that the work was created by a human being. The copyright law only protects “the fruits of intellectual labor” that “are founded in the creative powers of the mind.” *Trade-Mark Cases*, 100 U.S. 82, 94 (1879). Because copyright law is limited to “original intellectual conceptions of the author,” the Office will refuse to register a claim if it determines that a human being did not create the

137. *Id.* at 347 (internal quotation marks omitted).

138. *Id.* at 362.

139. *Id.* at 345.

140. *Id.* (citation omitted).

141. *Id.* at 362.

142. *Id.*

143. For instance, one study asked participants to identify whether a poem was created by a human poet or an algorithm. Nils. Köbis & Luca D. Mossink, *Artificial Intelligence Versus Maya Angelou: Experimental Evidence that People Cannot Differentiate AI-Generated from Human-Written Poetry*, 114 COMPUT. HUM. BEHAV. 1, 7 (2021), <https://www.sciencedirect.com/science/article/pii/S0747563220303034?via%3Dihub> [<https://perma.cc/T3AA-N2SC>]. The participants were not able to reliably distinguish the poetry’s origin. *Id.*

144. Letter from U.S. Copyright Rev. Bd., to Ryan Abbott, *supra* note 12.

145. See COMPENDIUM (FIRST), *supra* note 10, at § 2.8.3.

work. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884).¹⁴⁶

The citations referenced above come from two cases that took place in the late nineteenth century—somewhat before the existence of generative AI. In the *In re Trade-Mark Cases*,¹⁴⁷ interpreting the Copyright Clause to exclude the power to regulate trademarks, the Court stated, in dicta, that the term “writings” may be construed liberally but noted that writings that are “original, and are founded in the creative powers of the mind” and that are “the fruits of intellectual labor, embodied in the form of books, prints, engravings, and the like” may be protected.¹⁴⁸

In *Burrow-Giles Lithographic Co. v. Sarony*,¹⁴⁹ the accused infringer of a famous photograph of Oscar Wilde argued that a photograph did not qualify as a “writing” or as the work of an “author” because “the photograph is the mere mechanical reproduction of the physical features or outlines of some object, animate or inanimate, and involves no originality of thought or any novelty in the intellectual operation connected with its visible reproduction in shape of a picture.”¹⁵⁰ The Court ruled for the photographer, noting that all forms of writing “by which the ideas in the mind of the author are given visible expression” were eligible for copyright protection as an original work of art.¹⁵¹ The Court declined to say that all photographs would meet the standard but in this instance held the photographer had shown “facts of originality, of intellectual production, of thought, and conception on the part of the author” to prove there was a copyrightable work.¹⁵² *Sarony* is a significant case, among other reasons, because it deals with how the law should respond to technological evolution—there, photographs and whether a camera’s involvement negates human authorship.¹⁵³ The Supreme Court ended up interpreting “writing” purposively and consistently with the goals of the Copyright Act, rather than applying a textual approach relying exclusively on a dictionary, literal meaning, or common usage of the word.¹⁵⁴

146. COMPENDIUM (THIRD), *supra* note 11, at § 306.

147. 100 U.S. 82 (1879).

148. *Id.* at 94.

149. 111 U.S. 53 (1884).

150. *Id.* at 57–59.

151. *Id.* at 58.

152. *Id.* at 60. The Court called the photograph a “useful, new, harmonious, characteristic, and graceful picture,” which Sarony made “entirely from his own original mental conception, to which he gave visible form by posing the said Oscar Wilde in front of the camera, selecting and arranging the costume, draperies, and other various accessories . . .” *Id.* at 55, 60.

153. See Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 57 B.C. L. REV. 1079, 1100–01 (2016).

154. *Sarony*, 111 U.S. at 58.

Although *Thaler v. Perlmutter* was the first court decision specifically on AI-generated works,¹⁵⁵ several cases have involved protection for “non-human” (and non-corporate) generated works—including those involving spiritual mediums. In *Urantia v. Maaherra*,¹⁵⁶ the U.S. Court of Appeals for the Ninth Circuit was confronted with the question of whether a book that both parties agreed was dictated by a spiritual being was copyrightable.¹⁵⁷ Though the court stated human authorship is not expressly required by the copyright law,¹⁵⁸ the court also stated that:

it is not creations of divine beings that the copyright laws were intended to protect, and that in this case some element of human creativity must have occurred in order for the Book to be copyrightable. At the very least, for a worldly entity to be guilty of infringing a copyright, that entity must have copied something created by another worldly entity. . . . [N]otwithstanding the *Urantia Book*’s claimed non-human origin, the Papers in the form in which they were originally organized and compiled . . . were at least partially the product of human creativity.¹⁵⁹

In *Penguin Books U.S.A., Inc. v. New Christian Church of Full Endeavor*, a district court was again confronted with whether a book, *A Course in Miracles*, purportedly dictated by Jesus, was copyrightable.¹⁶⁰ The court noted several times that most editing decisions were allegedly made *in consultation* with Jesus, including the decision to register a copyright in the book, but found grounds for attributing authorship to the humans involved in the “arrangement and selection of the materials.”¹⁶¹ After finding for the plaintiffs, the court discussed another basis for copyright protection citing *Urantia* and the English case *Cummins v. Bond*,¹⁶² which also involved a spiritual dictation.¹⁶³ The court stated that

155. Letter from U.S. Copyright Rev. Bd., to Ryan Abbott, *supra* note 12.

156. 114 F.3d 955 (9th Cir. 1997).

157. *Id.* at 958.

158. *Id.* (“Maaherra claims that there can be no valid copyright in the Book because it lacks the requisite ingredient of human creativity, and that therefore the Book is not a ‘work of authorship’ within the meaning of the Copyright Act. The copyright laws, of course, do not expressly require ‘human’ authorship, and considerable controversy has arisen in recent years over the copyrightability of computer-generated works.”).

159. *Id.* at 958–59.

160. *Penguin Books U.S.A., Inc. v. New Christian Church of Full Endeavor*, No. 96 CIV. 4126, 2000 WL 1028634, at *1 (S.D.N.Y. July 25, 2000).

161. *Id.* at *11.

162. See generally Lee Blewitt, *Copyright of Automatic Writing*, 13 VA. L. REV. 22 (1927) (discussing *Cummins v. Bond*).

163. *Penguin Books*, 2000 WL 1028634, at *11–12; MELVILLE NIMMER, NIMMER ON COPYRIGHT, § 2.11[C] n.86 (2013) [hereinafter NIMMER]. Nimmer also cites to *Cummins*, “in which plaintiff medium produced a contemporary account of the Apostles by engaging in

a human contribution should not be negated by any non-human involvement, much like a camera, noting that “[a]s a matter of law, dictation from a non-human source should not be a bar to copyright.”¹⁶⁴

Not all non-human authorship involves spiritual intervention. *Naruto v. Slater*¹⁶⁵ concerned copyright protection of “monkey selfies,” a series of photographs taken by Naruto, an Indonesian crested black macaque, using a camera belonging to the nature photographer David Slater.¹⁶⁶ Slater attempted to commercialize the photographs and claimed that he was their author.¹⁶⁷ He was then sued by People for the Ethical Treatment of Animals (PETA) on Naruto’s behalf, with PETA alleging that Naruto was the author and that PETA would help administer the copyrights.¹⁶⁸ The U.S. Court of Appeals for the Ninth Circuit dismissed the case, but based on standing rather than the Human Authorship Requirement.¹⁶⁹ The court held that “if an Act of Congress plainly states that animals have statutory standing, then animals have statutory standing. If the statute does not so plainly state, then animals do not have statutory standing. The Copyright Act does not expressly authorize animals to file copyright infringement suits under the statute.”¹⁷⁰ The Ninth Circuit was apparently unconcerned about a literal interpretation of the word “animals” barring human lawsuits.

The most recent USCO guidance released in March 2023 in the aftermath of the *Recent Entrance to Paradise* and *Zarya of the Dawn* decisions states, “If a work’s traditional elements of authorship were produced by a machine, the work lacks human authorship and the Office will not register it.”¹⁷¹ It states with respect to the use of prompts:

For example, when an AI technology receives solely a prompt from a human and produces complex written, visual, or musical works in response, the “traditional elements of authorship” are determined and executed by the technology—not the human user. . . . When an AI technology determines the expressive elements of its output,

‘automatic writing’ from a 1900-year-old spirit.” NIMMER, *supra*. The Chancery judge in *Cummins* noted that he lacked jurisdiction in “the sphere in which [the dead spirit] moves” and declined to hold that “authorship and copyright rest with some one already domiciled on the other side of the inevitable river.” *Id.* (alteration in original).

164. *Penguin Books*, 2000 WL 1028634, at *12. However, the court noted that in this case the plaintiff was estopped from directly asserting authorship on that basis because she had already disclaimed authorship. *Id.*

165. 888 F.3d 418 (9th Cir. 2018).

166. *Id.* at 420, 437 n.11.

167. *Id.* at 420.

168. *Id.*

169. *Id.* at 426.

170. *Id.*

171. Copyright Registration Guidance, 88 Fed. Reg. at 16192.

the generated material is not the product of human authorship. As a result, that material is not protected by copyright and must be disclaimed in a registration application.¹⁷²

The USCO has further clarified that the obligation to disclose AI-generated elements rests on whether the material in the work generated by AI is appreciable or de minimis.¹⁷³ The standard for ascertaining what is appreciable is: “Would that content be copyrightable if created by a human author?”¹⁷⁴

D. *Bypassing the Human Authorship Requirement*

A cursory search of Copyright registrations shows that AI-generated works likely have been registered with the Copyright Office despite the Human Authorship Requirement.¹⁷⁵ The Office has not previously

172. *Id.*

173. Leo Loughlin et al., *3 Takeaways From The Copyright Office’s AI Webinar*, JD SUPRA (July 5, 2023), <https://www.jdsupra.com/legalnews/3-takeaways-from-the-copyright-office-s-2369383/> [<https://perma.cc/N5X3-82L4>].

174. *Id.*

175. Endel, for example, is an app that autonomously creates personalized relaxing soundscapes based on heart rate, circadian rhythm, and weather by pulling live data from a user’s smartphone. *The Science of Endel*, ENDEL, <https://endel.io/> [<https://perma.cc/S76R-LD93>]. Endel’s developers signed a distribution deal with Warner Records, publishing twenty albums of purportedly autonomously created songs. Daniel Campos, *An Algorithm...with a Record Deal?*, HARV. BUS. SCH.: DIGI. INNOVATION & TRANSFORMATION (Apr. 18, 2021), digital.hbs.edu/platform-digit/submission/an-algorithmwith-a-record-deal/ [<https://perma.cc/B76L-4WSA>]; Dani Deahl, *Warner Music Signed an Algorithm to A Record Deal—What Happens Next?*, THE VERGE (Mar. 27, 2019, 9:55 AM), www.theverge.com/2019/3/27/18283084/warner-music-algorithm-signed-ambient-music-endel [<https://perma.cc/AH7D-29Y8>] (“Dmitry Evgrafov, Endel’s composer and head of sound design, says all 600 tracks were made ‘with a click of a button.’ There was minimal human involvement outside of chopping up the audio and mastering it for streaming. Endel even hired a third-party company to write the track titles. Five Endel albums have already been released, and 15 more are coming this year — all of which will be generated by code.”). The company appears to have registered copyrights for these albums as a Work Made for Hire. *See, e.g.*, ENDEL – “SLEEP: CLOUDY AFTERNOON”, Registration No. SR0000849083. Endel has additionally filed 19 other copyrights: ENDEL – “FOCUS: CALM CLEAR MORNING”, Registration No. SR0000854412; ENDEL – “FOCUS: CALM CLOUDY AFTERNOON”, Registration No. SR0000854432; ENDEL – “FOCUS: STRESSED CLEAR MORNING”, Registration No. SR0000854328; ENDEL – “FOCUS: STRESSED SNOWY NIGHT”, Registration No. SR0000854418; ENDEL – “FOCUS: TENSE RAINY MORNING”, Registration No. SR0000854413; ENDEL – “RELAX: CLEAR AFTERNOON”, Registration No. SR0000854416; ENDEL – “ON THE GO: ATHLETIC FOGGY AFTERNOON”, Registration No. SR0000854330; ENDEL – “ON THE GO: ATHLETIC RAINY MORNING”, Registration No. SR0000854429; ENDEL – “ON THE GO: BRISK CLEAR MORNING”, Registration No. SR0000854430; ENDEL – “ON THE GO: BRISK RAINY AFTERNOON”, Registration No. SR0000854428; ENDEL – “ON THE GO: IDLE CLEAR EVENING”, Registration No. SR0000854426; ENDEL – “RELAX: CLOUDY MORNING”, Registration No. SR0000854422; ENDEL – “RELAX: FOGGY MORNING”, Registration No. SR0000854433;

checked to see whether a work is AI-generated, nor have they required applicants to attest that a work is human-generated.¹⁷⁶ Someone could file for an AI-generated work and simply list a person as an author—the AI is unlikely to complain. Someone could also file for an AI-generated work as a Work Made for Hire (WMFH) by virtue of employment (or otherwise), in which case there is no requirement to list any author.¹⁷⁷ Or someone could register the work anonymously or pseudonymously.¹⁷⁸ The Copyright Office notes that applicants are not supposed to circumvent the Human Authorship Requirement, and, assuming an applicant knows about the requirement, that the office considers deliberately registering an AI-generated work without disclosing the role of AI to be fraud.¹⁷⁹

Registration is not a requirement for the existence of copyright.¹⁸⁰ Copyright exists automatically in an original work once fixed, but registration is (usually) necessary to enforce copyright through litigation.¹⁸¹ Registration also allows copyright owners to seek enhanced damages and attorney's fees in litigation, and it provides a variety of additional benefits.¹⁸² With or without registration, the mere threat of copyright infringement litigation can be enough to drive settlements from alleged infringers.

If an applicant registered an AI-generated work with the Copyright Office without disclosing how the work was made, and if the work was enforced in litigation, its origins might come to light in the discovery process. If courts then applied a Human Authorship Requirement that would be a defense to infringement, because it would render the

ENDEL – “RELAX: RAINY AFTERNOON”, Registration No. SR0000854326; ENDEL – “RELAX: RAINY EVENING”, Registration No. SR0000854420; ENDEL – “SLEEP: CLEAR NIGHT”, Registration No. SR0000849100; ENDEL – “SLEEP: CLOUDY NIGHT”, Registration No. SR0000849078; ENDEL – “SLEEP: FOGGY MORNING”, Registration No. SR0000849086; ENDEL – “SLEEP: RAINY NIGHT”, Registration No. SR0000849089. In addition, an artist registered a copyright in a Midjourney image and wrote about it on his blog that appears to still be a valid registration. *AI Art and Copyright Some More*, CEOLN (Oct. 1, 2021, 2:27 PM), <https://ceoln.wordpress.com/2022/10/01/ai-art-and-copyright-some-more/> [<https://perma.cc/5MVP-RQ2X>]; A BLONDE PORCELAIN DOLL AND A WORN TEDDY BEAR SIT ON A TRUNK, IN A MUSTY ATTIC IN LIGHT FROM THE WINDOW, Registration No. VA0002317843. Either these works were not really created autonomously or they should have been rejected by the Copyright Office.

176. See *Work of the Visual Arts, Application Format: Standard*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/registration/docs/va-standard.pptx> [<https://perma.cc/HDK6-3GUL>] (demonstrating that authors did not have to certify whether the work was created by a human or AI).

177. See 17 U.S.C. § 201(b).

178. 17 U.S.C. § 409(2).

179. See Letter from U.S. Copyright Rev. Bd., to Ryan Abbott, *supra* note 12.

180. 17 U.S.C. § 408(a).

181. COMPENDIUM (THIRD), *supra* note 11, at § 202.

182. *Id.*

plaintiff's claim to copyright ownership invalid—so there could be no infringement.¹⁸³ On the other hand, even if a court was inclined to apply such a requirement, not all lawsuits involve discovery, and defense attorneys may not thoroughly investigate how a work was made. Plus, even attorneys aware of the Human Authorship Requirement and suspicious of a work's origin may be frustrated by discovery failures or bad behavior.

Many AI art generators available online have terms and conditions that state either that the AI provider owns any copyright in AI output, that the provider transfers its rights to the user, or that the provider will license the images or music to the user.¹⁸⁴ For example, Night Café, a website that hosts several text-to-image generation models, until mid-2022 stated in its terms of service that “all intellectual property rights in that specific Artwork is transferred” to the consumer.¹⁸⁵ The website currently states that it cannot guarantee that users will be able to claim copyright in the images created due to “the evolving and developing nature of the law around AI created works.”¹⁸⁶ AIVA, the AI composer service, still states as of mid-2023 that the company owns all rights but will license or sell them for a fee.¹⁸⁷ For the release of large models in an open source fashion, many companies and groups, including Stability AI, have adopted licenses such as the Responsible AI Licenses (RAIL), allowing for permissive use of the models but “restricting AI and ML software from being used in a specific list of harmful applications, e.g. in surveillance and crime prediction, while allowing all other applications.”¹⁸⁸

E. Government Inquiry into AI-Generated Works

In 1966, the Register of Copyrights, Abraham Kaminstein, identified the role of AI in the creative process as one of the major problems

183. *Malibu Media, LLC v. John Does 1, 13, 14, 16*, No. 12-2078, 2013 WL 1702549, at *4 (E.D. Pa. Mar. 6, 2013) (“The claim that a copyright is invalid under federal law is an effective defense because ownership of a valid copyright is a necessary requirement to bringing an infringement suit in the first place.” (citing *Feist Publ'ns v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991))).

184. For a non-exhaustive list of AI-art generators online, see Alex McFarland, *10 Best AI Art Generators*, UNITE.AI (Aug. 1, 2023), www.unite.ai/10-best-ai-art-generators/ [https://perma.cc/FF6F-B9HA].

185. *Terms of Service*, NIGHTCAFE (June 28, 2022), <https://web.archive.org/web/20220628203812/https://nightcafe.studio/policies/terms-of-service> [https://perma.cc/A3U5-4PQ7].

186. *Terms of Service*, NIGHTCAFE, nightcafe.studio/policies/terms-of-service [https://perma.cc/A3U5-4PQ7].

187. *AIVA End User License Agreement*, AIVA, <https://www.aiva.ai/legal/1> [https://perma.cc/8WFE-NA27].

188. *About — Responsible AI Licenses*, RESPONSIBLE AI LICENSES, <https://www.licenses.ai/about> [https://perma.cc/9EX5-4MHA]; *Stable Diffusion Public Release*, *supra* note 79.

confronting the Copyright Office.¹⁸⁹ The office had already received applications for AI-assisted or AI-generated works including an abstract drawing, a musical composition, and compilations.¹⁹⁰ Though he announced no policy for dealing with such applications, he suggested the relevant issue should be whether an AI was merely an assisting instrument, as with a camera, or whether an AI was responsible for conceiving and executing the elements required for authorship.¹⁹¹

In 1974, Congress created the Commission on New Technological Uses of Copyrighted Works (CONTU) to study issues related to copyright and computers, including AI-generated works.¹⁹² CONTU wrote in 1979 that there was no need for special treatment of AI-generated works because they did not exist and were not immediately foreseeable.¹⁹³ According to CONTU, the AI of the time was not autonomously generating creative results, it was simply assisting human authors.¹⁹⁴ CONTU did, however, unanimously conclude that “[w]orks created by the use of computers should be afforded copyright protection if they are original works of authorship within the Act of 1976.”¹⁹⁵ The CONTU report stated, “The eligibility of any work for protection depends not upon the device or devices used in its creation, but rather upon the presence of at least minimal human creative effort at the time the work is produced.”¹⁹⁶ The Commission found that the author of an AI-assisted work is the person “who employs the computer.”¹⁹⁷

In 1986, nearly a decade later, technological advances prompted Congress’s Office of Technology Assessment (OTA) to issue a report emphasizing that the increasing sophistication of AI posed more challenges than CONTU acknowledged.¹⁹⁸ OTA was critical of CONTU’s conclusion that AIs were merely “inert tools of creation” and indicated in many cases they were at least “co-creators.”¹⁹⁹ The OTA

189. See U.S. COPYRIGHT OFF., SIXTY-EIGHTH ANNUAL REPORT OF THE REGISTER OF COPYRIGHTS 4–5 (1966).

190. *Id.* at 5.

191. *Id.*

192. *Copyright & Information Policy*, UMASS AMHERST LIBRS., <https://blogs.umass.edu/copyright/copyright-basics/contu/#:~:text=CONTU%2C%20the%20Commission%20on%20New,of%20the%20landmark%20Copyright%20Act> [https://perma.cc/5JRX-FATN]; NAT’L COMM’N ON NEW TECH. USES OF COPYRIGHTED WORKS, FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS 1 (1979).

193. NAT’L COMM’N ON NEW TECH. USES OF COPYRIGHTED WORKS, *supra* note 192, at 44.

194. *Id.*

195. *Id.* at 1.

196. *Id.* at 45.

197. *Id.*

198. OFF. OF TECH. ASSESSMENT, U.S. CONGRESS, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS AND INFORMATION 70–72 (1986).

199. *Id.* at 72.

report did not state that AI-generated works were ineligible for copyright protection, but it did predict problems with determining authorship.²⁰⁰

In 1993, Arthur Miller, one of CONTU's commissioners, expressed confidence that "if the day arrives when a computer really is the sole author of an original artistic, musical, or literary work (whether novel or computer program), copyright law will be embrasive and malleable enough to assimilate that development into the world of protected works."²⁰¹ He explained that "CONTU did not attempt to determine whether a computer work generated with little or no human involvement is copyrightable" because it was "too speculative to consider at the time."²⁰²

In 2019, the U.S. Patent and Trademark Office (USPTO) sought public comment on whether a "work produced by an AI algorithm or process, without the involvement of a natural person . . . qualif[ies] as a work of authorship protectable under U.S. copyright law."²⁰³ A subsequent report concluded that most commenters agreed there was no need to modify current IP laws.²⁰⁴ However, the report relied on a series of questionable assumptions about AI.²⁰⁵ For example, the conclusion

200. *Id.* at 73.

201. Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977, 1073 (1993).

202. *Id.* at 1070 & n.461. With respect to whether AI-generated works would eventually be permitted under the Copyright Act, he states:

It is far from clear that the federal courts ultimately will conclude that our copyright law requires human authorship, although that conclusion may have an emotional appeal to many. The Constitution's reference to "authors" does not prevent the protection of computer-created works because that reference does not mandate that authors be flesh and blood. Textually, the Clause says little more than that 'Authors' are those responsible for creating the "Writings" that Congress chooses to protect. Two centuries ago, that meant only maps, charts, and books, all of which at that time had only human authors. Today, of course, "Writings" embraces an amazing spectrum of modes of expression completely unknown at that time, including computer programs, computer databases, sound recordings, motion pictures, photographs, and countless others. There is no reason why "Authors" cannot undergo a comparable transformation. Certainly, the policies underlying copyright do not prevent it; if anything, these policies might well be inhibited by a human author requirement.

Id. at 1065.

203. See U.S. PAT. & TRADEMARK OFF., PUBLIC VIEWS ON ARTIFICIAL INTELLIGENCE AND INTELLECTUAL PROPERTY POLICY 19 (2020), https://www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf [<https://perma.cc/PE6N-UL7A>].

204. *Id.* at 20–21.

205. For example, when asked, "Should an entity or entities other than a natural person, or company to which a natural person assigns a copyrighted work, be able to own the copyright on the AI work?" a commenter responded, "No. Ownership should vest in the author (or employer

that there was no need to change current laws is based on the view that general AI has yet to arrive.²⁰⁶ But, as discussed above, narrow AI is perfectly capable of automating the creation of new works. The report also showed a lack of consensus from commenters regarding how involved a person needs to be in the creative process to obtain copyright protection.²⁰⁷

More recently, in the United States, the Senate Subcommittee on Intellectual Property held a hearing in June 2023 on AI and patent law and AI and copyright law as part of a series on AI and IP.²⁰⁸ The USPTO issued a Request For Comments on AI and patent inventorship in February 2023.²⁰⁹ As part of an initiative launched in 2023,²¹⁰ the USCO has been holding listening sessions on AI and copyright with stakeholders and conducting webinars to inform the public and clarify its position and disclosure requirements on AI-generated output and copyright law.²¹¹ In addition, the USCO issued a notice seeking comments on a number of issues related to AI-generated works, including the legal status of AI generated output.²¹²

of the author, in the case of works made for hire) and may then be assigned to another natural or juridical person.” *Id.* at 28–29.

206. *Id.* at 29–30.

207. *See id.* at 21–22 (explaining that a majority of commenters indicated that copyright law should require some level of intervention from a natural person for a work to receive protection, but also showing that “[a] minority of commenters suggested that a sufficiently creative work made by AI without human intervention should be copyrightable”).

208. *Artificial Intelligence and Intellectual Property – Part I: Patents, Innovation, and Competition*, U.S. SENATE COMM. ON THE JUDICIARY (June 7, 2023), https://www.judiciary.senate.gov/artificial-intelligence-and-intellectual-property_part-i-patents-innovation-and-competition [<https://perma.cc/DVW4-PQ8W>]; *Artificial Intelligence and Intellectual Property – Part II: Copyright*, U.S. SENATE COMM. ON THE JUDICIARY (June 12, 2023), https://www.judiciary.senate.gov/artificial-intelligence-and-intellectual-property_part-ii-copyright [<https://perma.cc/QN48-Y9B7>].

209. Request for Comments Regarding Artificial Intelligence and Inventorship, 88 Fed. Reg. 9492–94 (Feb. 14, 2023), <https://www.federalregister.gov/documents/2023/02/14/2023-03066/request-for-comments-regarding-artificial-intelligence-and-inventorship> [<https://perma.cc/PT43-DPEV>].

210. *Copyright Office Launches New Artificial Intelligence Initiative*, COPYRIGHT.GOV., (Mar. 16, 2023), <https://www.copyright.gov/newsnet/2023/1004.html> [<https://perma.cc/Q3B8-PMMN>].

211. *Spring 2023 AI Listening Sessions*, *supra* note 53.

212. *Copyright Office Issues Notice of Inquiry on Copyright and Artificial Intelligence*, COPYRIGHT.GOV (Aug. 30, 2023), <https://www.copyright.gov/newsnet/2023/1017.html> [<https://perma.cc/29MJ-8M9B>]; *see also U.S. Copyright Office Extends Deadline for Comments on Artificial Intelligence Notice of Inquiry*, COPYRIGHT.GOV (Sept. 21, 2023), <https://www.copyright.gov/newsnet/2023/1021.html> [<https://perma.cc/EP9P-RZSU>].

F. Academic Viewpoints

There is a rich body of literature on AI and IP, AI-assisted and AI-generated works, and AI authorship.²¹³ Opinions vary widely, but most commentators believe that AI-generated works should not be protected because copyright law is designed to encourage human creativity or because the market failures that copyright law is designed to solve do not exist the same way in the context of AI-generated works.

For example, Professor Daniel Gervais argues that, while AI-generated works can resemble human-generated works, AI-generated works should not receive protection because there is no human author.²¹⁴ He gives several reasons for this conclusion, such as because AI needs no incentive to create.²¹⁵ Further, “copyright is meant to promote human creativity,” and creating incentives to have more productions in the literary and artistic field made by machines could in fact pose a threat to (human) progress.²¹⁶ In his view, just because modern authorship is more “collective and collaborative,” it does not follow that machines should come “under the same normative umbrella.”²¹⁷ In addition, he argues that if AI cannot accept liability for its creations, it would be unreasonable to make it an author—“no rights without responsibilities.”²¹⁸

213. See, e.g., Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185, 1192, 1199–1200 (1986) (arguing for protection of AI-generated works, but that AI cannot be an author because AI does not need incentives to generate output: “[o]nly those stuck in the doctrinal mud could even think that computers could be ‘authors’”); Ralph D. Clifford, *Intellectual Property in the Era of the Creative Computer Program: Will the True Creator Please Stand Up?*, 71 TUL. L. REV. 1675, 1681, 1702–03 (1997) (arguing the AI-generated works cannot and should not be protected by copyright); Shlomit Yanisky-Ravid, *Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era—The Human-like Authors are Already Here—A New Model*, 2017 MICH. ST. L. REV. 659, 671, 725 (2017) (debating accountability in this context and suggesting that ownership of AI-generated works should vest in an AI user).

214. See Gervais, *supra* note 43, at 2068, 2093–94.

215. *Id.* at 2062 (“One can posit that machines programmed to produce new literary and artistic productions need no economic incentive to do so, unlike human authors who are trying to live from their craft.”); see also Robert Yu, *The Machine Author: What Level of Copyright Protection Is Appropriate for Fully Independent Computer-Generated Works?*, 165 U. PA. L. REV. 1245, 1264 (2017) (“[A]llocating the copyright to the programmer would create few additional incentives for other programmers to code programs that generate machine-authored works. At worst, such a regime would enable widespread monopolization of all future works generated by a single software program, skewing the law disproportionately in favor of content producers to the detriment of the public.”).

216. Gervais, *supra* note 43, at 2106 (“[M]achines cannot make the creative choices that are required to generate originality, and originality is a sine qua non of copyright. In short, current law does not protect machine productions.”).

217. *Id.* at 2083–84.

218. *Id.* at 2087 (“This Article cannot, therefore, agree with the suggestion that copyright rights should be recognized in the outcome of deep learning processes that generate productions

Professors Carys Craig and Ian Kerr argue that AI authorship is “oxymoronic.”²¹⁹ They believe that “the threshold for attributing authorship does not depend on the evolution or state of the art in AI or robotics.”²²⁰ Instead, “the very notion of ‘AI authorship’ rests on a category mistake: it is not an error about the current or potential capacities, capabilities, intelligence, or sophistication of machines; rather, it is an error about the ontology of authorship.”²²¹ Believing that “human communication is the very point of authorship as a social practice,” they argue that authorship is “properly the preserve of the human.”²²² They suggest authorship is relational and that “it necessitates a vision of authorship as a dialogic and communicative act that is inherently social, with the cultivation of selfhood and social relations as the entire point of the practice.”²²³ They are also concerned about the romanticization of AI and worry that AI authorship could harm human authors and society.²²⁴ They argue that, even if the connection between human and AI is obscured to the point where it becomes impossible to trace creative elements to the mind of a human author, “[i]t simply does not follow that AIs either could or should therefore be understood as potentially stepping into the category of ‘authors.’”²²⁵

Along the lines of the USPTO report discussed above, Professor James Grimmelmann argues that AI-generated works do not currently exist and claims that they will not until AI achieves something like general artificial intelligence.²²⁶ He states, “The scholarship pondering the possibility of computer-authored works is surprisingly extensive, even though no one has ever exhibited even one work that could plausibly claim to have a computer for an ‘author’ in the sense that the Copyright Act uses the term.”²²⁷ This is so, even if it is difficult to identify a human

that look like copyrightable subject matter, at least not until and unless the machine, as purported ‘author’ (as a matter of copyright law), can accept full responsibility for ‘its’ creation. Furthermore, this conclusion can be anchored in the well-established correlativity thesis (‘no rights without responsibilities’) essential to rights theory. . . . This is a central normative point, anchored in copyright history: No copyright should be granted to an author who is not also responsible for the work’s meaning and content, whether it be libel or copyright infringement.”).

219. Carys J. Craig & Ian R. Kerr, *The Death of the AI Author*, 52 OTTAWA L. REV. 31, 42 (2020).

220. *Id.*

221. *Id.* at 86.

222. *Id.*

223. *Id.* at 44.

224. *Id.* at 44–45.

225. *Id.* at 72.

226. 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, 403 (2016).

227. *Id.* at 403, 414 (“It is possible that some future computer programs could qualify as authors. We could well have artificial intelligences that are responsive to incentives, unpredictable enough that we can’t simply tell them what to do, and that have attributes of personality that make

author, which, he notes, is not unusual in authorship disputes among people.²²⁸

Professor Jane Ginsburg and Luke Budiardjo argue that even the most advanced AIs are mere agents of human programmers or users.²²⁹ They suggest that asking whether AI can be an author is the wrong question.²³⁰ The right question is how to evaluate the claims of human authorship—acknowledging that, in some situations, authorship claims will be too attenuated and works authorless.²³¹ They write,

Even the most sophisticated generative machines proceed through processes designed entirely by humans who program them, and are therefore closer to amanuenses than to true “authors”. Therefore, even if the concept of “author” in the United States Constitution and the Copyright Act could encompass non-human actors, the machines of today would not qualify as “authors.”²³²

Because they see machines as mere agents,²³³ they claim that “[a]rtificially intelligent machines . . . do not usurp human authorship as long as humans sufficiently ‘control’ them. Since we have posited that computers cannot run off on a ‘frolic of their own,’ some humans will wield the requisite control”²³⁴ They conclude, “Vesting authorship in the task assigner would sidestep the requirement that authors contribute ‘expression,’ and not merely ‘ideas’”²³⁵

Professor Annemarie Bridy calls AI authorship “a bad penny of a question.”²³⁶ She argues the better focus is on copyright ownership and concludes AI-generated works should be copyrightable but that this would require modifying the work for hire doctrine.²³⁷

AI authorship is readily assimilable to the current copyright framework through the work made for hire doctrine, which is a mechanism for vesting copyright directly in a legal

us willing to regard them as copyright owners. But if that day ever comes, it will because we have already made a decision in other areas of life and law to treat them as persons, and copyright law will fall in line. But unless those mechanical minds also invent workable time travel, their future existence is of no bearing now. The copyright issues we would face on that far off day are fundamentally different in kind from those we face today.”).

228. *Id.* at 404.

229. *See* Ginsburg & Budiardjo, *supra* note 43, at 392.

230. *See id.* at 393.

231. *Id.* at 434.

232. *Id.* at 349–50.

233. *See id.* at 402.

234. *Id.* at 403.

235. *Id.* at 444.

236. Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 5 STAN. TECH. L. REV. 1, 22 (2012).

237. *Id.* at 20, 27

person who is acknowledged *not* to be the author-in-fact of the work in question. Through this legal fiction, the machinic creativity of generative code can be recognized for what it really is—something other than (but owing to) the human creativity of its coder.²³⁸

Finally, Professor Robert Denicola argues that AI-generated works should be protected, and that the AI user should be the author.²³⁹ Failing to protect such works “denies the incentive of copyright to an increasingly large group of works that are indistinguishable in substance and public value from works created by human beings.”²⁴⁰ With respect to authorship, he argues:

[T]he copyright statute does not define “author” and the constitutional interpretation of that concept is sufficiently broad to include a human being who originates the creation of a work. A computer user who initiates the creation of computer-generated expression should be recognized as the author and copyright owner of the resulting work.²⁴¹

G. *International Treatment of AI-Generated Works*

An in-depth, worldwide review of international approaches to AI-generated works is beyond the scope of this Article, but there is a smattering of cases globally on AI-generated works and copyright.²⁴²

238. *Id.* at 27–28.

239. Robert Denicola, *Ex Machina: Copyright Protection for Computer-Generated Works*, 69 RUTGERS L. REV. 251, 283 (2016).

240. *Id.* at 286.

241. *Id.* at 286–87.

242. For instance, a large Chinese tech company, Tencent, has used software called Dreamwriter to write business and financial stories since 2015. See Andres Guadamuz, *Chinese Court Rules That AI Article Has Copyright*, INFO JUSTICE (Jan. 22, 2020), <https://infojustice.org/archives/41972> [<https://perma.cc/Y7CW-TDY7>]. In 2018, another company replicated a financial report on Tencent’s website that had the disclaimer that it was “automatically written by Tencent Robot Dreamwriter.” See Paul Sawers, *Chinese Court Rules AI-Written Article is Protected By Copyright*, VENTUREBEAT (Jan. 10, 2020, 1:54 PM), <https://venturebeat.com/ai/chinese-court-rules-ai-written-article-is-protected-by-copyright/> [<https://perma.cc/MWR5-7J89>]. Tencent sued in China and the court stated the article had a “certain originality,” met requirements as a written work, and qualified for copyright protection on the basis of human creativity. *Id.* As another example, in September 2021, the Copyright Office of the Government of India registered an AI-generated work with an AI listed as a co-author. See Sukanya Sarkar, *Exclusive: India Recognises AI as Co-Author Of Copyrighted Artwork*, MANAGING IP (Aug. 5, 2021), <https://www.managingip.com/article/2a5czmpwixyj23wyqct1c/exclusive-india-recognises-ai-as-co-author-of-copyrighted-artwork> [<https://perma.cc/3ZRZ-GYVF>]. The Office subsequently issued a notice for withdrawal; however, the registration remains valid at the time of writing while it is under substantive examination. See Sukanya Sarkar, *Exclusive: Indian Copyright Office Issues Withdrawal Notice To AI Co-Author*, MANAGING IP (Dec. 13, 2021) [hereinafter Sarkar, *Indian Copyright Office Issues Withdrawal Notice To AI Co-*

Many jurisdictions lack clear rules, and some jurisdictions are actively reconsidering their current frameworks.²⁴³

For example, as mentioned earlier, the United Kingdom became the first jurisdiction to explicitly protect AI-generated works in 1988.²⁴⁴ Some current or former commonwealth jurisdictions, such as Ireland, New Zealand, South Africa, and India, subsequently passed similar legislation to protect AI-generated works.²⁴⁵ The United Kingdom Intellectual Property Office (UKIPO) conducted two consultations on IP and AI between 2020 and 2022 and ultimately concluded that there should be no change to the existing scheme for the protection of AI-generated works.²⁴⁶

There is no equivalent to the United Kingdom's system for protecting AI-generated works in European Union (EU) jurisdictions, and the EU has yet to formally address protections for AI-generated works.²⁴⁷ To obtain copyright protection in the EU, works must be original in the sense of being the "author's own intellectual creation."²⁴⁸ The Court of Justice of the European Union (CJEU) has held that only works involving "free and creative choices" and stamped with an author's "personal touch" qualify.²⁴⁹ Most scholars argue that, although AI-generated works cannot

Author], www.managingip.com/article/2a5d0jj2zjo7fajsjwwlc/exclusive-indian-copyright-office-issues-withdrawal-notice-to-ai-co-author [https://perma.cc/QZK2-3K2W]. While Indian law permits copyright for AI-generated works, it does not explicitly allow AI authorship. See Indian Copyright Act, No. 14 of 1957, INDIA CODE (1957), § 2(d)(vi). Copyright authorship is governed by section 2(d)(iii) and section 2(d)(vi).

243. See, e.g., *A Consultation on a Modern Copyright Framework for Artificial Intelligence and the Internet of Things*, GOV'T OF CANADA (July 16, 2021), www.ic.gc.ca/eic/site/693.nsf/eng/00316.html [https://perma.cc/6833-T68E].

244. Ryan Abbott, *Artificial Intelligence, Big Data and Intellectual Property: Protecting Computer-Generated Works in the United Kingdom*, in RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND DIGITAL TECHNOLOGIES, at 1 (Tanya Aplin ed., 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3064213 [https://perma.cc/XXD5-G4QJ].

245. *Id.* at 7.

246. Imogen Ireland & Joel Smith, *Artificial Intelligence And Intellectual Property: UK Government Responds to UK IPO Consultation*, JD SUPRA (June 30, 2022), <https://www.jdsupra.com/legalnews/artificial-intelligence-and-1162304/> [https://perma.cc/4BQC-45PS].

247. See Abbott, *supra* note 244, at 1–2. Copyright in the EU is generally based on legislative directives, including most recently Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, which does not specifically address AI-generated works. See Tim Dornis, *Of "Authorless Works" and "Intentions without Inventor" The Muddy Waters of "AI Autonomy" and Intellectual Property Doctrine*, 43 EUR. INTELL. PROP. REV. 570, 573–75 (2021).

248. Case C-5/08, *Infopaq International A/S v. Danske Dagblades Forening*, 2009 E.C.R. I-6624.

249. Case C-604/10, *Football Dataco Ltd., Yahoo! UK, Ltd.*, ECLI:EU:C:2012:115, ¶ 38 (Mar. 1, 2012).

be protected by copyright in the EU, they might qualify for “neighboring rights” (copyright-like rights) or be protected under unfair competition laws.²⁵⁰ Recently in France, a proposal was put forth to Parliament stating that when it comes to AI-generated works, “the only rights holders are the authors or rights holders of the works who made it possible to design said artificial work.”²⁵¹

There is an important international component to the protection of AI-generated works given the nature of the global economy. Most IP rights are national rights.²⁵² If a person writes a book in the United States, they want that book to be protected in France. This is a particular challenge given the intangible nature of IP. Something like the content of a book is relatively easy to copy compared to a physical object like a designer bag. In part to address this problem, a series of international agreements requires nearly all nations to provide minimum levels of copyright protection as well as to provide foreign nationals with the same copyright protections afforded to domestic citizens.²⁵³

International agreements governing copyright law do not explicitly authorize—or prohibit—protections for AI-generated works.²⁵⁴ But if a jurisdiction such as the United States provides protection for AI-generated works, it will be required to protect AI-generated works regardless of where they are made, even if they are made in a jurisdiction, such as France, that does not protect AI-generated works.²⁵⁵ That allows for a situation in which consumers in France, but not consumers in the United States, can freely use and copy AI-generated works made anywhere. On the one hand, this is unfair because it allows some

250. See P.B. Hugenholtz & J.P. Quintais, *Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?*, 52 INT’L REV. INTELL. PROP. 1190, 1196, 1213 (2021); Henry Guillaume, *Copyright in Artificially Generated Works: 2019 Study Question*, AIPPI, at 10 (June 7, 2019), https://advinno.eu/wp-content/uploads/Study_Question_Copyright_in_artificially_generated_works_2019-06-07.pdf [<https://perma.cc/2K95-8U2B>].

251. Andres Guadamuz, *French lawmakers propose new copyright law about generative AI*, TECHNOLLAMA (Sept. 24, 2023), <https://www.technollama.co.uk/french-lawmakers-propose-new-copyright-law-about-generative-ai> [<https://perma.cc/9HQ8-BHGB>].

252. Although, a variety of subnational and regional rights exist. For example, Unitary Patents allow applicants to obtain a patent valid in twenty-five Member States of the European Patent Convention. *Unitary Patent*, EUR. PAT. OFF., <https://www.epo.org/applying/european/unitary/unitary-patent.html> [<https://perma.cc/TDX6-HA27>].

253. Key international copyright agreements include the Berne Convention, which requires countries to offer the same level of copyright protection to nationals of other parties to the convention, and the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which established global standards for copyright protection. Berne Convention for the Protection of Artistic and Literary Works, S. TREATY DOC. NO. 99-27 (1986); TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, 33 I.L.M. 1197 (1994) [hereinafter TRIPS Agreement].

254. See Abbott, *supra* note 244.

255. See TRIPS Agreement, *supra* note 253.

jurisdictions to “free-ride” on work being done in other jurisdictions. On the other hand, not all countries are likely to be net exporters of AI-generated works, so net IP importers may end up better off without providing protections.

The World Intellectual Property Organization (WIPO), the United Nations agency most responsible for IP matters, has become a significant forum for debates over AI and IP.²⁵⁶ At the moment, WIPO is focusing on promoting stakeholder dialogue, but at some point, an international treaty on AI-generated works might emerge from these discussions.²⁵⁷ More than thirty years ago, WIPO considered including protections for AI-generated works in model laws, but ultimately concluded further study was needed.²⁵⁸

Recently, as policymakers have become acutely aware of the disruptive nature of AI, jurisdictions have been engaged in a sort of AI regulatory arms race. For instance, the European Union is working to create a new legal framework specifically targeted to AI: the EU AI Act.²⁵⁹ Though the proposed Act does not specifically address the issue of AI-generated output, proposed transparency rules require the disclosure of AI-generated content and the publication of summaries of copyrighted data used for training.²⁶⁰

III. PROTECTING AI-GENERATED WORKS AND ACCEPTING AI AUTHORSHIP

A. *Should AI-Generated Works Be Protectable?*

Whether copyright protection should be available for AI-generated works depends on the costs and benefits of providing protection, including the possible problems with lack of protection and the alternatives to protection. With human-generated works, there are numerous benefits associated with copyright protection. As discussed

256. See *WIPO Conversation on Intellectual Property and Frontier Technologies*, WORLD INTELL. PROP. ORG., www.wipo.int/about-ip/en/frontier_technologies/frontier_conversation.html [<https://perma.cc/B2FK-NARX>].

257. Of course, concluding new international treaties is not an expeditious activity. See, e.g., Adrian Otten, *The TRIPS Negotiations: An Overview*, in *THE MAKING OF THE TRIPS AGREEMENT: PERSONAL INSIGHTS FROM THE URUGUAY ROUND NEGOTIATIONS* 55, 55–78 (Jayashree Watal & Antony Taubman eds., 2015) (describing negotiations starting in 1986 for the Agreement on TRIPS, which came into effect in 1995).

258. See International Bureau of WIPO, *Preparatory Document: Draft Model on Copyright*, No CD/MPC/III/2, Mar. 30, 1990, 258–59.

259. See *REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL: LAYING DOWN HARMONISED RULES ON ARTIFICIAL INTELLIGENCE*, EUROPEAN COMMISSION (Apr. 21, 2021), https://eur-lex.europa.eu/resource.html?uri=cellar:e0649735-a372-11eb-9585-01aa75ed71a1.0001.02/DOC_1&format=PDF [<https://perma.cc/4755-28FV>].

260. *Artificial Intelligence Act*, EUR. PARL., https://www.europarl.europa.eu/doceo/document/TA-9-2023-0236_EN.html [<https://perma.cc/4TMD-HNYZ>].

earlier, these break down broadly into (1) economic incentives, namely encouraging the production and dissemination of works, and (2) protection of author moral rights.²⁶¹

There are also numerous costs associated with copyright protection.²⁶² Copyright allows right holders to prevent others from making or using protected works.²⁶³ It can thus be used to prevent the production and distribution of works because right holders can elect not to make, sell, or license their works while also preventing others from doing so.²⁶⁴ Where right holders elect to commercialize works, copyright allows them to limit competition and charge more for their works than they could otherwise.²⁶⁵ Right holders can also prevent third parties from making infringing²⁶⁶ and derivative works (such as fan fiction).²⁶⁷ Intellectual property rights can thus impede the sharing and further development of

261. See William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEG. STUD. 325, 326–33 (1989); Tim W. Dornis, *Artificial Creativity: Emergent Works and the Void in Current Copyright Doctrine*, 22 YALE J.L. & TECH. 1, 30–36 (2020).

262. See, e.g., Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624 (1998); cf. Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243, 1244 (1968) (describing the “tragedy of the commons,” in which there is a pasture where cattle are free for herdsmen to keep). Whether the costs of IP rights outweigh the benefits is the subject of extensive literature which suggests it is nuanced and context dependent. See, e.g., ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 14 (James E. Alt & Douglass C. North eds., 1990) (arguing that there is not one solution to a problem, but that “‘getting the institutions right’ is a difficult, time-consuming, conflict-invoking process . . . that requires reliable information about time and place variables as well as a broad repertoire of culturally acceptable rules”).

263. Specifically, a copyright holder has the exclusive rights:

- (1) to reproduce the copyrighted work in copies or phonorecords; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending; (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; (5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and (6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.

17 U.S.C. § 106.

264. See Landes & Posner, *supra* note 261, at 326, 353–54.

265. See *id.*

266. Works are considered infringing where the infringer had access to the protected work and where the infringing work is substantially similar to the protected aspects of the protected work. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991).

267. Michelle Chatelain, Comment, *Harry Potter and the Prisoner of Copyright Law: Fan Fiction, Derivative Works, and the Fair Use Doctrine*, 15 TUL. J. TECH. & INTELL. PROP. 199, 203 (2012).

knowledge, and there are benefits to having intellectual property in the public domain—meaning not protected by intellectual property laws.²⁶⁸

Even for human-generated works, stakeholders disagree on the appropriate level of protection.²⁶⁹ But the general view of Congress and the courts has been that the benefits of copyright outweigh the costs.²⁷⁰ “The granting of such exclusive rights, under the proper terms and conditions, confers a benefit upon the public that outweighs the evils of the temporary monopoly.”²⁷¹

B. *A Brief History of American Copyright Law*

The first modern copyright law was the Statute of Anne,²⁷² passed in 1710 in then-Great Britain.²⁷³ Prior to this, exclusive rights to works were given by statute to publishers and printers rather than authors.²⁷⁴ Although, some early cases involving analogues to modern copyright infringement were brought under common law causes of action.²⁷⁵

268. See *Copyright Services: Copyright Term and the Public Domain*, CORNELL U. LIBR., guides.library.cornell.edu/copyright/publicdomain [https://perma.cc/UFW5-D3U6].

269. See Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197, 1244–48 (1996) (arguing copyright law is the result of baseless rhetoric and interest group politics).

270. See, e.g., H.R. REP. NO. 60-2222, at 7 (1909).

271. *Id.* Plus, most consumers do not require access to a particular work in the way that they might a patented life-saving drug, and so there is a higher degree of fungibility—if Disney charges too much to watch an Avengers movie, consumers can watch Justice League instead.

272. 8 Anne, c. 19 (1710).

273. Molly Shaffer Van Houweling, *Author Autonomy and Atomism in Copyright Law*, 96 VA. L. REV. 549, 577 (2010).

274. Oren Bracha, *The Statute of Anne: An American Mythology*, 47 HOUS. L. REV. 877, 880 (2010). Outside of the United Kingdom, the first state grants of exclusive rights, the precursors of modern copyright protection, were made in Venice in 1495 and in France in 1507, again to operators of printing presses rather than authors. Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 292 (1970). Prior to the Statute of Anne in the Kingdom of Great Britain, copyright could also be the result of a royal prerogative (a legislative grant). Russ VerSteege, *The Roman Law Roots of Copyright*, 59 MD. L. REV. 522, 526–27 (2000).

275. The first and most famous “copyright” case may have occurred more than a thousand years before the passage of the Statute of Anne. King Diarmed of Ireland (allegedly) adjudicated a dispute between St. Columba and Abbot Fennian involving claims that St. Columba had illegally copied Fennian’s psalter. King Diarmed ruled in favor of Fennian, pronouncing that “[t]o every cow belongs her calf, therefore to every book belongs its copy.” *The Cathach / The Psalter of St Columba*, ROYAL IR. ACAD. (Apr. 15, 2021), www.ria.ie/cathach-psalter-st-columba [https://perma.cc/4K9X-237B]. By some accounts, this judgment led to the Battle of Cúl Dreimne and countless deaths. See Brian Lacey, *The Battle of Cúl Dreimne—A Reassessment*, 133 J. ROYAL SOC’Y ANTIQUARIES IR. 78, 78 (2003). Long before this, while Roman law did not recognize a general law of copyright, “Roman law precepts can clearly be seen in numerous aspects of copyright doctrine: the essence of copyright as intangible property; the nature of the public domain; different types of copyrightable works (works of authorship) and the sale of them;

The introduction of the printing press was a major technological development and one that inexorably altered the landscape for intellectual property.²⁷⁶ Prior to this, copying a book was an expensive, error-prone, and laborious undertaking.²⁷⁷ With the printing press, publishers could produce books cost-effectively in large quantities, which had profound implications for publishers, authors, and governments concerned about the spread of certain information.²⁷⁸ Shortly after its introduction, English authorities established an ostensible monopoly on printing with the Stationers' Company.²⁷⁹ In return for the grant of certain exclusive rights, the Stationers' Company controlled the publication of treasonable, seditious, heretical, or blasphemous books.²⁸⁰ Unless a printer or publisher had a special relationship with the government, it was expected to register any publication with the Stationers' Company.²⁸¹ By registering a work, the printer or publisher directly received a monopoly on its publication.²⁸²

Eventually, the Statute of Anne introduced the principle of rights in a work belonging directly to an author.²⁸³ While the Statute broke up the Stationers' Company monopoly and introduced new author rights (authors being more sympathetic right holders than publishing companies), in practice authors had to assign their works to publishers both to have their works disseminated and to make money.²⁸⁴ The effect

ownership of copyrights (including joint authorship and work for hire); and liability for copyright infringement." VerSteege, *supra* note 274, at 524.

276. See generally W. S. Holdsworth, *Press Control and Copyright in the 16th and 17th Centuries*, 29 *YALE L.J.* 841 (1920) (describing the historical development of copyright law in the Kingdom of England following the invention of the printing press).

277. *The History of Copyright*, UK COPYRIGHT SERV., <https://copyrightservice.co.uk/copyright/history-copyright> [<https://perma.cc/SAA5-FFMQ>] ("The cornerstones of modern copyright law, the right to be identified as the creator or the work and economic property rights, have their roots in ancient Greek, Roman and Jewish cultures, and can be traced back as far as the 6th century B.C.E. in ancient Greece; but it was not until use of the movable type printing press became widespread across Europe that the need for statutory regulation was realised.").

278. *Id.*; Holdsworth, *supra* note 276, at 843.

279. Holdsworth, *supra* note 276, at 843.

280. *Id.*

281. *Id.*

282. *Id.* at 844.

283. Oren Bracha, *The Adventures of the Statute of Anne in the Land of Unlimited Possibilities: The Life of a Legal Transplant*, 25 *BERKELEY TECH. L.J.* 1427, 1431 (2010) ("The Statute [of Anne] is commonly known for embodying the moment at which authors were recognized as the proper focal point of copyright protection and for establishing authors' legal rights and their ability to bargain for better terms in the marketplace."); Statute of Anne, 1710, 8 *Ann. C.* 19.

284. Denicola, *supra* note 239, at 282.

was to ensure the production of books and codify the continuation of existing commercial practices.²⁸⁵

In the American Colonies, the Statute of Anne did not apply and there was no general copyright system.²⁸⁶ The only legal protections for works were ad hoc privileges issued by local legislatures giving printers or publishers exclusive rights over specific texts, usually those deemed to be of particular interest to the public, such as a collection of colony laws.²⁸⁷ In 1787, James Madison submitted a provision to the Framers of the U.S. Constitution to “secure to literary authors their copyrights for a limited time.”²⁸⁸ This was the precursor of the Constitution’s Copyright Clause, which ultimately granted Congress the power to “promote the Progress of Science and useful Arts, by securing for a limited Time to Authors and Inventors the exclusive right to their respective Writings and Discoveries.”²⁸⁹ The language of the Constitution is noticeably more focused on public interest than Madison’s proposal.

In 1790, Congress passed its first Copyright Act, which inherited numerous provisions from the Statute of Anne.²⁹⁰ The Act stated it was “for the encouragement of learning, by securing copies of maps, charts, and books, to the authors and proprietors of such copies, during the times

285. *Id.* at 292; DAVID SAUNDERS, *AUTHORSHIP AND COPYRIGHT* (1992); *cf.* LYMAN RAY PATTERSON, *COPYRIGHT IN HISTORICAL PERSPECTIVE* 14 (Vanderbilt Univ., 1968) (arguing the Statute of Anne was a trade-regulation statute aimed to promote competition). In contrast to the common law tradition, Copyright law developed in France in the shadow of the French Revolution and subsequent political philosophies to, at least ostensibly, glorify individual authors. *See* Jane C. Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary France and America*, 64 *TUL. L. REV.* 991, 992 (1989). An “exclusive right is conferred on authors because their property is the most justified since it flows from their intellectual creation.” *Id.* Emphasis on moral rights became pervasive, including the rights of heirs to claim remedies if subsequent owners alter or distort works in ways that harm the reputation of the original author. *See* William Strauss, *The Moral Right of the Author*, 4 *AM. J. COMP. L.* 506 (1955). Even here, however, Professor Jane Ginsburg cautions that the framers of French copyright laws may not have greeted the concept of author’s rights with as much enthusiasm as later writers. *See* Ginsburg, *supra*, at 1012. She notes that “the most vociferous advocates for authors’ rights were not authors, but their publishers, or, more specifically, the Paris Community of Book Sellers and Printers” and that “a strong current of Enlightenment thought objected on instrumentalist grounds to any assertion of property rights in idea-bearing works: individual proprietary claims would retard the progress of knowledge.” *Id.* at 1012–13.

286. *See* Bracha, *supra* note 283, at 1440.

287. *Id.*

288. *U.S. Copyright Beginnings*, U.S. COPYRIGHT OFF., www.copyright.gov/history/copyright-exhibit/beginnings/ [https://perma.cc/2CWE-C2F3].

289. *Id.*; U.S. CONST. art. I § 8, cl. 8. In deciding whether legislation is permissible under the Copyright Clause, courts look to whether there is a rational basis for Congress to have believed that its legislative action was consistent with the aims of the Framers. *See* *Eldred v. Ashcroft*, 537 U.S. 186, 204–05 (2003).

290. *See* Statute of Anne, 1710, 8 Ann. C. 19; Copyright Act of 1790, Pub. L. No. 1–15, §§ 1, 3, 1 Stat. 124, 124–25. The Act also added a registration requirement. § 1, 1 Stat. at 125.

therein mentioned.”²⁹¹ The Act mentioned authors and proprietors, but the public remained the law’s primary beneficiaries.²⁹² Policymakers hoped that copyright protection would facilitate commercial activities, lead to a more informed and engaged citizenry, and promote democracy by encouraging free speech.²⁹³

As American copyright law continued to develop, Congress continued to emphasize its public-centric focus. In submitting the bill that became the Copyright Act of 1909,²⁹⁴ the House of Representatives committee responsible for the bill submitted a report, also adopted by the Senate, noting the following:

The enactment of copyright legislation by Congress under the terms of the Constitution is not based upon any natural right that the author has in his writings, for the Supreme Court has held that such rights as he has are purely statutory rights, but upon the ground that the welfare of the public will be served and progress of science and useful arts will be promoted by securing to authors for limited periods the exclusive rights to their writings. The Constitution does not establish copyrights, but provides that Congress shall have the power to grant such rights if it thinks best. Not primarily for the benefit of the author, but primarily for the benefit of the public, such rights are given. Not that any particular class of citizens, however worthy, may benefit, but because the policy is believed to be for the benefit of the great body of people, in that it will stimulate writing and invention, to give some bonus to authors and inventors.²⁹⁵

Since then, the Supreme Court has explicitly endorsed the supremacy of the public interest as the motivating force behind copyright law.²⁹⁶ For

291. § 1, 1 Stat. at 124.

292. Ginsburg, *supra* note 285, at 1015 (“Congress adopted a rather pragmatic view of the kinds of works that achieved that objective: the first copyright law protected maps, charts, and books—in that order. The great majority of works for which authors or publishers sought copyright protection under that first statute were highly useful productions.”).

293. *Id.* at 992–93; David Wilson, *Freedom of the Press in the Eyes of the Founding Fathers*, COLONIAL WILLIAMSBURG (July 7, 2020), www.colonialwilliamsburg.org/learn/living-history/freedom-press-eyes-founding-fathers/ [<https://perma.cc/R347-66PW>] (exploring the founding fathers’ understanding of a free press).

294. See Pub. L. No. 60-349, 35 Stat. 1075 (repealed 1976); H.R. 28192, 60th Cong. 2d Sess. (1909); H.R. REP. NO. 2222, 60th Cong., 2d Sess. (1909).

295. H.R. REP. NO. 2222, at 7.

296. See *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349–50 (1991) (“The primary objective of copyright is not to reward the labor of authors, but ‘[t]o promote the Progress of Science and useful Arts.’” (alteration in original)); *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 546 (1985) (“It is evident that the monopoly granted by copyright actively served its intended purpose of inducing the creation of new material of potential historical value.”).

example, in *Fox Film Corp. v. Doyal*,²⁹⁷ the Court wrote, “The sole interest of the United States . . . [is] the general benefits derived by the public from the labors of authors.”²⁹⁸ In *Mazer v. Stein*,²⁹⁹ the Court articulated that “[t]he 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 the useful Arts.’”³⁰⁰

C. Protecting AI-Generated Works and Objections

The history and purpose of the Constitution and the Copyright Act both weigh in favor protecting AI-generated works because the public interest trumps any direct benefit to authors. With AI-generated works, allowing protection will encourage people to develop and use creative AI to generate and disseminate socially valuable works, thereby achieving the goal of copyright law.³⁰¹ Absent protection, certain AI-generated works will never be created or disseminated. That is because, just like human-generated works, the creation and dissemination of works, or at least certain works, require significant investments of time and money.³⁰²

Failing to provide protection also requires producers and distributors of works—at least those for whom copyright is a meaningful incentive such as movie and music studios—to use human authors even if they are less efficient. For instance, even if an AI can generate an illustration for a movie poster at a fraction of the time and expense of a human artist, and even if consumer focus groups prefer the AI-generated poster, a movie studio will need to employ a human artist to obtain copyright. That is a socially wasteful outcome if an AI can complete a task better, faster, and cheaper than a person. The same argument applies to having two tiers of protection for AI-generated and human-generated works. If the additional benefits associated with human authorship are indeed a meaningful incentive, it will push producers to employ people even when it is not otherwise efficient. If those benefits are not meaningful, then they are not rights that should be provided for either AI-generated or human-generated works.

297. 286 U.S. 123 (1932).

298. *Id.* at 127.

299. 347 U.S. 201 (1953).

300. *Id.* at 219.

301. By contrast, failing to protect these works will encourage people to misrepresent the role of AI in the creative process and to misrepresent authorship. See Harsha Gangadharbatla, *The Role of AI Attribution Knowledge in the Evaluation of Artwork*, 40 EMPIRICAL STUDS. OF THE ARTS 125, 137 (2022) (finding that individuals were more likely to purchase AI art when it was misrepresented to them that the art was created by a human).

302. See Breyer, *supra* note 274, at 292. Even in the case of human-generated works investment often comes from a publisher or producer rather than an author. *Id.*

Nevertheless, some critics believe that AI-generated works should not be protected, either because copyright law is intended only to promote human creativity or because the involvement of AI alters the cost/benefit analysis. Of course, it would be useful to have high-quality empirical evidence of the impact of copyright on the producers and distributors of AI-generated works. However, to our knowledge, that evidence does not exist, nor does it drive policymaking with respect to human-generated works.³⁰³

1. Human Exceptionalism

The argument in favor of human exceptionalism comes in several forms. The first version is that human creativity is functionally exceptional—in other words, that an AI cannot autonomously generate an original work. This argument was made long ago by René Descartes, who argued that a machine could never use words in the way we “declare our thoughts to others.”³⁰⁴ Even if it could give some poor imitation of speech, it could not give an “approximately meaningful answer to what is said in its presence, as the dullest of men can do.”³⁰⁵ Descartes’s predictions had proven inaccurate by the 1970s, but the same basic argument drove CONTU’s conclusion that AI was not autonomously generating creative output.³⁰⁶ As Part II of this Article has demonstrated, whether accurate in CONTU’s time, technology has reached the stage where an argument for functional exceptionalism can no longer be supported—at least not in terms of meeting the very low bar of originality for copyright purposes. The basic argument continues to be made, the goal post having shifted, that while AI can make mediocre art, it cannot make great art.³⁰⁷ But regardless of its veracity, it is not relevant for copyright law, which does not concern itself with greatness.³⁰⁸

303. See, e.g., *id.* at 350–51 (arguing the merits of copyright protection based on doctrinal analysis in association with the forthcoming Copyright Act of 1976 and indicating that the formulation of copyright policy is promoted through poor policy arguments).

304. René Descartes, *Discourse on Method*, in *THE PHILOSOPHICAL WRITINGS OF DESCARTES: VOLUME I*, at 109, 140 (John Cottingham et al. trans., Cambridge Univ. Press 1985) (1637).

305. *Id.*

306. See NAT’L COMM’N ON NEW TECH. USES OF COPYRIGHTED WORKS, *supra* note 192, at 44.

307. This argument involves the “AI effect,” namely that once AI can do something, it is discounted. As AI historian Pamela McCorduck wrote, “it’s part of the history of the field of artificial intelligence that every time somebody figured out how to make a computer do something—play good checkers, solve simple but relatively informal problems—there was a chorus of critics to say, but that’s not thinking.” PAMELA MCCORDUCK, *MACHINES WHO THINK* 204 (2d ed. 2004).

308. See, e.g., *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251 (1903) (explaining that, in regards to copyright infringement, “[t]he antithesis to ‘illustrations or works connected with the fine arts’ is not work of little merit or of humble degree” and instead that “[a]

The second version of the argument is that human creativity is ontologically exceptional, namely that even if an AI and a person can generate the same work, the way a person does so is fundamentally different from the way an AI does so.³⁰⁹ There are at least three problems with this argument. First, there is no scientific, or even philosophical, consensus on the nature of creativity.³¹⁰ Without a clear understanding of creativity and thus what the difference is between what an AI and a human being are doing, it seems problematic to argue that only what people are doing counts as creative—and even more problematic to base laws on that assumption.³¹¹ Second, to the extent creativity is understood, there is no consensus that AI cannot exhibit creativity.³¹² There is an extensive body of literature on philosophy of mind and computer science that explores the nature of creativity, and at least some seminal thinkers have argued that it is a purely mechanical process analogous to how some AIs operate.³¹³ For instance, Marvin Minsky, the “Father of Artificial

picture is none the less a picture and none the less a subject of copyright, that it is used for an advertisement” than etchings of a great work of art).

309. Although no longer framed in theological terms, the belief in human exceptionalism divorced from the reality of functional equivalence does at times veer close to the “Theological Objection” to machine thinking addressed by Alan Turing, namely that “[t]hinking is a function of man’s immortal soul. God has given an immortal soul to every man and woman, but not to any other animal or to machines. Hence no animal or machine can think.” Alan M. Turing, *Computing Machinery and Intelligence*, 59 MIND 433, 443 (1950).

310. See, e.g., Cade Metz, *A.I. Is Not Sentient. Why Do People Say It Is?*, N.Y. TIMES (Aug. 5, 2022), <https://www.nytimes.com/2022/08/05/technology/ai-sentient-google.html> [<https://perma.cc/5ZLS-ZTCW>] (describing conflicting views about sentience and consciousness in the AI context).

311. Aside from AI, a variety of animals are clearly capable of creativity. See, e.g., Dane E. Johnson, *Statute of Anne-imals: Should Copyright Protect Sentient Non-Human Creators?*, 15 ANIMAL L. 15, 23 (2008) (“[N]o express requirement prevents either a computer’s or an animal’s name from appearing as author on [a copyright] registration form.”). Perhaps the objection should be in the form of biological exceptionalism, rather than human exceptionalism.

312. See, e.g., Bernard Marr, *Can Machines and Artificial Intelligence Be Creative?*, FORBES (Feb. 28, 2020, 12:42 AM), <https://www.forbes.com/sites/bernardmarr/2020/02/28/can-machines-and-artificial-intelligence-be-creative/?sh=7c6d7a674580> [<https://perma.cc/N4VB-654G>] (observing that AI can at the very least supplement human creativity, and discussing art and other works created by AI).

313. See generally Stephen L. Thaler, *Vast Topological Learning and Sentient AGI*, 8 J. OF A.I. AND CONSCIOUSNESS 81 (2021); Neil Savage, *Breaking Into the Black Box of Artificial Intelligence*, NATURE (Mar. 29, 2022), www.nature.com/articles/d41586-022-00858-1 [<https://perma.cc/BG87-EEL2>] (claiming that the neural networks developed for medical diagnosis “work in a similar way to the human brain”); Takeshi Kojima et al., *Large Language Models are Zero-Shot Reasoners* 1 (June 9, 2022), <https://arxiv.org/pdf/2205.11916v2.pdf> [<https://perma.cc/UL2A-E9H9>] (finding that pretrained large language models achieve better reasoning when prompted with a step-by-step process).

Intelligence,”³¹⁴ had a theory to explain creativity called “Society of Minds.”³¹⁵ He argued that minds are not a single unified intelligence but rather a collection of smaller minds that come together and help to solve problems like a complex mix of competing generative algorithms.³¹⁶ The claim, then, that what an AI and a person do to generate something creative is fundamentally different does not reflect a scientific consensus.

The third, and best, reason why the ontological exceptionalism argument fails is that the way a work is made should be irrelevant to its protection. Alan Turing, another pioneering computer scientist, considered a broader version of this question in his seminal work, *Computing Machinery and Intelligence*.³¹⁷ He began by asking whether machines could think, then attempted to define “machine” and “think.”³¹⁸ Ultimately, given the lack of objective understanding of the nature of thought, he reframed the question to ask whether a machine could behave indistinguishably from a person.³¹⁹ Turing believed that the nature of thought, while of interest to philosophers, is not practically relevant—it is behavior that matters.³²⁰ To Turing (and Minsky), thinking was an

314. MIT Media Lab, *Marvin Minsky, “Father of Artificial Intelligence,” Dies at 88*, MIT NEWS, (Jan. 25, 2016), news.mit.edu/2016/marvin-minsky-obituary-0125 [<https://perma.cc/S5EC-CHFD>].

315. See MARVIN MINSKY, *THE SOCIETY OF MIND* 17, 80 (1986). He was incidentally fond of referring to human beings as “meat machines.” See Stephen Levy, *Marvin Minsky’s Marvelous Meat Machine*, WIRED (Jan. 26, 2016, 12:00 AM), <https://www.wired.com/2016/01/marvin-minskys-marvelous-meat-machine/> [<https://perma.cc/4QJW-MQRH>].

316. See MINSKY, *supra* note 315, at 21; Pindar Van Arman, *Creativity Is Probably Just a Complex Mix of Generative Art Algorithms*, DATA DRIVEN INV. (July 3, 2018), medium.datadriveninvestor.com/creativity-is-probably-just-a-complex-mix-of-generative-art-algorithms-6d37a0087e86 [<https://perma.cc/8F8D-K53V>]. More recently, Gauthier Vernier, one of the creators of the AI responsible for *The Portrait of Edward Bellamy* sold at Christie’s auction house, claimed, “[w]e’re looking at these portraits the same way a painter would do it. Like walking in a gallery, taking some inspiration. Except that we feed this inspiration to the algorithm, and the algorithm is the part that does the visual creation. . . . I think [AI] has its place in the art world because it tries to replicate what any artist would do, like trying to create from what he knows.” Allyssia Alleyne, *A Sign Of Things to Come? AI-Produced Artwork Sells For \$433K, Smashing Expectations*, CNN (Oct. 25, 2018, 1:18 PM), <https://www.cnn.com/style/article/obvious-ai-art-christies-auction-smart-creativity/index.html> [<https://perma.cc/23YP-W3YT>].

317. See Turing, *supra* note 309, at 433–34.

318. *Id.* at 433.

319. *Id.* at 433–34.

320. *Id.* at 435. In this vein, Professor Grimmelman argues that whatever the difference in nature between AI-and human-generated works, they should be considered equivalent. See James Grimmelman, *There’s No Such Thing as a Computer-Authored Work—And It’s a Good Thing, Too*, 39 COLUM. J.L. & ARTS 403, 408 (2016) (“The use of rules at all is simply the choice to split the creative process into two stages rather than one. The inputs—whatever it is that we mean by ‘creativity’ or ‘expression’ or ‘authorship’—are indistinguishable, and so is the output—a fixed copy of the work.”). “If an author, for her own convenience, decides to automate some of the steps by programming a computer, copyright should not look any less generously upon her. . . . To say that an author creates intuitively is simply to say that neither she nor we have ready access to the

impressive but mechanistic phenomenon, one that eventually would be replicated by a machine.³²¹ Even if some critics are right that Turing took this concept too far and that an AI itself is not metaphysically creative,³²² Turing's analysis at least counters the ontological argument in the copyright context because copyright law is utilitarian and should not be concerned with philosophical distinctions that interfere with positive consequentialist outcomes.

The last version of the human exceptionalism argument is that regardless of functional and ontological similarity, there are consequentialist justifications for only encouraging human activity.³²³ This is the argument made by Professors Craig and Kerr when they claim that authorship is inherently a relational activity and that copyright is not about simply generating works but rather about promoting human communication and socialization.³²⁴ But while Professors Kerr and Craig are no doubt correct that some works have relational benefits, their normative goals are not those of the Constitution or Congress.³²⁵

2. Overprotection

Separate from the exceptionalism arguments, protection could be objected to on the basis that the costs and benefits of copyright protection differ between AI- and human-generated works. The benefits of protection may be reduced because no incentive, or at least less incentive, is needed for existing AI to create new works. Once a creative AI like DALL·E 2 exists, the marginal cost of having it create additional works may be close to zero. This is to say that the investment in the case of AI-generated works comes mainly upfront in the development, training, improvement, and iteration of models. Once an AI is fully operational, it

algorithm she follows." *Id.*; see also Alan L. Durham, *The Random Muse: Authorship and Indeterminacy*, 44 WM. & MARY L. REV. 569, 574 (2002) (arguing that authorship should extend to some indeterminate works).

321. Turing, *supra* note 309, at 454; MINSKY, *supra* note 315, at 109. This attitude reflects a materialism or physicalism school of philosophy. See *Materialism*, PHILOSOPHY BASICS, https://www.philosophybasics.com/branch_materialism.html [<https://perma.cc/7PJV-YNXJ>]; *Physicalism*, PHILOSOPHY BASICS, https://www.philosophybasics.com/branch_physicalism.html [<https://perma.cc/LQN4-CQL9>].

322. See, e.g., Marks: *Artificial Intelligence Is No More Creative Than a Pencil*, MIND MATTERS (June 28, 2022), <https://mindmatters.ai/2022/06/marks-artificial-intelligence-is-no-more-creative-than-a-pencil/> [<https://perma.cc/87BR-74EJ>]. Professor Bridy similarly argues that if an AI-generated work is indistinguishable from a human-generated work, then the work is creative, even if she would not say the AI is creative. Annemarie Bridy, *The Evolution of Authorship: Work Made by Code*, 39 COLUM. J.L. & ARTS 395, 399 (2016).

323. Craig & Kerr, *supra* note 219, at 44.

324. *Id.* at 43–44.

325. See U.S. CONST. art. 1, § 1, cl. 8; KEVIN J. HICKEY, CONG. RSCH. SERV., COPYRIGHT LAW: AN INTRODUCTION AND ISSUES FOR CONGRESS (2023), <https://crsreports.congress.gov/product/pdf/IF/IF12339> [<https://perma.cc/4F6A-9KKZ>].

can simply continue to make a practically limitless number of works, albeit with some ongoing costs of maintenance and operation. As a result, the scale tips against protection because many or most AI-generated works would be created in the absence of copyright protection. This line of reasoning might alternately suggest that a more limited copyright scope, such as a shorter term of protection, would be appropriate for AI-generated works.

While less incentive may be needed after an AI has been fully programmed or trained, this ignores some key considerations. First, the initial development of creative AI such as DALL·E 2 tends to require substantial investment.³²⁶ The incentive may simply be needed further upstream in the process than is generally the case with human creativity. Substantial investment may also be needed to continue improving an AI to generate better output.³²⁷ Also, even if less investment is needed to create a work, the same level of investment is still required to disseminate a work regardless of how it is created.

The costs could also be greater in the case of AI-generated works due to negative impacts on (1) employment and (2) property distribution. The technological unemployment concern arises from the idea that if AI can produce certain types of work faster and cheaper than human creatives, the demand for human labor in those areas will decrease.³²⁸ It is essentially a more specific version of the automation scare—the concern that automation will result in wide-spread unemployment.³²⁹

These concerns about automation date back to at least the first industrial revolution,³³⁰ but automation historically has not increased

326. ZHANG ET AL., *supra* note 37, at 3.

327. See, e.g., *OpenAI's ChatGPT Reportedly Costs \$100,000 a Day to Run*, CIOCOVERAGE <https://www.ciocoverage.com/openai-chatgpt-reportedly-costs-100000-a-day-to-run/> [<https://perma.cc/WL2Q-QQJL>]; ANDREW J. LOHN & MICAH MUSSER, *AI AND COMPUTE* 23 (2022), https://cset.georgetown.edu/wp-content/uploads/AI-and-Compute-How-Much-Longer-Can-Computing-Power-Drive-Artificial-Intelligence-Progress_v2.pdf [<https://perma.cc/D4N2-TR8L>].

328. See Rob Salkowitz, *AI Is Coming For Commercial Art Jobs. Can It Be Stopped?*, FORBES (Sept. 16, 2022, 2:10 PM), <https://www.forbes.com/sites/robsalkowitz/2022/09/16/ai-is-coming-for-commercial-art-jobs-can-it-be-stopped/?sh=4b79052d54b0> [<https://perma.cc/3UGK-GBNV>].

329. Ryan Abbott & Bret Bogenschneider, *Should Robots Pay Taxes? Tax Policy in the Age of Automation*, 12 HARV. L. & POL'Y REV. 145, 146 (2018) (“[A]cademic and industry experts are widely predicting that automation will result in substantial ‘technological unemployment’ in the near future.”).

330. See, e.g., DAVID RICARDO, *ON THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION* 283–86 (Batoche Books 2001) (3d ed. 1821) (discussing the injurious nature of technological replacement of human labor). For that matter, broader social issues related to automation have been discussed since Aristotle’s time. See, e.g., JOHANNES HANEL, *ASSESSING INDUCED TECHNOLOGY: SOMBART’S UNDERSTANDING OF TECHNICAL CHANGE IN THE HISTORY OF ECONOMICS* 91 (2008) (noting Aristotle’s hope that machines could occupy the place of slaves in a utopian society).

overall unemployment even as it has reduced the need for certain types of labor.³³¹ For example, at the beginning of the twentieth century, about 41% of the workforce was in agriculture, while in the early twenty-first century, only about 2% works in that sector.³³² This is not a 39% increase in the unemployment rate.³³³ Rather, technology has made agricultural labor vastly more efficient, and people have transitioned to different jobs that have resulted in greater overall productivity.³³⁴ In the present context, it may similarly be the case that some creative tasks are rendered obsolete but that human creatives will transition to different tasks or types of creative work.

Of course, gains to gross domestic product are likely scant consolation to individual creatives now facing competition from AI and potentially losing their jobs, and society has not traditionally done well at lessening the burden on people rendered technologically unemployed.³³⁵ But the solution to technological unemployment is to provide enhanced social benefits and retraining so that the costs of automation are fairly distributed along with the benefits, not to prevent or discourage businesses from automating.³³⁶ The latter is socially wasteful, like a law that mandates human elevator attendants in lieu of automatic control panels.³³⁷

331. See John Maynard Keynes, *Economic Possibilities for our Grandchildren*, in *ESSAYS IN PERSUASION* 321, 321–32 (Palgrave Macmillan 2010) (1930); see also Joel Mokyr et al., *The History of Technological Anxiety and the Future of Economic Growth: Is This Time Different?*, 29 *J. ECON. PERSP.* 31, 34–35 (2015) (discussing that throughout history, events such as the Industrial Revolution demonstrated that technological advancement disrupted demand for certain types of labor, but unemployment had not occurred on a large scale).

332. CAROLYN DIMITRI ET AL., U.S. DEP'T OF AGRIC., *THE 20TH CENTURY TRANSFORMATION OF U.S. AGRICULTURE AND FARM POLICY 2* (2005), https://www.ers.usda.gov/webdocs/publications/44197/13566_eib3_1_.pdf?v=41055 [<https://perma.cc/Y895-E44P>].

333. See *id.* at 2, 12 (noting that, overall, farmers have adapted to technological advancements in agriculture by expanding operations, moving out of the farming industry, or using farming as a secondary source of income).

334. See generally Mokyr et al., *supra* note 331 (discussing many prominent economists' suggestions that technological advancement allows information to be shared more quickly, improves the standard of living, and increases labor demand for less physical labor-intensive work, therefore creating permanently higher productivity).

335. See generally *id.* (suggesting that technological innovation is disruptive to many industries and might require the expansion of government support in response to many middle-skill labor forces becoming obsolete and lower-skill labor forces being saturated with middle- and lower-skill labor workers).

336. See Abbott & Bogenschneider, *supra* note 329, at 147–51 (2018) (arguing that an updated tax policy to tax robots may be useful to focus on “improving education and improving social benefit systems” that allow for society to embrace widespread benefits of automation, such as increased productivity, safety, and scientific breakthroughs).

337. Ernesto Londono, *Rio de Janeiro Elevator Attendants ‘Adore’ Their Dying, Chatty Trade*, *N.Y. TIMES* (Nov. 25, 2018), <https://www.nytimes.com/2018/11/25/world/americas/brazil-rio-de-janeiro-elevator-attendants.html> [<https://perma.cc/4WRM-ZE7W>].

The distributional concern is that large corporations may be more likely than small and medium enterprises (SMEs) to have the resources necessary to develop and use generative AI effectively,³³⁸ resulting in a consolidation of copyright in the hands of companies like Disney and Meta. In turn, this could be a problem if it exacerbates financial inequality or if it is the result of, or results in, unfair business practices or anti-competitive behavior.

As a preliminary matter, it is far from certain that generative AI will preferentially benefit large enterprises. It might also be the case that generative AI democratizes copyright ownership. Today's generative AI allows individuals to produce creative works in ways that were previously impractical.³³⁹ But even assuming the financial benefits of generative AI preferentially flow to large enterprises, that is not a reason to prohibit copyright in AI-generated works. Large enterprises already hold a disproportionate share of financial resources and intellectual property,³⁴⁰ and we do not punish entities simply for being large or for dominating markets due to "superior products, business acumen, or historic[al] accident."³⁴¹

If the concern is distributional fairness, namely that it would be a bad social outcome for AI to generate a large amount of wealth that flows disproportionately to the already wealthy (perhaps even at the expense of those with lower socioeconomic status), the solution is a more progressive tax system rather than the impediment of technological progress.³⁴²

If the concern is unfair or anti-competitive business practices, there are solutions to this as well. For instance, Disney could, hypothetically, have very powerful AI systems generate countless variations of Marvel comics, characters, movies, etc. Because copyright exists from the moment of fixation and does not require registration, it could protect a large amount of creative content in this manner. This sort of activity could be used productively to make better Marvel content, say by generating a billion versions of a comic book and having an AI model which version is most likely to be appreciated by consumers.

338. THE IMPACT OF ARTIFICIAL INTELLIGENCE ON THE FUTURE OF WORKFORCES IN THE EUROPEAN UNION AND THE UNITED STATES OF AMERICA, THE US–EU TRADE AND TECH. COUNCIL 11 (2021), <https://www.whitehouse.gov/wp-content/uploads/2022/12/TTC-EC-CEA-AI-Report-12052022-1.pdf> [<https://perma.cc/93H3-467F>].

339. Alexander Reben, *The Weird And Wonderful Art Created When AI And Humans Unite*, BBC FUTURE (Nov. 27, 2022), <https://www.bbc.com/future/article/20221123-the-weird-and-wonderful-art-created-when-ai-and-humans-unite> [<https://perma.cc/RG65-KAXV>].

340. See Tasini, *supra* note 17; Doctorow, *supra* note 17.

341. *United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966).

342. See generally Abbott & Bogenschneider, *supra* note 329 (noting how businesses receive incentives to automate and arguing in favor of decreasing taxes on human labor to level the playing field for automation).

However, in the hands of a “copyright troll” instead of Disney, this sort of activity might also be used to make money through strategic litigation, without much investment in distributing works. This could be done by publishing all billion versions of the comic book online, having AI search the Internet for works with some similarities to these versions, and suing in an unduly aggressive or opportunistic manner to attempt to exclude other content generators from the genre or just to extract rent.³⁴³

There are solutions to this problem built into copyright law already, which seeks to maintain an appropriate balance between exclusive control and public access through mechanisms such as the fair use doctrine, which permits the unlicensed use of protected works in certain circumstances.³⁴⁴ Perhaps most importantly, AI-generated works may profoundly change the infringement analysis, including in ways that may solve the troll problem.

3. AI-Generated Infringement

Copyright allows a right holder to prevent third parties from, among other things, reproducing a copyrighted work without permission.³⁴⁵ This requires a right holder to prove both that an infringer copied a protected work and that there is substantial similarity between the protected and infringing work.³⁴⁶ Therefore, if a work is not actually copied from another work, regardless of how similar the works are, there is no infringement.³⁴⁷ In other words, “independent creation” is a defense to infringement.³⁴⁸

As a practical matter, it is often difficult to directly prove copying occurred because whether the infringer copied may be a fact known only to the infringer—and human infringers have reasons to be less than fully forthcoming. As a result, a right holder is allowed to indirectly prove copying by showing similarities between works that are unlikely to exist if they had been independently made.³⁴⁹ An alleged infringer can then rebut this inference of copying by presenting evidence of independent

343. Such practices are associated with the pejorative term “copyright troll.” See Matthew Sag & Jake Haskell, *Defense Against the Dark Arts of Copyright Trolling*, 103 IOWA L. REV. 571, 573 (2018).

344. See, e.g., *Google LLC v. Oracle America, Inc.*, 141 S. Ct. 1183, 1196 (2021) (applying the fair use doctrine when copyright would “stifle the very creativity which that law is designed to foster”).

345. *Feingold v. RageOn, Inc.*, 472 F. Supp. 3d 94, 98 (S.D.N.Y. 2020).

346. See *Transgo, Inc. v. Ajac Transmission Parts Corp.*, 768 F.2d 1001, 1018 (9th Cir. 1985); NIMMER, *supra* note 163, at § 13.03(A).

347. See *Gray v. Hudson*, 28 F.4th 87, 96 (9th Cir. 2022).

348. *Id.*

349. See, e.g., *Feingold v. RageOn, Inc.*, 472 F. Supp. 3d 94, 98 (S.D.N.Y. 2020).

creation, for instance, that an alleged infringer could not possibly have had access to a protected work.³⁵⁰

To take an extreme hypothetical, if an author wrote an exact copy of another author's bestselling novel, but claimed she did so without ever having seen the bestseller, that could be a defense to infringement. However, the likelihood of two authors separately writing the exact same book is effectively zero. The math involved is reminiscent of the infinite monkey theorem, which predicts that a room full of monkeys with typewriters will eventually reproduce by random chance all the books in the British Museum.³⁵¹ While theoretically possible, if the monkeys need to type the word "banana" on typewriters with fifty keys, if they press keys at random and each key has an equal chance of being pressed, the chance that the first six letters pressed spell banana is $(1/50)^6$ —one in fifteen billion six hundred twenty-five million. But more practically, the infinite monkey theorem effectively describes a brute force computational problem-solving method called the British Museum algorithm.³⁵² This algorithm finds a solution by checking all possibilities one by one.³⁵³ This has allowed AI to, among other things, completely solve the game of checkers—a game with "roughly 500 billion possible positions (5×10^{20})."³⁵⁴

AI-generated works may alter the infringement analysis with respect to proving copying and independent creation. Proving copying may no longer be an issue if an AI's training data can be accessed (although this depends on the AI system).³⁵⁵ If the allegedly infringed work is not in the training data, that proves there was no copying because the work was never accessed.³⁵⁶ Also, even if an AI were trained on a protected work, the AI could be queried for the specific works that contributed to a particular output and answer the question of whether the AI-generated work involved actual copying in addition to access.³⁵⁷ Thus, in the

350. *Repp v. Webber*, 132 F.3d 882, 889 (2d Cir. 1997).

351. Nikita Lamba, *Monkey See, Monkey Type: Considering the Infinite Monkey Theorem and the Future of Copyright*, COLUM. J.L. & ARTS (Aug. 2, 2019), <https://journals.library.columbia.edu/index.php/lawandarts/announcement/view/108> [<https://perma.cc/YX9W-8Q4F>].

352. EARL B. HUNT, *ARTIFICIAL INTELLIGENCE* 6 (Edward C. Carterette & Morton P. Friedman eds., 1975).

353. Allen Newell et al., *Elements of a Theory of Human Problem Solving*, 65 *PSYCH. REV.* 151, 151–52 (1958).

354. Jonathan Schaeffer et al., *Checkers is Solved.*, 317 *SCI.* 1518, 1518 (2007).

355. For example, this site allows anyone to "[s]earch 5.8 billion images used to train popular AI art models." HAVE I BEEN TRAINED?, <https://haveibeentrained.com/?custom=1> [<https://perma.cc/N7B6-G3MU>]. It includes the images from OpenAI and Stability AI training data which are often used as a base for other AI models. *Id.*

356. *Id.*

357. See generally Neil Savage, *Breaking Into The Black Box Of Artificial Intelligence*, *NATURE* (Mar. 29, 2022), <https://www.nature.com/articles/d41586-022-00858-1> [<https://perma.cc/>].

scenario where a troll posts a billion works to the internet, if it can be proven that an allegedly infringing AI-generated work came from a generative AI that was not trained on any of the troll's works, or that the troll's works were not directly used to generate the new work, there is no infringement.

For instance, in 2018, an art installation titled *All We'd Ever Need Is One Another* was setup to autonomously generate images using two flatbed scanners facing one another that both projected and reflected light.³⁵⁸ AI generates mouse movements that randomize scanning settings and begin the scanning process.³⁵⁹ AI is then used to detect when a newly created image is sufficiently like an existing work of art, after which the AI-generated image is “validated as art” and uploaded to the internet and social media together with the name of the original artwork it was validated against.³⁶⁰ The installation creates around 1,000 to 1,500 images a day, including twenty to fifty validated images.³⁶¹ In August 2018, the creator of the installation, Adam Basanta, was sued in Quebec Superior Court for copyright infringement by artist Amel Chamandy.³⁶² One of the installation's pieces matched with Chamandy's 2009 photograph “Your World Without Paper.”³⁶³ Given the way the AI-generated images were made in this case, namely not from existing works, the fact a generated image happened to be similar to someone else's existing image is not grounds for infringement (including under Canadian law).³⁶⁴

This case was from several years ago—ancient history in the world of generative AI. As increasingly sophisticated AI comes to generate millions, billions, or trillions of images a day, independent creation will become a more prevalent phenomenon. This should lead to increased

cc/JNX2-URTZ] (discussing challenges associated with the explainability of how AI output is generated).

358. Adam Basanta, *All We'd Ever Need Is One Another* (2018), <http://adambasanta.com/allwedeverneed> [<https://perma.cc/3Q3Q-4DCX>].

359. *Id.*

360. *Id.*

361. *Id.*

362. *Randomly Generated Art Draws Copyright and Trademark Infringement Claims*, IP OSGOODE (Apr. 1, 2019), <https://www.iposgoode.ca/2019/04/randomly-generated-art-draws-copyright-and-trademark-infringement-claims/> [<https://perma.cc/ABG8-ZBAP>].

363. *Id.* (discussing that Chamandy sought \$40,000 CAN in damages, including for trademark infringement on a trademark she owns on her name). The suit eventually settled under undisclosed terms. Sarah Pimienta, *Artificial Intelligence Systems as Instruments of Human Innovation: The Case for Copyright Law Reform in Canada*, MCGILL UNIV. (Apr. 5, 2022), <https://www.mcgill.ca/business-law/article/artificial-intelligence-systems-instruments-human-innovation-case-copyright-law-reform-canada> [<https://perma.cc/R755-QKV2>].

364. *See, e.g.*, *Cinar Corp. v. Robinson*, 2013 SCC 73, [2013] 3 S.C.R. 1168 (finding that two works with similar portions did not constitute infringement because, when viewed as a whole, the new work was new and original).

consumer choice and a higher degree of fungibility between protected works. Taken to its extreme, in a decidedly futuristic scenario where very powerful AI systems can generate astronomical amounts of content, like the hypothetical monkeys recreating all the works of the British Museum—or at least certain sorts of works like every possible 100x100 pixel image³⁶⁵—this could fundamentally render copyright law obsolete in certain areas because any desired work could be independently created.

It is beyond the scope of this Article to consider all the ways that AI-generated works challenge existing copyright law doctrines, but there will be clear impact on the fair use doctrine and the protection of style. For example, a series of lawsuits alleging copyright infringement were filed in 2022 and 2023 against companies marketing prominent generative AI systems.³⁶⁶ One of these suits alleges that the use of copyrighted images to train generative AI constitutes copyright infringement and that AI-generated works created “in the style of” human artists are infringing derivative works.³⁶⁷ Under U.S. law, whether training AI on protected content is infringing likely depends on whether that activity, which generally involves making many copies of training data, falls within the fair use exception to infringement.³⁶⁸ Internationally, an increasing number of jurisdictions have adopted statutory exceptions to copyright infringement for “text and data mining,” which narrowly refers to using protected content to generate insights but can also refer more broadly to using protected content to train AI systems.³⁶⁹ An artist’s “style” is not

365. Adrian Cooney, *Generating every image possible*, MEDIUM (June 25, 2013), https://medium.com/@adrian_cooney/generating-every-image-possible-21beed4789fe [<https://perma.cc/9C2A-7DEV>].

366. Matthew Butterick, *Stable Diffusion Litigation*, JOSEPH SAVERI LAW FIRM & MATTHEW BUTTERICK (Jan. 13, 2023), <https://stablediffusionlitigation.com/> [<https://perma.cc/2ELR-AC8E>]; Matthew Butterick, *GitHub Copilot Litigation*, JOSEPH SAVERI LAW FIRM & MATTHEW BUTTERICK (Nov. 3, 2022), <https://githubcopilotlitigation.com/> [<https://perma.cc/6S46-TNMJ>]; *Getty Images Statement*, GETTY IMAGES, <https://newsroom.gettyimages.com/en/getty-images/getty-images-statement> [<https://perma.cc/S9PN-XNQ8>].

367. Complaint at 1–2, *Anderson v. Stability AI*, No. 3:23-cv-00201 (N.D. Cal. Jan. 13, 2023).

368. As the complaint in *J. Doe v. GitHub, Inc.* notes, GitHub replied to complaints about copying by noting that, “[t]raining machine learning models on publicly available data is considered fair use across the machine learning community.” Complaint at 23, No. 3:22-cv-06823 (N.D. Cal. Nov. 3, 2022). The complaint argues that “regardless of this concept’s level of acceptance in ‘the machine learning community,’ under Federal law, it is illegal.” *Id.*

369. See, e.g., Intell. Prop. Off., *Artificial Intelligence and Intellectual Property: Copyright and Patents: Government Response to Consultation*, GOV.UK (June 28, 2022), <https://www.gov.uk/government/consultations/artificial-intelligence-and-ip-copyright-and-patents/outcome/artificial-intelligence-and-intellectual-property-copyright-and-patents-government-response-to-consultation> [<https://perma.cc/E3NZ-GEH2>] (noting “TDM is used for training AI systems, amongst other uses”). However, in February 2023, Minister George Freeman, responsible for intellectual property, told the House of Commons that the government would not move forward with the text and data mining (TDM) exception as planned without a deeper consultation, citing concerns

generally protectable, although the term has a number of senses and there are some ways that style is protected under copyright law; but the extent to which the law protects style will become more of an issue as generative AI makes it far easier to copy an artist's style.³⁷⁰

D. *AI Owners Are the Most Appropriate Default Copyright Owners*

Regardless of authorship, an AI cannot own copyright or any type of property because it is not a person—legal or artificial.³⁷¹ While the law could change to accommodate some form of legal personality for AI,³⁷² it still would not be an optimal, or even terribly sensible, way to structure rights. Among other things, an AI is not motivated to create or disseminate works by the prospect of financial gain.

By contrast, people tend to be motivated by the prospect of financial gain. A variety of stakeholders in the AI-generated work ecosystem are potential right holder candidates, including an AI user, owner, or programmer. In some cases, the user, owner, and programmer may be the same person, or it may be that “the” programmer is a collection of people spread over time and space. Numerous scholars have considered the most appropriate right holder for copyright in AI-generated works.³⁷³ Some courts have also weighed in on the most appropriate right holder for AI-

voiced by creative industries. Rory O’Neill, *UK Government Bins UKIPO’s Flagship AI Reforms*, MANAGING INTELL. PROP. (Feb. 3, 2023), <https://www.managingip.com/article/2b8dy58efmhhbvsmxvk0/uk-government-bins-ukipos-flagship-ai-reforms> [<https://perma.cc/7JMT-VANG>].

370. See Sean M. O’Connor, *AI Replication of Musical Styles Points the Way to An Exclusive Rights Regime*, in RESEARCH HANDBOOK ON INTELLECTUAL PROPERTY AND ARTIFICIAL INTELLIGENCE 65, 83 (Ryan Abbott ed., Edward Elgar Publ’g 2022).

371. See, e.g., Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N.C. L. REV. 1231, 1231 (1992).

372. For example, an autonomous vehicle (AV) could require legal personality to hold an insurance policy to compensate accident victims. Still, AVs are commercial products, and it works out better across the board to have AV manufacturers liable for accidents. See ABBOTT, *supra* note 6, at 71–91 (explaining that even though arguments exist for extending legal personhood to robots, difficulties remain). But legal personality for AI is the subject of a blossoming field of literature. See, e.g., DAVID J. GUNKEL, *ROBOT RIGHTS* 47 (2018).

373. For instance, Professor Samuelson considered this question in 1986, noting that

[t]here are at least five ownership allocation possibilities: one might decide to allocate intellectual property interests in the output to the computer, the user, the author of the generator program, both jointly, or no one. . . . The Article concludes that, in general, the user of a computer generator program should be considered the author of a computer generated work, and should be free to exploit this product commercially.

Samuelson, *supra* note 213, at 1190–92; see also Ginsburg & Budiardjo, *supra* note 43, at 395 (discussing the academic debate of whether creative machines can be authors).

assisted works involving a variety of human contributors.³⁷⁴ This Article argues that the AI owner is the most appropriate default for copyright ownership, for both legal and policy reasons.³⁷⁵

It is often the case that someone other than a work's author owns its copyright.³⁷⁶ Authors can transfer their rights to third parties, and rights may transfer automatically.³⁷⁷ Rights may also vest directly in parties other than an author. For example, under the rules for a Work Made for Hire (WMFH), employers generally own works made by employees within the scope of their employment.³⁷⁸ The same applies to certain works made outside of the employment context.³⁷⁹

The Copyright Act does not explicitly provide rules for allocating ownership in AI-generated works. However, it also does not prohibit ownership by virtue of common law rules of entitlement.³⁸⁰ It is generally the case that where property creates additional property, the owner of the original property is entitled to the subsequent property.³⁸¹ This rule, sometimes referred to as accession, applies in a variety of contexts.³⁸² If a person owns a cow that births a calf, the cow's owner becomes the calf's owner.³⁸³ If a person owns a fruit tree that bears fruit, the tree's owner becomes the fruit's owner. The tree's owner derives title to the fruit through the tree, but this does not require the tree to execute a written

374. See, e.g., *Midway Mfg. Co. v. Artic Intern., Inc.*, 547 F. Supp. 999, 1007 (N.D. Ill. 1982); *Rearden LLC v. Walt Disney Co.*, 293 F. Supp. 3d 963, 969 (N.D. Cal. 2018); *Torah Soft Ltd. v. Drosnin*, 136 F. Supp. 2d 276, 283 (S.D.N.Y. 2001).

375. See *Abbott*, *supra* note 153, at 1114–15 (explaining why owners are the most appropriate intellectual property right holders in the context of patent law). The user might be an appropriate default in cases where there is no AI “owner” such as with open-source code.

376. *FAQ: Authorship and Ownership in U.S. Copyright Law*, AUTHORS ALL. (May 20, 2014), <https://www.authorsalliance.org/2014/05/20/authorship-and-ownership-faq/> [<https://perma.cc/WDC3-R9MF>]. *But see* 17 U.S.C. § 201(a) (stating that copyright in a work “vests initially in the author or authors of the work”).

377. “The ownership of a copyright may be transferred in whole or in part by any means of conveyance or operation of law” 17 U.S.C. § 201(d)(1).

378. “In the case of a work made for hire, the employer or other person for whom the work was prepared is considered an author for the purposes of this title, and unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all rights comprised in the copyright.” *Id.* § 201(b).

379. *Id.*; see also *FAQ: Authorship and Ownership in U.S. Copyright Law*, *supra* note 376 (discussing instances in which authors give up their rights outside of the employment context).

380. For instance, copyright can be transferred by any operation of law; this might occur without an author's consent in the event the author has passed away, or as part of a bankruptcy proceeding.

381. See Thomas W. Merrill, *Accession and Original Ownership*, 1 J. LEGAL ANALYSIS, 459, 460 (2009).

382. *Id.*

383. *Carruth v. Easterling*, 150 So. 2d 852, 855 (Miss. 1963) (“The general rule, in the absence of an agreement to the contrary, is that the offspring or increase of tame or domestic animals belongs to the owner of the dam or mother.”).

document that transfers title to the fruit—the title to the fruit automatically transfers or initially vests in the tree’s owner by virtue of her relationship to the fruit tree.³⁸⁴

If an AI makes a piece of physical property, such as a 3D printer making a painting, the AI’s owner would own that painting. There is no reason why someone should be any less entitled to digital art made by an AI. To the contrary, the intangible nature of digital art makes protection more important because it is more easily copied than a physical painting.

First possession could also entitle an AI owner to copyright. “[T]he common and civil law (both of which accept the desirability of private ownership) have responded with the proposition that the taking possession of unowned things is the only possible way to acquire ownership of them.”³⁸⁵ The rule of first possession is simple, but like accession, it is foundational to functioning systems of private property.³⁸⁶ If an AI makes a piece of property, and if no other party is entitled to ownership by virtue of their relationship to the AI, then copyright in a work is unowned property that goes to the first party to take possession of the work.³⁸⁷

An AI owner might also be entitled to copyright if an AI-generated work is considered a WMFH.³⁸⁸ This requires either an employment relationship or a written instrument signed by an independent contractor.³⁸⁹ An AI cannot execute a contract, and it is not an employee in the sense of labor laws, but it could be treated as an employee for the limited purpose of the WMFH doctrine.³⁹⁰ The Supreme Court, in *Community for Creative Non-Violence v. Reid*,³⁹¹ identified factors that characterize an employment relationship under agency law.³⁹² Those

384. In some cases, parties may have conflicting entitlement claims, such as a party taking budwood from a tree and selling the resulting fruit against the wishes of the original owner of the tree, but these are entitlement disputes that courts are familiar with resolving based on underlying principles of property law. See, e.g., *Franklin v Giddins* [1978] Qd R 72, 77–84 (Austl.).

385. Richard A. Epstein, *Possession as the Root of Title*, 13 GA. L. REV. 1221, 1222 (1979).

386. Merrill, *supra* note 381, at 460.

387. In practice, a user might be more likely to first possess a work than the owner of an AI, but that could be dealt with by contract as discussed further below. See generally PAUL GOLDSTEIN, *COPYRIGHT: PRINCIPLES, LAW AND PRACTICE* (1989) (analyzing whether an author is required to be a formal employee for a business to claim ownership).

388. 17 U.S.C. § 201(b).

389. *Id.* The writing requirement is relatively new and was not part of the 1909 Copyright Act, which simply included employment as one example of a work for hire. Anne Marie Hill, *Work for Hire Definition in the Copyright Act of 1976: Conflict Over Specially Ordered or Commissioned Works*, 74 CORNELL L. REV. 559, 564, 570–71 (1989).

390. Someone can be an employee under the WMFH doctrine without being an employee under labor laws. See *Horror, Inc. v. Miller*, 15 F.4th 232, 244–47 (2d Cir. 2021).

391. 490 U.S. 730 (1989).

392. The Restatement (Second) of Agency, to which the Court looks for guidance in explicating the general common law of agency regarding classification as an employee, states that

factors, including the employer's control over the work, the employer's control over the employee, and the status and conduct of the employee, all weigh in favor of AI-generated works being treated as a WMFH. AIs are controlled, operated at someone's direction, and even owned as property. The central concern with over-application of the WMFH doctrine is that it has the potential to exploit human authors.³⁹³ Employers might acquire copyrights not contemplated at the time of contracting and therefore not reflected in the agreed-upon price for employment or a work. However, where an author is an AI that has no legal rights, there can be no concern about exploitation.

Beyond the legal justification for AI owners being default copyright holders, they are the most appropriate copyright owners for policy reasons. Having owners as right holders encourages investments in developing AI systems—and it encourages owners to license their AI systems.³⁹⁴ All of which should result in the further creation and dissemination of works.

Ultimately, the specific default owner is less important than ensuring well-defined property rights.³⁹⁵ That is because copyright is transferable, and so where the user, programmer, and owner are different parties, these

control or the right to control the work being produced “in many situations is determinative.” Restatement (Second) of Agency § 220(1) cmt. d (Am. L. Inst. 1965). In 1989, the Supreme Court wrote in *Reid* that central to the resolution of this inquiry of whether a party is engaged as an employee or independent contractor is “the hiring party’s right to control the *manner and means* by which the product is accomplished.” 490 U.S. at 751 (emphasis added). This case marked a shift from the actual control required under the Restatement and prior cases to a factor-based assessment:

We turn, finally, to an application of section 101 to Reid’s production of [the Nativity sculpture]. In determining whether a hired party is an employee under the general common law of agency, we consider the hiring party’s right to control the manner and means by which the product is accomplished. Among the other factors relevant to this inquiry are the skill required; the source of the instrumentalities and tools; the location of the work; the duration of the relationship between the parties; whether the hiring party has the right to assign additional projects to the hired party; the extent of the hired party’s discretion over when and how long to work; the method of payment; the hired party’s role in hiring and paying assistants; whether the work is part of the regular business of the hiring party; whether the hiring party is in business; the provision of employee benefits; and the tax treatment of the hired party. No one of these factors is determinative.

Id. at 751–52 (internal citations omitted).

393. See, e.g., Anne Marie Hill, Note, *Work for Hire Definition in the Copyright Act of 1976: Conflict Over Specially Ordered or Commissioned Works*, 74 CORNELL L. REV. 559, 569 (1989).

394. See Abbott, *supra* note 153, at 1114–15 (discussing entitlement options in the AI-generated invention context).

395. See *id.* at 1115.

parties can contract amongst themselves to an optimal outcome.³⁹⁶ That is particularly likely to occur in advance where the prospect of copyright is an important incentive for creation or collaboration.³⁹⁷

E. *The Importance of Recognizing AI Authors*

If AI-generated works are to be protected, this also raises the question of who, or what, should be designated as an author. By definition, in the case of an AI-generated work, an AI user, programmer, or owner would not qualify as an author according to traditional criteria. Therefore, this requires either non-traditional criteria for human authorship, no authorship requirement, or AI authorship.³⁹⁸ Some of these options could require an amendment to the Copyright Act.

For example, the Copyright Act could be amended to state that in the case of an AI-generated work, the AI user is deemed the author. This has the advantage of ensuring protection and a clear allocation of rights, although it allows someone to claim authorship for merely asking an AI to generate something creative. That is not unfair to the AI of course, because the AI has no interest in taking credit for the work, but it is unfair to other human artists because it changes the meaning of authorship. It equates legitimate human creativity with someone simply instructing a computer. If someone claimed authorship of every artwork generated by DALL·E 2, they would become the most prolific artist in history overnight. Of course, the WMFH doctrine makes an employer—whether an individual or a corporation—a legal author, even if all the work was done by an uncredited employee.³⁹⁹

AI-generated works could also be authorless. For example, the Copyright Act allows works to be registered anonymously or pseudonymously, although only for works created by a natural person and not for WMFH.⁴⁰⁰ Similarly, an applicant could register an AI-generated work with no author listed and an explanation of the basis on which they claim entitlement. This has the advantage of avoiding dilution of human authorship, but not designating an author may prove problematic to entitlement. If an AI is being used by a third party to generate a work, the rightful copyright owner may have no way to know the provenance of the work unless the AI is disclosed in a registration or in litigation. Indeed, for essentially this reason, the USCO encourages applicants to provide an

396. See W. Michael Schuster, *Artificial Intelligence and Patent Ownership*, 75 WASH. & LEE L. REV. 1945, 1966 n.125 (2018).

397. See *id.* at 1966 n.124.

398. Corporate authorship is another option, already available in the case of works for hire, but not every production of an AI-generated invention will involve a corporation.

399. 17 U.S.C. § 201(b).

400. 17 U.S.C. § 409(3).

author's name rather than to register a work anonymously, noting that it creates a clear record of the authorship and ownership of the copyright.⁴⁰¹

Finally, the factual author (the AI) could be listed as the legal author—with some surprising benefits. Listing the AI promotes transparency and appropriate entitlement. It not only accurately reports authorship, because the AI is functionally doing the work of a traditional author, but it also allows the various stakeholders involved with the AI to have a clear record of a work's origins. This allows stakeholders to claim and enforce their rights more appropriately.

Recognizing AI authors also helps to preserve a human-centric vision of authorship. Allowing transparent designation of authorship allows the public to understand how works were created. It also benefits policymakers as they struggle with issues related to AI-generated works. One of the best ways to track information on the prevalence of AI-generated works is to allow these works to be registered with AI authors.

AI authorship has a final advantage in that, depending on the outcome of *Thaler v. Perlmutter*, it may already be permitted under the Copyright Act. There is no case law holding that an AI cannot be an author, only dicta supporting the Human Authorship Requirement—much of which dates to before the development of AI. Given that AI authorship would promote the purpose of the Copyright Act, a court employing a purposive approach to statutory interpretation should conclude that it is entirely permissible. Indeed, the Supreme Court has a long history of interpreting the terms “writings” and “authors” purposively, and not “in their narrow literal sense but, rather, with the reach necessary to reflect the broad scope of constitutional principles.”⁴⁰² That is particularly important in the case of the Copyright Act, which was designed to accommodate technological advances.⁴⁰³

CONCLUDING THOUGHTS

Our discomfort with the notion of computer-“authored” works (even if we cannot articulate a principled reason for the discomfort) is in keeping with a recurring phenomenon in the development of copyright law. In every age, a new technology has appeared about which people have expressed fear and concern, claiming that it defies the boundaries of the existing legal system. With respect to copyright, these claims were made about photographs, motion pictures, sound

401. COMPENDIUM (THIRD), *supra* note 11, at § 615.1(B).

402. *See* Goldstein v. California, 412 U.S. 546, 561 (1973).

403. *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (“When technological change has rendered its literal terms ambiguous, the Copyright Act must be construed in light of its basic purpose.”).

recordings, radio, television, and other telecommunications. In each case, the copyright system has managed over time to incorporate the new medium of expression into the existing framework. Most recently, the role of the upstart new technology has been assumed by computers. For a while, the computers-and-copyright battlefield was centered on the copyrightability of computer programs as literary works. That contest now has been largely fought and resolved in favor of copyrightability. It may be that the next battle will be over copyrightability of computer-generated works.⁴⁰⁴

Professor Arthur Miller, 1991

Technological evolution is often an impetus for reevaluation of copyright law.⁴⁰⁵ AI is now generating creative works in a major way, and these works have value to consumers. Today, AI-generated art is making a splash on the internet. Tomorrow, AI-generated music will be playing on the radio and people will be drawing insights from AI-generated literature. The relentless improvement of AI means that people will increasingly have access to a wealth of useful content. The unique characteristics of generative AI, including the self-improving nature of AI models and the difficulties associated with attributing their outputs to human creators, challenges the existing framework and necessitates a thorough rethinking of what rules will result in the greatest social value. Encouraging the creation and dissemination of such content is the main purpose of the copyright system, and allowing copyright protection for AI-generated works will achieve this purpose. Once the desirability of protecting these works is acknowledged, acknowledging AI authorship then becomes nothing more than opting for reality instead of elaborate legal fictions.

404. Arthur Miller, *Computers and Authorship: The Copyrightability of Computer-Generated Works*, in WIPO WORLDWIDE SYMPOSIUM ON THE INTELLECTUAL PROPERTY ASPECTS OF ARTIFICIAL INTELLIGENCE 241, 245–46 (1991), https://tind.wipo.int/record/19473/files/wipo_pub_698-en-wipo-worldwide-symposium-on-the-intellectual-property-aspects-of-artificial-intelligence.pdf [<https://perma.cc/Z6GZ-RK49>].

405. See Brad A. Greenberg, *Rethinking Technology Neutrality*, 100 MINN. L. REV. 1495, 1497 (2015); see also *The Evolution of Copyright Law*, U.S. COPYRIGHT OFF., copyright.gov/history/copyright-exhibit/evolution/ [<https://perma.cc/S9FR-RSZ9>] (“Copyright has evolved since the first federal copyright law that protected just books, charts, and maps. Over time, the law has expanded to include broad categories encompassing a wide range of works, such as literary works, music and sound recordings, dramatic works, choreography and pantomimes, visual art works, audiovisual works, and architectural works.”).

