

COMMENT

RECOGNIZING PARTIAL AI AUTHORSHIP: TOWARD A MORE PERMISSIVE COPYRIGHT REGIME

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Under existing copyright law, photographers own the rights to every image they take instantly when the shutter clicks. That copyright survives if a photographer alters an image using software like Adobe Photoshop. But how might a photographer's copyright be complicated by the use of generative AI in altering their own source imagery? In March 2023, the U.S. Copyright Office set out to answer this question by issuing its first formal guidance on works containing AI-generated material. In it, the Copyright Office attempted to delineate clear boundaries governing the copyrightability of partially AI-generated works. But it fell woefully short. By relying too heavily on existing doctrines and straining core copyright principles, the Copyright Office's March 2023 guidance extends insufficient protection to partially AI-generated works and threatens to stifle creative expression just as generative AI prompts a bold reimagining of authorship.

This Comment engages with the robust and ongoing discussion around generative AI and copyright, scrutinizing in particular the U.S. Copyright Office's current approach to partially AI-generated pictorial, graphic, and sculptural works. By leaning too heavily on existing derivative works and compilation doctrines and utilizing outdated, poorly defined terminology, the U.S. Copyright Office's March 2023 guidance sows more confusion than clarity and threatens to undermine core copyright principles. In lieu of continued reliance upon its faulty guidance, this Comment suggests that the Copyright Office broaden its longstanding human authorship requirement to embrace hybrid human-AI authorship.

Introduction	1334
I. Copyright and Generative AI: A Crash Course	1337
A. Fundamentals of Copyright Law.....	1337
B. What Is Generative AI and How Does It Work?.....	1340
C. Copyrightability of AI-Generated Works.....	1344

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1. Entirely AI-Generated Works.....	1344
2. Partially AI-Generated Works	1346
II. The Copyright Office Gets It Wrong on Partial AI Authorship	1347
A. The Copyright Office’s Guidance Is Unworkable	1348
1. Straining Existing Copyright Doctrines	1348
2. Reliance on Outdated Statutory Language	1351
B. The Copyright Office’s Guidance Undermines Core Copyright Principles	1356
1. Complicating Automatic and Instantaneous Protection.....	1356
2. De Facto Mandatory Registration.....	1358
III. The Copyright Office Should Broaden Its Human Authorship Requirement.....	1359
Conclusion	1365

INTRODUCTION

In May 2023, Adobe released a new beta version of Photoshop, the popular photo-editing software.¹ Included in the release was a new editing tool: Generative Fill.² Powered by a proprietary, generative artificial intelligence (AI) model, the tool allows users to select a portion—any portion—of the photo they are editing, type a command into a text box prompting a desired change to the selected area, and click “Generate.”³ In seconds, the generative AI outputs the requested change in photo-realistic quality.⁴

I, myself, am a semi-professional freelance photographer. In August 2023, I agreed to take engagement photos for a friend. We planned in advance when and where the proposal would take place, where I would stand, and how he would orient his partner to best capitalize on early evening light. Neither of us anticipated, however, that when he got down

1. *Adobe Unveils Future of Creative Cloud with Generative AI as a Creative Co-Pilot in Photoshop*, ADOBE (May 23, 2023, 7:00 AM), <https://news.adobe.com/news/news-details/2023/Adobe-Unveils-Future-of-Creative-Cloud-with-Generative-AI-as-a-Creative-Co-Pilot-in-Photoshop-default.aspx/default.aspx>. In the months since, Adobe’s generative AI tools—such as Generative Fill—have progressed out of beta and are now widely available to the public. Jess Weatherbed, *Adobe’s Firefly Generative AI Tools Are Now Widely Available*, VERGE (Sept. 13, 2023, 8:12 AM), <https://www.theverge.com/2023/9/13/23871537/adobe-firefly-generative-aimodel-general-availability-launch-date-price> [<https://perma.cc/QLE9-SG5U>].

2. *Adobe Unveils Future of Creative Cloud with Generative AI as a Creative Co-Pilot in Photoshop*, *supra* note 1.

3. *Tap into the Power of AI Photo Editing*, ADOBE, <https://www.adobe.com/products/photoshop/ai.html> (last visited Sept. 16, 2024).

4. *Id.*

on one knee a signpost in the foreground would separate the two of them in the frame. Not to worry, I assured my friend, the signpost would be no match for Photoshop. Ordinarily, I would remove the signpost by hand using existing Photoshop tools. But, having heard about Generative Fill, I was curious about how effective the new tools would be. So, I selected the portion of the image that contained the signpost, prompted the AI to remove it, and clicked “Generate.” Seconds later, the software had done so—flawlessly.

Under existing copyright law, photographers own the rights to every image they take instantly when the shutter clicks, just as all authors own the copyright to their respective works the moment they become fixed in a tangible medium of expression.⁵ That copyright survives if a photographer alters an image using a piece of software like Photoshop.⁶ But how might a photographer’s copyright be complicated by the use of AI in altering their own source imagery? Courts and the U.S. Copyright Office have only just begun to grapple with the implications of generative AI on copyright. In a number of recent decisions, courts have repeatedly held—and the U.S. Copyright Office has made it their policy—that works created entirely by generative AI are not entitled to any copyright protection, reasoning that copyright protection extends only to products of human creation.⁷ But that leaves unresolved the extent to which works only *partially* created by AI should receive copyright protection.

5. See 17 U.S.C. § 102(a); see also MELVILLE B. NIMMER & DAVID NIMMER, 1 NIMMER ON COPYRIGHT § 2A.08[3][A][i] (2024) (“The originality requirement for photographs has therefore come to be expansively understood. It effectively covers just about any set of choices made by the person producing the photograph, before it is actually taken. Consequently, almost any photograph may claim the necessary originality to support a photograph merely by virtue of the photographers’ personal choice of the rendition of the image, the subject matter, or the precise time when the photograph is taken.”) (footnote omitted).

6. See generally *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57–58 (1884) (extending copyright protection to works whose authors employed the use of creative tools or technologies, such as a camera); see also *What Photographers Should Know About Copyright*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/engage/photographers/> (last visited Sept. 16, 2024) (“As a copyright owner, you have the right to make, sell or otherwise distribute copies, adapt the work, and publicly display your work.”).

7. See *Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 149–50 (D.D.C. 2023); COPYRIGHT REV. BD., U.S. COPYRIGHT OFF., CORRESP. ID 1-3ZPC6C3, SECOND REQUEST FOR RECONSIDERATION FOR REFUSAL TO REGISTER A RECENT ENTRANCE TO PARADISE (2022), <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf> [<https://perma.cc/S693-KPLR>] [hereinafter REFUSAL OF “A RECENT ENTRANCE TO PARADISE”].

The U.S. Copyright Office issued its first formal guidance on works containing material generated by AI in March 2023.⁸ In it, the Copyright Office attempted to delineate clear boundaries governing the copyrightability of partially AI-generated works using bedrock copyright doctrines and principles.⁹ But the Office fell woefully short. Copyright law as currently constituted is ill-equipped to address partial AI authorship. By relying too heavily on existing doctrines and straining core copyright principles, the Copyright Office's March 2023 guidance extends insufficient protection to partially AI-generated works and threatens to stifle creative expression just as generative AI prompts a bold reimagining of authorship.

This Comment engages with the robust and ongoing discussion around generative AI and copyright,¹⁰ scrutinizing in particular the U.S. Copyright Office's current approach to partially AI-generated pictorial, graphic, and sculptural works.¹¹ Part I provides a primer in relevant copyright law, summarizes the rapid proliferation of generative AI technology, and introduces the Copyright Office's current approach to the copyrightability of AI-generated materials. Part II argues that this approach is inconsistent with existing copyright doctrine and core principles. In search of more robust copyright protection for partially AI-generated works, Part III suggests that the Copyright Office interpret its longstanding "human authorship" requirement more broadly. This Comment concludes by discussing the troubling implications of the Copyright Office's current approach at a time when many companies—

8. Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16190–94 (Mar. 16, 2023) (to be codified at 37 C.F.R. pt. 202) [hereinafter AI Registration Guidance]. The Copyright Office's guidance sweeps quite broadly, articulating both the Office's position that works created entirely by AI are not copyrightable and its approach to works partially authored by AI. *Id.*

9. *Id.*

10. See Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 STAN. TECH. L. REV. 5, at 1; Bruce E. Boyden, *Emergent Works*, 39 COLUM. J.L. & ARTS 377 (2016); Margot E. Kaminski, *Authorship, Disrupted: AI Authors in Copyright and First Amendment Law*, 51 UC DAVIS L. REV. 589 (2017); 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 (2016); Dan L. Burk, *Thirty-Six Views of Copyright Authorship, By Jackson Pollock*, 58 HOUS. L. REV. 263 (2020).

11. My focus on pictorial, graphic, and sculptural (PGS) works serves both rhetorical and substantive purposes. Rhetorically, PGS works poignantly illustrate the tricky edge cases that can arise in partial AI authorship contexts. They also highlight the shortcomings of the Copyright Office's current approach to resolving those edge cases. Perhaps for these reasons, the most prominent instances of partial AI authorship scrutinized by courts and the Copyright Office to date concern PGS works. See *infra* Sections I.C.2, II.A. Substantively, assessing the copyrightability of partially AI-authored literary works may prove more complicated. These works are certainly an area for further exploration but fall outside the scope of this Comment.

from creative suites like Adobe to consumer tech giants Google and Apple—are rapidly mainstreaming generative AI technology.

I. COPYRIGHT AND GENERATIVE AI: A CRASH COURSE

A. Fundamentals of Copyright Law

Copyright is a property right enshrined in the U.S. Constitution¹² and granted by law to the authors of “original works of authorship fixed in any tangible medium of expression”¹³ Embedded within this seemingly simple definition are three basic elements that works must possess to warrant protection: original authorship, creativity, and fixation.¹⁴ First, original authorship, according to the U.S. Copyright Office, is “the bedrock principle of copyright.”¹⁵ Intent on signaling the breadth of “original works of authorship,” Congress purposefully left the term undefined when it passed the Copyright Act in 1976.¹⁶ Today, the Copyright Office simply requires that original works be created by a human author and possess at least some minimal degree of creativity.¹⁷ Second, aware of the difficulty of—and inherent subjectivity involved in—assessing the quantum of creativity possessed by a given work, both the Supreme Court and the Copyright Office have quite purposefully set a low bar: Works need only possess a “slight amount” of creativity to receive copyright protection.¹⁸ Third, a work becomes “fixed when it is captured . . . in a sufficiently permanent medium such that [it] can be perceived, reproduced, or otherwise communicated for more than a short time.”¹⁹ Much like original authorship and creativity, the fixation requirement is easily satisfied.²⁰

The breadth of copyright is vast. Copyrightable works include “literary works; musical works, including any accompanying words;

12. U.S. CONST. art. I, § 8, cl. 8 (“To 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.”).

13. 17 U.S.C. § 102(a).

14. U.S. COPYRIGHT OFF., CIRCULAR 1: COPYRIGHT BASICS 1 (2021), <https://www.copyright.gov/circs/circ01.pdf> [https://perma.cc/8GCG-BWL2] [hereinafter CIRCULAR 1: COPYRIGHT BASICS].

15. U.S. COPYRIGHT OFF., COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES §§ 305, 308 (3d ed. 2021) [hereinafter COMPENDIUM (THIRD)] (quoting *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 347 (1991)).

16. REFUSAL OF “A RECENT ENTRANCE TO PARADISE,” *supra* note 7, at 3.

17. COMPENDIUM (THIRD), *supra* note 15, §§ 306, 308.

18. *Feist Publ’ns*, 499 U.S. at 345; *see also* COMPENDIUM (THIRD), *supra* note 15, § 308.2.

19. CIRCULAR 1: COPYRIGHT BASICS, *supra* note 14, at 1; *see also* COMPENDIUM (THIRD), *supra* note 15, § 305 (quoting 17 U.S.C. § 101).

20. COMPENDIUM (THIRD), *supra* note 15, § 305.

dramatic works, including any accompanying music; pantomimes and choreographic works; pictorial, graphic, and sculptural works; motion pictures and other audiovisual works; sound recordings; and architectural works.”²¹ Notably, however, copyright law draws a distinction between ideas and the *expression* of ideas, protecting only the latter.²² Once attached, copyright affords owners the exclusive rights to reproduce, perform, display, and display their original works, and create derivatives of them.²³ Violation of any one of the author’s exclusive rights gives rise to liability against the infringer.²⁴ For works created on or after January 1, 1978, copyright protections remain in force for the life of the author plus seventy years after their death.²⁵

Since its earliest days, copyright law has also permitted authors to use creative tools or technologies in generating their works. In *Burrow-Giles Lithographic Co. v. Sarony*,²⁶ the U.S. Supreme Court held up the camera as an early example of a creative tool.²⁷ There, the Court formally extended copyright protection to photographs, recognizing them as “representatives of original intellectual conceptions of the author” and not merely machine-made “reproduction[s] on paper of the exact features of some natural object or of some person.”²⁸ The Court’s decision in

21. 17 U.S.C. § 102(a). Sound recordings are “works that result from the fixation of a series of musical, spoken, or other sounds.” CIRCULAR 1: COPYRIGHT BASICS, *supra* note 14, at 1. Moreover, these categories are intended to be interpreted broadly for the purpose of copyright registration: “Computer programs . . . can be registered as ‘literary works’; maps and technical drawings can be registered as ‘pictorial, graphic, and sculptural works.’” *Id.*

22. U.S. COPYRIGHT OFF., CIRCULAR 33: WORKS NOT PROTECTED BY COPYRIGHT 1 (2021), <https://www.copyright.gov/circs/circ33.pdf> [<https://perma.cc/S6VL-XMAK>].

23. 17 U.S.C. § 106.

24. 17 U.S.C. § 501(a)–(b). Litigants are beginning to explore copyright infringement claims against the proprietors of generative AI platforms. In December 2023, *The New York Times* filed a lawsuit against OpenAI and Microsoft for copyright infringement, alleging that millions of articles published by the *Times* had been unlawfully used as training material for ChatGPT. *See* Complaint at 1–4, *New York Times Co. v. Microsoft Corp.*, No. 1:23-cv-11195 (S.D.N.Y. Dec. 27, 2023). Though not directly relevant to this Comment, the outcome of this and similar litigation is likely to play an instrumental role in shaping the interplay between copyright law and generative AI.

25. § 302(a); *see also* CIRCULAR 1: COPYRIGHT BASICS, *supra* note 14, at 4. Works created before January 1, 1978, maintain their copyright protection, provided they have not yet entered the public domain. §§ 303(a), 304. However, the applicable copyright term varies depending on the work’s publication date and/or date of creation. *Id.* Because I focus principally on newly authored works, pre-1978 copyright terms are outside the scope of this Comment.

26. 111 U.S. 53 (1884).

27. *Id.* at 56–59.

28. *Id.* Cameras may have been the first creative tool employed by photographers, but they will not be the last. Today, photographers rely on a vast array

Sarony has proven both influential and durable; courts and the Copyright Office continue to cite to it today as the source of copyright law's human authorship requirement and the extension of copyright protection to works authored with the assistance of creative tools.²⁹

Ordinarily, authors seeking copyright protection of their works face few obstacles. Copyright protection exists *automatically* from the moment the original work of authorship is fixed.³⁰ That is, the instant an author puts original words to paper, or a photographer captures an image, the work is fixed and protected by copyright. Authors can enhance the protection afforded by their copyright by registering it with the U.S. Copyright Office.³¹ Registration creates a public record of "key facts relating to the authorship and ownership of the claimed work," including the work's title, author, year of creation, and publication status.³² "Although registering a work is not mandatory, . . . registration (or refusal) is necessary to enforce the exclusive rights of copyright through litigation."³³ Thus, particularly for commercial authors, artists, and other creators, registration serves as a vital safeguard against infringement.³⁴ In 2022, the Copyright Office received 486,428 claims to copyright and registered over ninety-nine percent of them.³⁵

Notably, however, authors seeking registration are not always entitled to copyright over the *entirety* of their works. This is because copyright does not protect portions of works that include material that has been previously published or registered, has already entered the

of tools and technologies in authoring their copyrightable works, including Adobe applications like Photoshop, Illustrator, and Premier.

29. In fact, citations to *Sarony* appear not only in the Copyright Office's March 2023 guidance, but also in each of the case studies introduced and analyzed throughout this Comment. See AI Registration Guidance, *supra* note 8, at 16191; *Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 143–44 (D.D.C. 2023); REFUSAL OF "A RECENT ENTRANCE TO PARADISE," *supra* note 7, at 4; U.S. COPYRIGHT OFF., CORRESP. ID 1-5GB561K, ZARYA OF THE DAWN 3 (2023), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [<https://perma.cc/UT26-C3RF>] [hereinafter REFUSAL OF "ZARYA OF THE DAWN"]; COPYRIGHT REV. BD., U.S. COPYRIGHT OFF., CORRESP. ID 1-5T5320R, SECOND REQUEST FOR RECONSIDERATION FOR REFUSAL TO REGISTER THÉÂTRE D'OPÉRA SPATIAL 4 (2023), <https://www.copyright.gov/rulings-filings/review-board/docs/Theatre-Dopera-Spatial.pdf> [<https://perma.cc/JWP4-ZBK7>] [hereinafter REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL"].

30. COMPENDIUM (THIRD), *supra* note 15, § 202.

31. *Id.*

32. *Id.*

33. CIRCULAR 1: COPYRIGHT BASICS, *supra* note 14, at 4.

34. See *id.* at 4–5.

35. 2022 U.S. COPYRIGHT OFF. ANN. REP. 8 (2024), <https://www.copyright.gov/reports/annual/2022/ar2022.pdf> [<https://perma.cc/9ACB-SKWN>].

public domain, or is owned by a third party.³⁶ Including such “unclaimable material” may limit—if not entirely destroy—the scope of an author’s copyright.³⁷ Accordingly, the Copyright Office requires that authors seeking registration disclaim any unclaimable material appearing in their work in the “Limitation of Claim” section of the application.³⁸

Instances of partial copyright ownership most often arise in two kinds of works: derivative works and compilations.³⁹ Derivative works are those that are “based upon or incorporate one or more preexisting works.”⁴⁰ Illustrative examples include screenplays adapted from preexisting novels and drawings based upon photographs.⁴¹ Compilations, by contrast, are “work[s] formed by the collection and assemblage of preexisting materials . . . [such] that the resulting work, as a whole, constitutes an original work of authorship.”⁴² Consider, for example, a coffee table book consisting of famous images captured by renowned photojournalists. Congress intended the derivative works and compilation categories to be expansive and versatile, together capable of “comprehend[ing] every copyrightable work that employs preexisting material or data of any kind.”⁴³ Derivative works and compilations are still copyrightable; however, for both categories of works, the scope of the right is limited.⁴⁴ Registration for derivative works extends only to the new material being added to the work,⁴⁵ while registration for compilations extends to the original selection, coordination, or arrangement included in the work.⁴⁶

B. What Is Generative AI and How Does It Work?

Since 2022, generative AI has exploded—both in technological sophistication and, in turn, popularity. AI-powered chatbots like ChatGPT are capable of intelligent, human-like conversation.⁴⁷ They

36. *Help: Limitation of Claim*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/eco/help-limitation.html> [<https://perma.cc/8535-2A89>].

37. *Id.*

38. *Id.*

39. *See* COMPENDIUM (THIRD), *supra* note 15, § 503.1(C).

40. *Id.* § 507.1 (quoting 17 U.S.C. § 101).

41. *Id.*

42. *Id.* § 508.1 (quoting 17 U.S.C. § 101).

43. H.R. REP. NO. 94-1476, at 57 (1976), *as reprinted in* 1976 U.S.C.C.A.N. 5659, 5670.

44. COMPENDIUM (THIRD), *supra* note 15, §§ 507.2, 508.2.

45. *Id.* § 507.2.

46. *Id.* § 508.2.

47. Pranshu Verma & Kevin Schaul, *See Why AI Like ChatGPT Has Gotten So Good, So Fast*, WASH. POST (May 24, 2023, 7:45 PM), <https://www.washingtonpost.com/business/interactive/2023/artificial-intelligence-tech-rapid-advances/>.

craft poems, write songs, and churn out computer code, all tailored to the user's preferred style and specifications.⁴⁸ Image generators like DALL-E 2 are similarly sophisticated, transforming descriptive strings of user-provided text into photo-realistic images.⁴⁹ As recently as 2021, these technologies were in their infancy; today, they are seemingly everywhere. By September 2022, more than 1.5 million DALL-E 2 users were producing over 2 million images per day.⁵⁰ In January 2023—just two months after its initial launch—ChatGPT reached 100 million monthly active users, “making it the fastest growing consumer application in history.”⁵¹ In September 2023, Adobe unveiled its Generative Fill feature to the paying public.⁵² And a month later, Google had begun advertising smartphones with embedded generative AI capabilities.⁵³

Not all generative AI models are created equal.⁵⁴ The very earliest models were primarily predictive—for example, text generation tools which rely on the previous few words in a sentence to predict which word might come next.⁵⁵ By training these predictive models on progressively larger datasets, researchers were able to create rudimentary chatbots and text-generation platforms.⁵⁶ Recent advances have enabled more powerful generative AI architectures capable of identifying patterns within their training data to generate content similar to but distinct from it.⁵⁷ That is, modern generative AI models do not merely regurgitate the

48. *Id.*

49. *Id.*

50. *DALL-E Now Available Without Waitlist*, OPENAI (Sept. 28, 2022), <https://openai.com/index/dall-e-now-available-without-waitlist/>.

51. Krystal Hu, *ChatGPT Sets Record for Fastest-Growing User Base*, REUTERS (Feb. 2, 2023, 9:33 AM), <https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>.

52. Weatherbed, *supra* note 1.

53. Rachyl Jones, *Google Is Betting Its Pixel Phones Can Finally Threaten iPhone's Reign by Hitting Apple Where It Hurts: AI*, FORTUNE (Oct. 4, 2023), <https://fortune.com/2023/10/04/google-pixel-phone-generative-ai-tech-competition-apple-iphone-samsung/> [<https://perma.cc/FLJ8-LLMW>].

54. For a detailed account of the various kinds of generative AI models currently in prominent use, see generally Katherine Lee, A. Feder Cooper & James Grimmelmänn, *Talkin' 'Bout AI Generation: Copyright and the Generative-AI Supply Chain*, J. COPYRIGHT SOC. U.S.A. (forthcoming 2024) (manuscript at 16–31), <https://james.grimmelmänn.net/files/articles/talkin-bout-ai-generation.pdf> [<https://perma.cc/KJ7C-RKMT>]. For the purposes of this Comment, only a cursory understanding of the technology underpinning generative AI platforms is necessary.

55. Adam Zewe, *Explained: Generative AI*, MIT NEWS (Nov. 9, 2023), <https://news.mit.edu/2023/explained-generative-ai-1109> [<https://perma.cc/9BV5-CES7>].

56. *Id.*

57. *Id.*; see also Ryan O'Connor, *Introduction to Diffusion Models for Machine Learning*, ASSEMBLYAI (May 12, 2022), <https://www.assemblyai.com/blog/diffusion->

data on which they are trained; rather, they create new and original content influenced by it.⁵⁸ Prominent examples include the “diffusion” models underlying popular text-to-image generation systems, which “work by destroying training data through the successive addition of [random signal] noise, and then learning to recover the data by reversing this noising process.”⁵⁹ Once trained, diffusion models are able to generate entirely original content in response to user-generated prompts by “passing randomly sampled noise through the learned denoising process.”⁶⁰

Photoshop’s Generative Fill is powered by Firefly, a proprietary diffusion model embedded in applications across Adobe⁶¹ and capable of “creat[ing] videos, documents, and digital experiences, as well as rich images and art.”⁶² Adobe casts Firefly and the features it powers not as creators or authors in and of themselves, but as tools capable of furnishing the “creative building blocks” that “add to or form the foundation of pieces of content.”⁶³ Like other popular generative AIs, Firefly is built on a machine learning model and trains itself on vast datasets to produce outputs consistent with user queries.⁶⁴ To avoid entanglement with valid copyrights, Adobe has trained the current iteration of Firefly on a dataset of licensed and public domain content,⁶⁵ although as the AI evolves Adobe is exploring the possibility of training the machine learning model with user-provided assets.⁶⁶ As of September 2024, however, the company insists that user content has not been used in developing Firefly.⁶⁷

In practice, the tools powered by Adobe’s Firefly generative AI are easy to use. Adobe suggests the following three-step process:

models-for-machine-learning-introduction/ [https://perma.cc/B394-TFQY] (explaining that modern generative AI models are those that “generate data similar to the data on which they are trained”).

58. Zewe, *supra* note 55 (“Generative AI can be thought of as a machine-learning model that is trained to create new data, rather than making a prediction about a specific dataset.”).

59. O’Connor, *supra* note 57 (emphasis omitted).

60. *Id.*

61. Weatherbed, *supra* note 1.

62. *Get the Big Picture with Adobe Express’s Generative AI Glossary*, ADOBE (Nov. 14, 2023), https://helpx.adobe.com/ph_fil/express/how-to/generative-ai-glossary.html

63. *Id.*

64. *Adobe Firefly vs. Stable Diffusion: Bring More Ideas into Your Workflows Quickly with Firefly.*, ADOBE, <https://www.adobe.com/products/firefly/discover/firefly-vs-stable-diffusion.html> (last visited Sept. 17, 2024).

65. *Adobe Firefly FAQ*, ADOBE, <https://helpx.adobe.com/firefly/faq.html> (last visited Sept. 17, 2023).

66. *Id.*

67. *Id.*

1. Use the Selection Brush tool, or any other selection tool, to select an object or area in your image. Click the Generative Fill button that appears in the Contextual Task Bar.
2. Write a prompt describing the object or scene you want to generate in the text-entry prompt box. Or leave it blank and Photoshop will fill in the selection based on the surroundings. To further customize your results in the Photoshop (beta) app, click on Reference Image and upload an example image containing desired content, like a jean jacket. Use just the image or combine it with a prompt to tailor your result even more.
3. Click Generate. You'll see thumbnail previews of variations generated based on your prompt, and a Generative Layer will be created in your Layers panel for nondestructive editing of your original image.⁶⁸

What *actually* happens in between clicking “Generate” and receiving the output, however, is far from clear. Modern generative AIs are colloquially regarded as “black box[es]”.⁶⁹ Though researchers can explain the algorithms they have developed, the theoretical underpinnings of the models they have built, and the datasets they have trained them on, it is functionally impossible to enumerate the step-by-step process employed by a generative AI model in translating user-provided prompts into new and original output.⁷⁰ Some companies intentionally obfuscate the inner workings of their models to protect their intellectual property, but researchers have also yet to fully understand how machine learning models operate.⁷¹

68. *How To Use Generative Fill in Photoshop.*, ADOBE, <https://www.adobe.com/products/photoshop/generative-fill.html> (last visited Sept. 17, 2024).

69. See, e.g., Chloe Xiang, *Scientists Increasingly Can't Explain How AI Works*, VICE (Nov. 1, 2022, 9:00 AM), <https://www.vice.com/en/article/y3pezml/scientists-increasingly-cant-explain-how-ai-works> [<https://perma.cc/M596-YZHB>]; Lee, Cooper & Grimmelman, *supra* note 54, at 31 (“[I]t is possible to break down generate-AI systems into different known aspects and components, and yet, a lot remains unknown about how these systems actually work in detail.”).

70. See Xiang, *supra* note 69.

71. Saurabh Bagchi, *What Is a Black Box? A Computer Scientist Explains What It Means When the Inner Workings of AIs Are Hidden*, CONVERSATION (May 22, 2023, 8:27 AM), <https://www.theconversation.com/what-is-a-black-box-a-computer-scientist-explains-what-it-means-when-the-inner-workings-of-ais-are-hidden-203888> [<https://perma.cc/PUC2-VSDT>].

C. Copyrightability of AI-Generated Works

Generative AI has quickly put existing copyright law to the test. Seemingly overnight, generative AI applications have furnished consumers with the ability to create facially copyrightable works with little more than a brief prompt and the click of a mouse. There is little doubt that the resulting works possess some of the elements required for copyright protection. They likely contain the requisite “slight amount” of creativity and are fixed in tangible mediums of expression.⁷² The copyrightability of these works, therefore, turns primarily on the question of original authorship. In making authorship determinations in the context of AI-generated works, the Copyright Office has drawn a distinction between entirely and partially AI-generated works: The former are not copyrightable, while the latter may be under limited circumstances.⁷³

1. Entirely AI-Generated Works

Though neither the Constitution nor the Copyright Act expressly define who or what constitutes an author,⁷⁴ the U.S. Copyright Office has long recognized copyright only in works created by human beings.⁷⁵ According to the Copyright Office, copyright law “only protects ‘the fruits of intellectual labor’ that ‘are founded in the creative powers of the [human] mind.’”⁷⁶ On this distinction, courts have steadfastly followed the Copyright Office’s lead.⁷⁷ It is hardly surprising, then, that the Copyright Office has relied on its human-authorship requirement in drawing a bright-line rule: Works generated entirely by generative AI are not entitled to copyright protection because they were not authored by a human being.⁷⁸

An early—and instructive—example of the Copyright Office’s rejection of a request for registration of an entirely AI-generated work came in 2019, when computer scientist Stephen Thaler sought to register

72. See sources cited *supra* notes 13–20 and accompanying text.

73. AI Registration Guidance, *supra* note 8, at 16192–93.

74. See U.S. CONST. art. I, § 8, cl. 8; 17 U.S.C. § 101.

75. COMPENDIUM (THIRD), *supra* note 15, § 306.

76. *Id.* (quoting *The Trade-Mark Cases*, 100 U.S. 82, 94 (1879)).

77. See, e.g., *Naruto v. Slater*, 888 F.3d 418, 426 (9th Cir. 2018) (holding that a monkey who took a series of photos lacked standing to sue under the Copyright Act); *Urantia Found. v. Maaherra*, 114 F.3d 955, 958 (9th Cir. 1997) (holding that some human creativity was required to copyright a book claimed to have been inspired by celestial beings).

78. AI Registration Guidance, *supra* note 8, at 16192 (“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.”).

a two-dimensional piece of artwork entitled “A Recent Entrance to Paradise,” pictured below in Figure 1.⁷⁹ At no point in the application process or ensuing administrative squabble did Thaler dispute that the work was created by AI. Indeed, on his initial application for registration, Thaler listed the author of the work as the “Creativity Machine” and conceded “that the [w]ork was autonomously created by a computer algorithm running on a machine.”⁸⁰ In rejecting Thaler’s claim, the Copyright Office concluded that the work “lacked the required human authorship necessary to sustain a claim in copyright.”⁸¹ Months later, the U.S. District Court for the District of Columbia agreed.⁸²



Figure 1. Stephen Thaler’s “A Recent Entrance to Paradise”⁸³

79. REFUSAL OF “A RECENT ENTRANCE TO PARADISE,” *supra* note 7, at 1.

80. *Id.* at 2.

81. *Id.*

82. See *Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 146 (D.D.C. 2023) (“Copyright has never stretched so far . . . as to protect works generated by new forms of technology operating absent any guiding human hand, as plaintiff urges here. Human authorship is a bedrock requirement of copyright.”).

83. Zachary Small, *As Fight Over A.I. Artwork Unfolds, Judge Rejects Copyright Claim*, N.Y. TIMES (Aug. 21, 2023), <https://www.nytimes.com/2023/08/21/arts/design/copyright-ai-artwork.html> (reprinting work).

In March 2023, in response to a number of applications for registration of AI-generated works—including Stephen Thaler’s “A Recent Entrance to Paradise”—the Copyright Office issued its first formal guidance on the topic.⁸⁴ The guidance begins on familiar territory: “In the Office’s view, it is well-established that copyright can protect only material that is the product of human creativity.”⁸⁵ The Office then sets forth its bright-line rule against copyright of entirely AI-generated material. In sweeping language, the policy makes clear that “[i]f a work’s traditional elements of authorship were produced by a machine, the work lacks human authorship and the Office will not register it.”⁸⁶ The guidance continues: “When an AI technology determines the expressive elements of its output, 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.”⁸⁷

2. Partially AI-Generated Works

After setting forth a sweeping prohibition on entirely AI-generated works, the Office then recognizes an important exception: “In [some] cases,” the Office insists, “a work containing AI-generated material will also contain sufficient human authorship to support a copyright claim.”⁸⁸ What might those cases look like? The Copyright Office answers by furnishing two examples that simply regurgitate the black-letter definitions of compilations and derivative works, respectively. First is a human author who, with the help of generative AI, compiles AI-generated material in such a way “that ‘the resulting work as a whole constitutes an original work of authorship.’”⁸⁹ Second is a human author who modifies AI-generated material “to such a degree that the modifications meet the standard for copyright protection.”⁹⁰ In either instance, “copyright will only protect the human-authored aspects of the work, which are ‘independent of’ and do ‘not affect’ the copyright status of the AI-generated material itself.”⁹¹

84. AI Registration Guidance, *supra* note 8, at 16191 & n.7.

85. *Id.* at 16191.

86. *Id.* at 16192.

87. *Id.*

88. *Id.*

89. *Id.* (quoting 17 U.S.C. § 101 (defining compilations)).

90. *Id.* at 16192–93 (citing 17 U.S.C. § 101 (“A ‘derivative work’ is a work based upon one or more preexisting works A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a ‘derivative work’.”)).

91. *Id.* at 16193 (quoting 17 U.S.C. § 103(b)).

Having thus barred entirely AI-generated works from copyright protection and imported the compilation and derivative works doctrines to help delineate the copyrightability of partially AI-authored works, the Office confusingly adds:

This policy does not mean that technological tools cannot be part of the creative process. Authors have long used such tools to create their works or to recast, transform, or adapt their expressive authorship. . . . In each case, what matters is the extent to which the human had creative control over the work’s expression and “actually formed” the traditional elements of authorship.⁹²

Whereas a bright-line rule in favor of human authorship might suffice for works entirely created by AI, instances of partial AI creation call for more nuanced consideration. On a case-by-case basis, and with little indication on where the lines are drawn, the Office must now determine just how much of any given work has been authored by AI and whether the author’s own contributions are sufficient to warrant copyright protection. As we shall soon see, the Copyright Office’s threadbare guidance and case-by-case inquiry will prove difficult to administer and yield unpredictable and inconsistent results.

II. THE COPYRIGHT OFFICE GETS IT WRONG ON PARTIAL AI AUTHORSHIP

In its March 2023 guidance, the U.S. Copyright Office attempted to delineate clear boundaries governing the copyrightability of partially AI-generated works. However, this Part argues that the Office failed to provide clear, workable guidance for partially AI-generated works because (1) it leans too heavily on existing derivative works and compilation doctrines, neither of which are equipped to resolve the edge cases raised by partially AI-generated works; and (2) it relies on outdated statutory language that proves unworkable in the context of partial AI authorship. The Copyright Office’s current approach to partially AI-generated works also threatens to complicate core copyright principles, such as automatic protection and optional registration. Instead of continuing to rely on its faulty guidance, Part III will propose that the Copyright Office broaden its longstanding human authorship requirement to embrace most works of partial AI authorship.⁹³

92. *Id.*

93. I do not go so far as to suggest that *all* works of partial AI authorship should enjoy copyright protection. See *infra* Part III. Just as there are authors whose

A. The Copyright Office's Guidance Is Unworkable

In setting forth its approach to works only partially created by AI, the Copyright Office falters in two key respects. First, in assessing the copyrightability of partially AI-generated works, the Copyright Office has relied heavily on compilations and derivative works doctrines. Neither doctrine as currently constituted is properly equipped to address the complex and novel concerns posed by partial AI authorship. Second, under the Office's guidance, copyright in partially AI-generated works protects only a work's "human-authored aspects" that "are 'independent of' and do 'not affect' the copyright status of the AI-generated material itself."⁹⁴ But in the context of AI-generated material, where authors themselves exert a high degree of influence over the output, it is unclear whether an author's contributions can ever be truly independent of those of a generative AI.

1. Straining Existing Copyright Doctrines

By importing wholesale the compilation and derivative works doctrines into the partial AI authorship context, the Copyright Office has constructed a framework ill-equipped to meet the complexities posed by AI authorship. At first blush, the Copyright Office is not wrong to turn to these existing doctrines when assessing the copyrightability of AI-generated works. They are long-standing, versatile doctrines that have already proven helpful in resolving early questions of AI authorship.

Consider, for example, the "Zarya of the Dawn" copyright dispute.⁹⁵ In 2022, artist and comic-book author Kristina Kashtanova published a graphic novel entitled "Zarya of the Dawn." Kashtanova wrote the text herself but created the images by feeding descriptive prompts to Midjourney, an AI-powered image generator.⁹⁶ Initially unaware of Kashtanova's use of Midjourney, the Copyright Office granted a copyright to the entire work.⁹⁷ When the Copyright Office learned that Kashtanova had relied on Midjourney, however, it took a

reliance on generative AI in their creative process is merely *de minimis* and thus deserving of copyright protection, there are surely authors whose contributions to an otherwise entirely AI-generated work are trivial enough to preclude protection. I simply suggest that the Copyright Office embrace a more permissive regime.

94. AI Registration Guidance, *supra* note 8, at 16193 (quoting 17 U.S.C. § 103(b)).

95. See REFUSAL OF "ZARYA OF THE DAWN," *supra* note 29.

96. *Id.* at 4–5; see also Richard Lawler, *The US Copyright Office Says You Can't Copyright Midjourney AI-Generated Images*, VERGE (Feb. 22, 2023, 8:06 PM), <https://www.theverge.com/2023/2/22/23611278/midjourney-ai-copyright-office-kristina-kashtanova> [https://perma.cc/4BFM-DQBE].

97. *Id.* at 2.

second look.⁹⁸ And in February 2023, it changed course. Relying on compilation doctrine, the Copyright Office determined that Kashtanova was “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.”⁹⁹ The Work’s images, however, “are not the product of human authorship.”¹⁰⁰ As such, the Copyright Office canceled its original copyright and issued a new one covering only the material it deemed to be authored by Kashtanova.¹⁰¹



Figure 2. Excerpts from Kashtanova’s “Zarya of the Dawn”¹⁰²

In finding that Kashtanova did not author the images throughout “Zarya of the Dawn,” the Copyright Office scrutinized her “creative process.”¹⁰³ Kashtanova described the process as intensively iterative, “involving hundreds of versions” of each of the images that appear

98. *Id.* at 2–3; see also Tony Analla, *Zarya of the Dawn: How AI Is Changing the Landscape of Copyright Protection*, HARV. J.L. & TECH. DIG. (Mar. 6, 2023), <https://jolt.law.harvard.edu/digest/zarya-of-the-dawn-how-ai-is-changing-the-landscape-of-copyright-protection> [<https://perma.cc/3ULF-RGF3>].

99. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 1.

100. *Id.*

101. *Id.*

102. Lawler, *supra* note 96 (reprinting work).

103. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 8–9.

throughout the comic book.¹⁰⁴ Because she had gone to such great pains to ensure that each image aligned precisely with her creative vision, Kashtanova argued that she had exerted sufficient control over the images to be considered the author.¹⁰⁵ The Copyright Office disagreed, identifying a “significant distance” between Kashtanova’s descriptive prompts and the Midjourney’s outputs.¹⁰⁶ Although Kashtanova certainly “influenced” the images output by Midjourney, the Copyright Office reasoned that her iterative process was proof of her inability to “dictate a specific result.”¹⁰⁷ Thus, Kashtanova had not merely used Midjourney as a creative tool—the way a photographer might alter an image in Photoshop—but rather, had relinquished all creative control over the resulting images by using Midjourney.¹⁰⁸ This lack of control doomed Kashtanova’s copyright in the images in “Zarya of the Dawn” in their entirety.

The Copyright Office correctly applied compilation doctrine to “Zarya of the Dawn,” but it was not a close call. There, the Copyright Office was faced with a work whose two core elements—text and images—were respectively either human authored or *entirely* AI-generated. It is difficult to imagine a more clear-cut example of a compilation. However, one can easily imagine closer cases where the line between human author and AI author is blurred. Recall the personal anecdote that began this Comment: A photographer takes a photo of a couple’s engagement; the resulting image is marred by an out-of-place signpost, so the photographer uses AI-powered tools in Photoshop to remove it from the image. Prior to the use of AI, the work would unquestionably be copyrightable in its entirety as an original work of

104. Letter from Van Lindberg, Taylor English Duma LLP, to Robert J. Kasunic, Assoc. Reg. of Copyrights & Dir. of Registration Pol’y & Prac., U.S. Copyright Office at 5, 7 (Nov. 21, 2022), <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [<https://perma.cc/UT26-C3RF>] (“Different elements of the final image[s] are created, developed, refined, and relocated. The final image[s] include[] multiple elements from different generations of intermediate images all brought together into a cohesive whole. The evolution of the image[s] under the direction of Kashtanova, and her selection, arrangement, compositing, and visual juxtaposition of various image elements all show how her authorial intent guided her use of the Midjourney tool.”).

105. *Id.* at 7–10.

106. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 9.

107. *Id.*

108. *Id.* (“Like the photographer [who poses their subject and arranged their position], when artists use editing or other assistive tools, they select what visual material to modify, choose which tools to use and what changes to make, and take specific steps to control the final image such that it amounts to the artist’s ‘own original mental conception, to which [they] gave visible form.’ Users of Midjourney do not have comparable control over the initial image generated, or any final image.”) (alteration in original) (quoting *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 60 (1884)).

authorship fixed in a tangible medium of expression.¹⁰⁹ And had the photographer merely used Photoshop's sophisticated non-AI tools to remove the signpost by hand, they would have retained sufficient creative control over the image such that its copyright would be undisturbed.¹¹⁰ However, the moment they used AI to edit the photo, an element of non-human authorship appears in the work. According to the Copyright Office, this case is now best resolved through compilation or derivative works doctrines.¹¹¹ Yet neither seems to fit. The photo is not a selection, coordination, or arrangement of separately authored elements; nor does it incorporate or reproduce other previously existing works.

Confronted by rapidly popularizing AI technology capable of producing content indistinguishable from human-authored material,¹¹² the Copyright Office is relying on doctrines ill-equipped to solve these emerging problems.¹¹³ As AI becomes more mainstream, questions of hybrid human-AI authorship will only become more ubiquitous and difficult to resolve. Absent a reimagining of existing compilation and derivative works doctrines or a novel approach to resolving questions of partial AI authorship, authors seeking copyright protection will be left without recourse.

2. Reliance on Outdated Statutory Language

In addition to its reliance on ill-fitting existing doctrines, the Copyright Office's guidance also addresses the copyrightability of partially AI-generated works in outdated, poorly defined statutory language. According to the Copyright Office, partially AI-generated works may still contain sufficient human authorship to support a copyright claim.¹¹⁴ Where they do, the resulting "copyright will only protect the human-authored aspects of the work that are 'independent of' and do 'not affect' the copyright status of the AI-generated material itself."¹¹⁵ But in the context of AI-generated material, where authors

109. See *supra* note 5 and accompanying text.

110. See *supra* note 6 and accompanying text; see also AI Registration Guidance, *supra* note 8, at 16193 ("This policy does not mean that technological tools cannot be part of the creative process. Authors have long used such tools to create their works or to recast, transform, or adapt their expressive authorship. For example, a visual artist who uses Adobe Photoshop to edit an image remains the author of the modified image . . .").

111. AI Registration Guidance, *supra* note 8, at 16192–93.

112. See *supra* notes 47–53 and accompanying text.

113. *Supra* Section II.A.1.

114. AI Registration Guidance, *supra* note 8, at 16192 ("In other cases, however, a work containing AI-generated material will also contain sufficient human authorship to support a copyright claim.").

115. *Id.* at 16193 (quoting 17 U.S.C. § 103(b)).

exert a high degree of influence over the outputs, when can it be said that a human author's contributions are *ever* truly independent of and do not affect those of the AI? The Copyright Office leaves this question unanswered.

The terms "independent of" and "do not affect," as used by the Copyright Office, originate in section 103(b) of the Copyright Act of 1976, which defines the copyrightability of compilations and derivative works.¹¹⁶ Nowhere in the Copyright Act nor its accompanying legislative history¹¹⁷ did Congress clarify the meaning of these two phrases, possibly because in the context of canonical compilations and derivative works, it is ordinarily quite easy to disentangle pre-existing material from the later-in-time contributions of a second author.¹¹⁸ However, as discussed above, compilations and derivative works doctrines strain under the weight of partially AI-authored works.¹¹⁹ In this context, a novel copyrightability standard is needed.

In September 2022, artist Jason Allen attempted to register a digital work of art that he created with the assistance of Midjourney, a popular generative AI diffusion model.¹²⁰ According to Allen, the work, entitled "Théâtre D'opéra Spatial" and pictured below in Figure 3, was created in three broad steps.¹²¹ First, through an iterative process involving over six hundred descriptive prompts, Allen used Midjourney to generate an image that precisely aligned with his creative vision.¹²² Using Midjourney's output as his source imagery, Allen then used Photoshop to "beautify and adjust various cosmetic [elements]" throughout the image.¹²³ Finally, Allen upscaled the image using Gigapixel AI, a separate AI model designed to enhance image resolution.¹²⁴

Viewed together, the original Midjourney image is clearly integral to Allen's final work. The Midjourney source image is not merely a small portion of a larger work; it fills the entire frame. Yet, Allen substantially

116. 17 U.S.C. § 103(b) ("The copyright in [a compilation or derivative work] is independent of and does not affect or enlarge the scope, duration, ownership or subsistence of, any copyright protection in the pre-existing material.").

117. See H.R. REP. NO. 94-1476, at 57-58 (1976).

118. As we saw in the "Zarya of the Dawn" case study, *see supra* Section II.A.1, this task might also pose little difficulty in the context of works containing entirely AI-generated material. There, because all of the images had been entirely AI-generated and all of the text was authored by Kashtanova, differentiating between copyrightable and non-copyrightable material for the purposes of the resulting compilation was quite easy.

119. See *supra* Section II.A.1.

120. REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL," *supra* note 29, at 2.

121. *Id.* at 2, 5.

122. *Id.* at 2.

123. *Id.* at 5.

124. *Id.*; Gigapixel AI, TOPAZ LABS, <https://www.topazlabs.com/gigapixel-upscale-ai-generated-art> [<https://perma.cc/4Y9Z-FL7N>].

changed the source image: The subjects and background of the image are sharper; new details not present in the source image appear throughout the resulting work; and the left third of the frame, including one of the image's three subjects, appears to have been completely altered. According to Allen, he used Photoshop extensively to erase and replace entire unwanted "visual elements" of the source image.¹²⁵

125. *Id.* at 5 n.6.



Midjourney Image



The Work

Figure 3. Allen's "Théâtre D'opéra Spatial" and the Source Image on Which It Is Based¹²⁶

Allen's "Théâtre D'opéra Spatial" afforded the Copyright Office an opportunity to test the standards articulated in its March 2023 guidance

126. REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL," *supra* note 29, at 6 (reoriented vertically).

and to answer several important questions: To what extent are Allen's contributions to the work independent of Midjourney's? To what degree do Allen's Photoshop modifications affect the AI-generated source image? Is it enough to warrant partial copyright as a compilation or derivative work? What would the scope of the right be? However, the Copyright Office left these questions unanswered. In rejecting Allen's registration, the Copyright Office did, indeed, draw upon some of the standards articulated in its guidance. For instance, it determined that Allen's source image was not a product of human authorship and, on its own, could not support a copyright claim.¹²⁷ It also noted that human authored contributions to an AI-generated work *could* be copyrightable.¹²⁸ Conspicuously missing from its analysis, however, was any further discussion of whether Allen's actual contributions to the work—described in detail above and readily apparent—were sufficiently independent of Midjourney's to support a partial copyright claim in this instance.¹²⁹

Even if the Copyright Office had found that Allen's contributions to the AI-generated source image were independent of and did not affect it, that would have ignored the fact that Allen himself was the one who conceived of it and executed it, using Midjourney as a creative tool. Although under the Copyright Office's guidance using Midjourney to do so did not result in a copyrightable work, he still exerted significant creative control and influence over the output. Like Kashtanova had in creating "Zarya of the Dawn,"¹³⁰ Allen engaged in an intensively iterative process to ensure he received *exactly* the output he wanted.¹³¹ Owing to Allen's high degree of influence over the AI-generated material present in the work, it is difficult to see how his later contributions were truly independent of and did not affect the underlying AI-generated source image.

127. *Id.* at 5 ("[T]he Board concludes that the Midjourney Image, which remains in substantial form in the final Work, is not the product of human authorship."); *see also* AI Registration Guidance, *supra* note 8, at 16192.

128. REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL," *supra* note 29, at 4 (citing AI Registration Guidance, *supra* note 8, at 16192–93).

129. *Id.* at 5 ("[T]he Board does not decide whether Mr. Allen's adjustments made in Adobe Photoshop would be copyrightable on their own because the Board lacks sufficient information to make that determination."). In a footnote, the Copyright Office clarified that it "would need more information to know whether Mr. Allen's use of Photoshop rose to the level of copyrightability." *Id.* at 5 n.6.

130. *See supra* Section II.A.1.

131. REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL," *supra* note 29, at 2.

*B. The Copyright Office's Guidance Undermines Core
Copyright Principles*

Two central principles are essential to copyright ownership. First, copyright exists automatically and instantaneously the very moment a work becomes fixed in a tangible medium of expression.¹³² Second, while authors seeking to enforce their copyright through litigation must first register with the Copyright Office, registration is and always has been optional.¹³³ Yet, the Copyright Office's current approach to partially AI-generated works threatens to complicate both of these bedrock principles, in turn raising institutional challenges for the Copyright Office.

1. Complicating Automatic and Instantaneous Protection

Copyright exists automatically and instantaneously the moment a work becomes fixed in a tangible medium of expression.¹³⁴ Such has been the state of U.S. copyright law since the Copyright Act of 1976 went into effect.¹³⁵ Under the preceding Copyright Act of 1909, the scope of copyright was significantly narrower. Published works enjoyed automatic copyright protection from their publication date.¹³⁶ For unpublished works, however, copyright only attached on the date of registration.¹³⁷ By doing away with the distinction between published and unpublished works and requiring that works merely be “fixed” to obtain copyright protection, the Copyright Act of 1976 substantially broadened U.S. copyright law.¹³⁸

Ordinarily, it is not difficult for authors to determine when their work has been fixed and is thus subject to copyright protection under the Copyright Act of 1976. The very moment a photographer's shutter clicks, the image is fixed and automatically protected by copyright, whether or not the photographer chooses to publish or distribute it.¹³⁹ As the owner of the image, the photographer enjoys a host of exclusive rights

132. COMPENDIUM (THIRD), *supra* note 15, § 202.

133. *Id.*

134. *Id.*

135. See *Timeline 1950 - 1997*, U.S. COPYRIGHT OFF., https://www.copyright.gov/timeline/timeline_1950-1997.html [https://perma.cc/NRB4-KJRH].

136. U.S. COPYRIGHT OFF., CIRCULAR 15A: DURATION OF COPYRIGHT 2 (2024), <https://www.copyright.gov/circs/circ15a.pdf> [https://perma.cc/825U-NJ5R].

137. *Id.*

138. See U.S. COPYRIGHT OFF., GENERAL GUIDE TO THE COPYRIGHT ACT OF 1976 2:1 (1977), <https://www.copyright.gov/reports/guide-to-copyright.pdf> [https://perma.cc/8A9H-R5KM].

139. See *supra* note 5.

in it, including the right to sell, distribute, or make new works inspired by it.¹⁴⁰ These exclusive rights persist for the life of the photographer plus seventy years.¹⁴¹ When the photographer modifies that very same image using Photoshop's Generative Fill—such as by prompting it to remove a poorly placed signpost in a couple's engagement photo—the image is still fixed in a tangible medium of expression. It should, therefore, warrant copyright protection automatically and instantaneously. Yet, the Copyright Office has failed to clarify which components of the resulting image, if any, are copyrightable.

Under the March 2023 guidance, determining the copyrightability of *any* partially AI-generated work requires a vague and fact-specific inquiry.¹⁴² Indeed, the Copyright Office admits as much:

In the case of works containing AI-generated material, the Office will consider whether the AI contributions are the result of “mechanical reproduction” or instead of an author’s “own original mental conception, to which [the author] gave visible form.” The answer will depend on the circumstances, particularly how the AI tool operates and how it was used to create the final work. This is necessarily a case-by-case inquiry.¹⁴³

It is difficult to square the necessity of a painstaking, fact-bound inquiry by the Copyright Office into the copyrightability of partially AI-generated work with the longstanding, bedrock principle of automatic and instantaneous protection. What good is automatic and instantaneous protection—and the exclusive rights it affords—if authors cannot determine for themselves what portions of their work, if any, are protected?

Limiting the principle of automatic and instantaneous copyright protection for fixed works threatens to stifle legally protected authorship at a time when generative AI furnishes boundless new creative opportunities. Generative AI technologies are rapidly gaining consumer and commercial popularity.¹⁴⁴ In the not-too-distant future, instances of partial AI authorship will be ubiquitous. Photos taken on smartphones will be edited using generative AI at the tap of a finger. A new generation of artists will rely on Generative Fill to facilitate their creative processes.

140. 17 U.S.C. § 106.

141. See CIRCULAR 1: COPYRIGHT BASICS, *supra* note 14, at 4.

142. See *supra* Section II.A.

143. AI Registration Guidance, *supra* note 8, at 16192 (alteration in original) (footnotes omitted) (quoting *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 60 (1884)).

144. See *supra* notes 47–53 and accompanying text.

Consistent with bedrock copyright principles, many (though, perhaps not all) of these works deserve automatic and instantaneous protection.

2. De Facto Mandatory Registration

Under the Copyright Act, registration is entirely optional.¹⁴⁵ Though necessary to enforce an author's exclusive rights through litigation, registration (or refusal) in no way affects the underlying copyrightability of the work.¹⁴⁶ But because partially AI-generated works must undergo an exacting "case-by-case inquiry" by the Copyright Office to determine their copyrightability,¹⁴⁷ registration has effectively become mandatory. This flies in the face of contemporary copyright law and threatens to grind an already overburdened Copyright Office to a halt.

First, de facto mandatory registration eviscerates automatic and instantaneous copyright protection, thereby frustrating Congress's intent and imposing an undue burden on authors for whom registration would otherwise be unnecessary. Under the Copyright Act of 1976, works of authorship are protected at the moment of fixation.¹⁴⁸ In defining the subject matter and scope of copyright broadly, Congress made its intent clear: Statutory copyright protection does not depend on publication, registration, or renewal.¹⁴⁹ Once fixed, the work is protected. And once protected, the vast majority of authors may never feel compelled to register their works. Registration is most common (and most useful) in the commercial context, when an author's work is available for purchase or consumption by the general public and is thus susceptible to infringement.¹⁵⁰ A hobbyist photographer who enjoys capturing scenic landscapes for their personal use and enjoyment is unlikely to ever commercialize their works. They derive no benefit from applying for registration with the Copyright Office. Yet, the Copyright Act grants them protection anyway. Now imagine the same hobbyist photographer edits one of their photos with Photoshop's Generative Fill. Under the Copyright Office's March 2023 guidance, they cannot know for sure the scope of their copyright unless and until they register it with the Copyright Office and endure its fact-intensive "case-by-case inquiry."¹⁵¹

145. COMPENDIUM (THIRD), *supra* note 15, § 202.

146. *Id.*

147. AI Registration Guidance, *supra* note 8, at 16192.

148. 17 U.S.C. § 102(a); *see also supra* Section I.A.

149. *See* H.R. REP. NO. 94-1476, at 51-53 (1976).

150. *Cf. Benefits of Copyright Registration*, COPYRIGHT ALL., <http://copyrightalliance.org/education/copyright-law-explained/copyrightregistration/benefits-of-copyright-registration/> (last visited Sept. 19, 2024) (discussing evidentiary and licensing advantages).

151. AI Registration Guidance, *supra* note 8, at 16192.

Put simply: For authors of partially AI-generated works, registration is effectively mandatory under the Copyright Office's Guidance—not merely as a prerequisite to enforcement through litigation, but simply in order to determine the copyrightability of their works. That is not how copyright law is supposed to function.

Second, as generative AI becomes more popular, *de facto* mandatory registration of partially AI-generated works poses potentially ruinous challenges for the Copyright Office. In 2022, the Copyright Office received nearly half a million claims to copyright and registered over ninety-nine percent of them.¹⁵² No doubt, this is an impressive feat. But as generative AI gains commercial and consumer traction, the Copyright Office could quickly become overrun with applications for registration. Popular generative AI applications such as ChatGPT and DALL-E 2 have millions of daily users.¹⁵³ Adobe's Creative Cloud service, which includes access to Photoshop and its AI-powered tools, has over thirty million subscribers.¹⁵⁴ The Copyright Office's current treatment of partially AI-generated works may motivate many of those users to apply for registration, seeking clarity on the copyrightability of their partially AI-generated works. Many of their works will present close calls. And because the Copyright Office's inquiry is case- and fact-specific, those close calls will take time to resolve—resulting in multiple requests for reconsideration, as seen in the prominent cases of Steven Thaler's "A Recent Entrance to Paradise" and Jason Allen's "Théâtre D'opéra Spatial."¹⁵⁵ Since Congress passed the Copyright Act of 1976, the Copyright Office has never erected such an onerous barrier to copyright protection. It should not start now.

III. THE COPYRIGHT OFFICE SHOULD BROADEN ITS HUMAN AUTHORSHIP REQUIREMENT

Since its earliest days, human authorship has been a bedrock component of copyright law.¹⁵⁶ And for at least the last 140 years, the human authorship requirement has served copyright well, providing a consistently useful tool in resolving complex edge cases of

152. 2022 U.S. COPYRIGHT OFF. ANN. REP., *supra* note 35, at 8.

153. See Hu, *supra* note 51; DALL-E Now Available Without Waitlist, *supra* note 50.

154. *Fast Facts*, ADOBE (2023), <https://www.adobe.com/content/dam/cc/en/fast-facts/pdfs/fast-facts.pdf> [<https://perma.cc/HX6A-SNUF>].

155. Refusal To Register a Recent Entrance to Paradise, *supra* note 7, at 2; REFUSAL OF "THÉÂTRE D'OPÉRA SPATIAL," *supra* note 29, at 2–3.

156. See *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 56–59 (1884).

copyrightability.¹⁵⁷ With the advent and rapid proliferation of generative AI technology, however, the human authorship requirement has met its match. Generative AI is poised to remake what it means to be a writer, artist, and creator.¹⁵⁸ Indeed, the move toward broad-based consumer and commercial adoption of generative AI has already begun.¹⁵⁹ If copyright law is to keep pace—and tap into the full creative and commercial potential of generative AI—it will require a broader definition of authorship, one that moves past mere human authorship and readily embraces works of partial AI authorship.

Copyright's human authorship requirement is, in some ways, a curious one. Nowhere in either the Constitution or the Copyright Act—in any of its iterations—is authorship defined to require a human touch.¹⁶⁰ Rather, the requirement is an interpretive invention of both the Copyright Office and federal courts. Its roots stretch as far back as 1884, when the Supreme Court decided *Burrow-Giles Lithographic Co. v. Sarony*. There, the Court considered whether photographs are copyrightable

157. See, e.g., *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2023) (holding that a selfie purportedly taken by a monkey is not copyrightable for lack of human authorship); *Kelley v. Chi. Park Dist.*, 635 F.3d 290 (7th Cir. 2011) (holding that a garden lacked the human authorship and stable fixation normally required to support a copyright); *Urantia Found. v. Maaherra*, 114 F.3d 955 (9th Cir. 1997) (holding that a book consisting of revelations purportedly from celestial beings was sufficiently human authored to sustain a copyright).

158. See, e.g., Kyle Chayka, *My A.I. Writing Robot*, NEW YORKER: INFINITE SCROLL (July 11, 2023), <http://www.newyorker.com/culture/infinite-scroll/my-ai-writing-robot> (“Writer is one of several new startups that are attempting to apply emerging A.I. technology to the onerous task of writing. Like many technological innovations, writing robots are meant to create efficiency, particularly for businesses that have to produce large amounts of iterative text. . . . With the help of Writer’s tools, the company hopes, a smaller number of human writers assisted by machines will accomplish the work of many, cutting down costs and increasing productivity in the composition of everything from product descriptions and tweets to C.E.O. messages, investors’ memos, and blog-post headlines.”).

159. See *supra* notes 47–53 and accompanying text. There have also been a number of prominent examples of AI being used by attorneys and corporations to cut costs and seek efficiencies. See Pranshu Verma & Will Oremus, *These Lawyers Used ChatGPT To Save Time. They Got Fired and Fined.*, WASH. POST, <https://www.washingtonpost.com/technology/2023/11/16/chatgpt-lawyer-fired-ai/> (Nov. 16, 2023, 10:39 AM); see also David Bauder, *Sports Illustrated Is the Latest Media Company Damaged by an AI Experiment Gone Wrong*, ASSOCIATED PRESS, <https://apnews.com/article/journalists-ai-counterfeit-writers-479cc3869c0638df5bbb26d4b1e4f18f> (Nov. 28, 2023, 7:38 PM). There is every reason to suspect AI will become even more engrained in professional settings as the technology becomes more sophisticated and reliable.

160. The Constitution states simply that Congress shall have the power to “secur[e] for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” U.S. CONST. art. I, § 8, cl. 8; *Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 147 (D.D.C. 2023) (“[T]he critical word ‘author’ is not defined in the Copyright Act.”).

works of “[a]uthors and [i]nventors,”¹⁶¹ or mere “mechanical reproductions of the physical features” captured by a camera.¹⁶² An author, the Court observed, is “he to whom anything owes its origin; originator; maker; one who completes a work of science or literature,”¹⁶³ and copyright is “the exclusive *right of a man* to the production of *his own genius or intellect*.”¹⁶⁴ Because Sarony, the photographer, had painstakingly arranged his subject (Oscar Wilde, pictured below in Figure 4) within the frame, chosen his lighting and composition, and exposed the photograph to his creative liking, the Court had little trouble finding the requisite human authorship.¹⁶⁵

161. U.S. CONST. art. I, § 8, cl. 8.

162. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 59 (1884).

163. *Id.* at 57–58.

164. *Id.* at 58 (emphasis added).

165. *Id.* at 60 (“[P]laintiff made [the photograph] 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 in said photograph, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement, or representation, made entirely by plaintiff, he produced the picture in suit.’ These findings, we think, show this photograph to be an original work of art, the product of plaintiff’s intellectual invention, of which plaintiff is the author.”).



Figure 4. Napoleon Sarony's Portrait of Oscar Wilde¹⁶⁶

In the 140 years since *Burrow-Giles* was decided, human authorship has become a seemingly indelible part of contemporary copyright law.¹⁶⁷ Though to this day never encoded as black-letter law in the Copyright Act, the Copyright Office has enshrined the requirement in its Compendium of U.S. Copyright Office Practices.¹⁶⁸ And both the Copyright Office and the courts have consistently relied upon this rule to resolve difficult edge cases of copyrightability.¹⁶⁹ That trend continues as the Copyright Office and courts begin to assess the copyrightability of AI-generated works. In its March 2023 guidance, the Copyright Office dedicates substantial attention to the human authorship requirement,¹⁷⁰

166. *The Evolution of Copyright Law*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/history/copyright-exhibit/evolution/> [https://perma.cc/9H8T-BUHU].

167. *See Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 147–48 (D.D.C. 2023).

168. COMPENDIUM (THIRD), *supra* note 15, § 306.

169. *See supra* note 155 and accompanying text.

170. AI Registration Guidance, *supra* note 8, at 16191 (“In the Office’s view, it is well-established that copyright can protect only material that is the product of human

and citations to *Burrow-Giles* abound.¹⁷¹ Moreover, in each of the case studies analyzed throughout this Comment—Thaler’s “A Recent Entrance to Paradise,”¹⁷² Kashtanova’s “Zarya of the Dawn,”¹⁷³ and Allen’s “Théâtre D’opéra Spatial”¹⁷⁴—the authors seeking copyright over their partially AI-authored works run headlong into the human authorship requirement.

In addressing works of partial AI authorship, the Copyright Office interprets and applies its own human authorship requirement far too narrowly. “The term ‘author,’” according to the Copyright Office’s March 2023 guidance, “excludes non-humans.”¹⁷⁵ Furthermore, determining whether human authorship exists requires assessment of “whether the traditional elements of authorship in the work . . . were actually conceived and executed not by man but by a machine.”¹⁷⁶ Thus, as it relates to AI-generated works, the Copyright Office speaks in stark, all-or-nothing terms: Works are authored either entirely by human or machine. Seemingly any contribution of a “non-human[]” generative AI might doom an author’s otherwise valid copyright.¹⁷⁷ But the logic of *Burrow-Giles* permits a much broader interpretation—one that embraces hybrid human-machine authorship. In holding that Sarony had authored his portrait of Oscar Wilde, the Court can be read as finding not *sole* human authorship, but *sufficient* human authorship notwithstanding the use of a machine.¹⁷⁸ Or, put in terms of AI authorship, the photographer Sarony merely provided the inputs—his creative choices in arranging his subject and composing the image—while his camera produced the output.

creativity. Most fundamentally, the term ‘author,’ which is used in both the Constitution and the Copyright Act, excludes non-humans.”).

171. *Id.* at 16191 & nn.12–16.

172. *Thaler*, 687 F. Supp. 3d at 149–50 (“On the record designed by plaintiff from the outset of his application for copyright registration, this case presents only the question of whether a work generated autonomously by a computer system is eligible for copyright. In the absence of any human involvement in the creation of the work, the clear and straightforward answer is the one given by the Register: No.”).

173. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 1 (“[T]he 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.”).

174. REFUSAL OF “THÉÂTRE D’OPÉRA SPATIAL,” *supra* note 29, at 6 (“In the Board’s view, Mr. Allen’s actions as described do not make him the author of the Midjourney Image because his sole contribution to the Midjourney Image was inputting the text prompt that produced it.”).

175. AI Registration Guidance, *supra* note 8, at 16191.

176. *Id.* (quoting 86 REG. COPYRIGHTS ANN. REP. 5 (1966), <https://www.copyright.gov/reports/annual/archive/ar-1965.pdf> [<https://perma.cc/W8WY-SUBV>]).

177. AI Registration Guidance, *supra* note 8, at 16191.

178. *Cf. Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 60 (1884).

Authors seeking copyright protection of their AI-generated works have advanced precisely this argument, but to no avail. Kashtanova and Allen, the authors of “Zarya of the Dawn” and “Théâtre D’opéra Spatial,” respectively, each demonstrated the processes by which they painstakingly revised their Midjourney prompts to produce exactly the images they intended.¹⁷⁹ In both cases, the Copyright Office rejected their copyright claims for lack of human authorship.¹⁸⁰ Yet, if Sarony’s creative “inputs” were sufficient to constitute human authorship, so too were Thaler’s, Kashtanova’s, and Allen’s. Under this broader conception of human authorship—one that embraces hybrid human-machine authorship—all three authors may well have had a valid copyright claim over their works in their entirety.

U.S. copyright law has consistently evolved since its inception in 1790.¹⁸¹ Yet, for at least the last 140 years, the human authorship requirement has been remarkably resistant to change.¹⁸² As generative AI redefines what it means to be an author, so too should the Copyright Office and federal courts. The human authorship requirement should not be immune to scrutiny by virtue of its durability. The Copyright Office should waste no time in broadening the strict human authorship rule to permit copyright in partially AI-generated works. Thankfully, little is standing in its way. As stated above, authorship is defined nowhere in either the Constitution or the Copyright Act.¹⁸³ The continued embrace of the human authorship requirement depends entirely on its continued enforcement by the Copyright Office and the federal courts.

179. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 8 (“Ms. Kashtanova claims that each image was created using ‘a similar creative process.’ Summarized here, this process consisted of a series of steps employing Midjourney. First, she entered a text prompt to Midjourney, which she describes as ‘the core creative input’ for the image. Next, ‘Kashtanova then picked one or more of these output images to further develop.’ She then ‘tweaked or changed the prompt as well as the other inputs provided to Midjourney’ to generate new intermediate images, and ultimately the final image.”) (footnote omitted) (citations omitted); REFUSAL OF “THÉÂTRE D’OPÉRA SPATIAL,” *supra* note 29, at 6 (“He argues that his use of Midjourney allows him to claim authorship of the image generated by the service because he provided ‘creative input’ when he ‘entered a series of prompts, adjusted the scene, selected portions to focus on, and dictated the tone of the image.’”).

180. REFUSAL OF “ZARYA OF THE DAWN,” *supra* note 29, at 1; REFUSAL OF “THÉÂTRE D’OPÉRA SPATIAL,” *supra* note 29, at 1.

181. *The Evolution of Copyright Law*, *supra* note 166.

182. AI Registration Guidance, *supra* note 8, at 16191–92 (citing *Sarony*, 111 U.S. at 56–61).

183. See sources cited *supra* note 160 and accompanying text.

CONCLUSION

Generative AI is here, and it is here to stay. Seemingly overnight, the technology has garnered immense consumer popularity. Platforms like Open AI's ChatGPT and Photoshop's Generative Fill have already begun redefining what it means to write, create, and engage in artistic expression. In the coming years, as these and other platforms continue to grow in sophistication and popularity, the nature of creative authorship is sure to shift even more dramatically. Through close scrutiny of the U.S. Copyright Office's current approach to the copyrightability of partially AI-generated pictorial, graphic, and sculptural works, this Comment identifies just one of the many areas in which the law desperately needs to play catch-up.

Existing copyright law is ill-equipped to respond adequately to the complex problems raised by partial AI authorship. In its March 2023 guidance, the U.S. Copyright Office attempted to resolve these problems. But by relying too heavily on existing doctrines and straining core copyright principles, the Copyright Office merely slapped a bandage on a broken bone, extending insufficient protection to partially AI-generated works and threatening to stifle creative expression just as generative AI prompts a bold reimagining of authorship. In lieu of continued reliance upon its faulty guidance, the Copyright Office should consider broadening its longstanding human authorship requirement to embrace hybrid human-AI authorship.

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