Comment

Re: Notice of Inquiry on Copyright and Artificial Intelligence

Docket No. 2023–6, 88 Fed. Reg. 167

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To the Copyright Office of the Library of Congress:

In response to your notice of inquiry, I offer these comments regarding the second issue of inquiry, "proper scope of copyright protection for material created using generative AI." In particular, my comments address the following questions:

> 18. Under copyright law, are there circumstances when a human using a generative AI system should be considered the "author" of material produced by the system? If so, what factors are relevant to that determination?

> 21. Does the Copyright Clause in the U.S. Constitution permit copyright protection for AI-generated material? Would such protection "promote the progress of science and useful arts"? If so, how?

My comments pertain to the proper interpretation of copyright law on the question of the copyrightability of work created with the assistance of a generative artificial intelligence (AI) tool and the proper attribution of authorship over such work. The general thesis I wish to communicate and defend is that the Copyright Office's current approach to the question of whether and when works created by humans with the assistance of a generative AI tool are copyrightable should be corrected because AI tools do not create works autonomously on their own.

The current models of visual generative AI are remarkably powerful in assisting human artists to extend their creativity to content, genres, and techniques that were beyond their prior artistic skills and training. But how generative AI accomplishes this is remarkably poorly understood. In

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this void of understanding, the Copyright Office has formed an erroneous view that generative AI actually is the author and designer and creator of works in all the relevant copyright law senses of those words. Not only is this factually incorrect, this position presents several unlawful and undesirable consequences:

- By declaring that a machine is the actual author of AI-assisted work and that the work may not be copyrighted because the machine is not a human, the Copyright Office is creating a subordinated class of expressive but noncopyrighted public domain work simply because of its media and method of creation, which violates copyright law's media neutrality standards.

- Copyright law vests rights in the author of a work at the moment that creation and fixation of the work is completed as determined by the author. By declaring that a machine is the actual author of AI-assisted work, the Copyright Office is stripping away the valid copyright of the human author who employed an AI tool at some stage of her creation of the work. This comment forum is not the appropriate venue to determine whether this stripping away of intellectual property rights is a taking (an improper taking or cancellation of copyrights and conversion of these works to the ownerless public domain for the general use of the public), but the stripping of these rights is unjustified because the AI machine is not the actual author of the works connected to its use.

- By administrative fiat, the Copyright Office's position on the authorship of works created with the assistance of AI tools creates a class of public domain works that any idle usurper can copy and adopt in whole or in part and obtain greater copyright protection than that of the actual author, designer, and creator of the works simply because the original author made the "mistake" of using a generative AI tool at some point in the works' creation.

Therefore, my comments here assert that the Copyright Office should change its position on authorship of works created with the assistance of AI tools because the works envisioned, designed, and rendered into existence by the actions of human beings who happened to be using a highly sophisticated tool should be copyrightable works owned by the humans who conceived of the works in their mind and caused them to be rendered in a fixed and tangible form.

I. **The Current Copyright Office Approach to Determining the Authorship and Copyrightability of Works Created with the Assistance of AI Tools is incorrect.**

The Copyright Office's handling[2] of the recent application of artist James M. Allen who created the work "Theatre D'opera Spatial" in part by making use of Midjourney, a generative AI tool, is

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[2] U.S. Copyright Office, Second Request for Reconsideration for Refusal to Register Théâtre D'opéra

indicative of the flaws in the Copyright Offices' understanding of how generative AI works and how authorship should be determined in situations where a human artist has used an AI tool at various stages of the creation of the work. James Allen won an art contest with a digital artwork he created[3] and later submitted for registration of his copyright over the work. The Copyright Office followed the press coverage of Mr. Allen's success and contacted him demanding that he designate what portions of his artwork were created by Midjourney and which were created by Mr. Allen, and requested that he disclaim ownership of the copyright over the former portions.[4] Mr. Allen, who was responsible for the creation of the entire artwork from the initial design to the final version of the work, did not attempt to separate any portions of the artistic expression of the work presumably because no portion of the work had been automatically and autonomously produced by the AI tool, Midjourney, nor did he disclaim any portion of the work because Mr. Allen was responsible for envisioning and designing the entire artwork and had only used Midjourney as one of the several digital artistic editing and rendering tools available to the contemporary visual artist.[5] Mr. Allen reported that he had made at least 624 independent artistic decisions that changed the expressive characteristics of each iteration of the work in the form of his programming and prompting of the Midjourney art tool in order to direct the tool to produce the work that Mr. Allen had envisioned and designed in his mind.[6] Nevertheless, the Copyright Office rejected the entire work on the grounds that "the image generated by Midjourney that formed the initial basis for th[e] Work is not an original work of authorship protected by copyright."[7] The Office recognized that Allen's editing of the work with other digital art tools such as Adobe Photoshop[8] "contained a sufficient amount of original authorship to be registered,"[9] but the Office would not find that Allen's conception and envisioning of the work as a whole and his programming and operation of one kind of digital art tool—Photoshop—was the same as his programming and operation of a different digital art tool—Midjourney.[10] Upon reconsideration, the Copyright Office affirmed the rejection of the work because the work *post hoc, ergo propter hoc* must have incorporated "more than a de minimis amount of content generated by artificial intelligence"[11] even though the record does not reflect what portions of the final work were authored by Midjourney and which were authored by Allen.

Spatial (Sep. 5, 2023) (SR # 1-11743923581; Correspondence ID: 1-5T5320R).

[3] *Id.* at 2 (citing Sarah Kuta, *Art Made with Artificial Intelligence Wins at State Fair*, SMITHSONIAN MAGAZINE (Sept. 6, 2022),
https://www.smithsonianmag.com/smart-news/artificial-intelligence-art-wins-colorado-state-fair-180980703/).

[4] *See* Second Refusal to Register Théâtre D'opéra Spatial, *supra* note 2 at 2.

[5] *See id.*

[6] *See id.*(citing Email from Tamara Pester to U.S. Copyright Office (Sept. 30, 2022); Email
from Tamara Pester to U.S. Copyright Office (Oct. 6, 2022)).

[7] Refusal of First Request for Reconsideration from U.S. Copyright Office to Tamara Pester (June 6, 2023).

[8] Adobe, the Adobe logo, and Photoshop are registered trademarks of Adobe in the United States and other countries.

[9] *Id.*

[10] *See id.*

[11] *See id.* at 1.

II.   The Mistaken Narrative of Generative Artificial Intelligence Authorship

The Copyright Office's determination of copyrightability and authorship of "Théâtre D'opéra Spatial" and other artworks created with the assistance of AI tools is incorrect for one central reason: **tools do not create**. Artistic tools do not author and create paintings and drawings. Brushes, paint, pencils and pastels, video and photographic cameras, digital image editing tools such as Adobe Photoshop, and ever increasingly complicated algorithms in neural networks, foundation models, and large language models are not the authors of artworks. Human artists create content. Human artists use tools to create visual art.

The understanding of how art is made has been clouded in recent months by the appearance and rapid adoption of digital tools using visual generative artificial intelligence technology such as DALL-E 2,[12] Stable Diffusion,[13] and Midjourney.[14] As a visual artist who has spent a significant amount of time working with these tools, I have observed first hand that the powers and capabilities of these tools are impressive, and at times even seem magical. Technology at this level of capability and accomplishment is the kind of advanced technology that inspires "magical thinking"[15] regarding the creation of artworks using AI tools. The very name "generative" AI suggests a narrative that the algorithms, programming, foundation models, and transformer technology composing these AI tools are the actual authors of the works produced—that the artworks are "created" in the copyright sense of the word by the AI. But this is not correct.[16]

The Copyright Office has recently issued guidance[17] (quoted in section III below) on the copyrightability of visual works that artists and authors have produced using visual generative AI tools and states that the works might be limited in their copyrightability because the human authors used AI tools to render the works or elements of the works.[18] The concerns expressed in the guidance make it appear that the Copyright Office has accepted the narrative that generative AI tools actually perform the steps of authorship of original and creative copyrightable works: the AI somehow "conceives" of the image in its "mind" and somehow "automatically" and "autonomously" renders it into existence in a fixed and tangible medium. It is this conception of authorship that I wish to correct.

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[12] OpenAI, DALL-E 2, https://openai.com/product/dall-e-2.

[13] Stable Diffusion Online, https://stablediffusionweb.com/.

[14] Midjourney, https://www.midjourney.com/home/.

[15] The concept of "magical thinking" is a fallacy in logic and reasoning where obvious disconnects in causation or correlation are ignored in favor of a belief that the causations simply exist as if by magic. It is also referred to as "associative thinking" or the "Post hoc" fallacy (*post hoc, ergo propter hoc*). *See Magical thinking*, ART & POPULAR CULTURE (accessed Jun. 13, 2023), http://www.artandpopularculture.com/Magical_thinking; *Post hoc, ergo propter hoc*, RATIONAL WIKI (accessed Jun. 13, 2023), https://rationalwiki.org/wiki/Post_hoc,_ergo_propter_hoc.

[16] *E.g.,* Louis Rosenberg, *Generative AI: The technology of the year for 2022*, Big Think (Dec. 20, 2022), https://bigthink.com/the-present/generative-ai-technology-of-year-2022/ [Rosenberg, *Generative AI*].

[17] Library of Congress, Copyright Office, *Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence*, 88 Fed. Reg. No. 51 at 16190, 37 C.F.R. Part 202 (Mar. 16, 2023).

[18]   *Id.*

The guidance explains that the Copyright Office will not grant a copyright to work that was "authored" by an AI, much as it will not grant a copyright over a photograph authored by a macaque monkey, [19] or over the growth and appearance of a field of wildflowers originally designed and planted by an artist.[20] If these statements merely reiterated that works that are "autonomously" created by nonhuman entities or forces cannot be copyrighted, then I would find little to quibble about in the statements. But the Copyright Office's guidance came on the heels of the Office's action to roll back parts of a copyright registration of a comic book with images and illustrations that the author, Kristina Kashtanova, candidly revealed were produced by Ms. Kashtanova with the aid of a digital generative AI tool, the Midjourney generative AI platform.[21] In order to deny Ms. Kashtanova authorship credit and the copyrightability of her creation that goes with it, the Office must believe that the "Zarya of the Dawn" works at issue in the case were "automatically" and "autonomously" authored by Midjourney. This same finding necessarily must have been made with regard to James Allen's work, "Théâtre D'opéra Spatial," which was created by Mr. Allen with the assistance of the same digital generative AI art tool used by Ms. Kashtanova, Midjourney. These observations reveal a real and present confusion in copyright law about the authorship and copyrightability of works created by human authors using AI tools.

III.   The Actual Process of Artistic Creation and Authorship and why Machines do not Perform it

My comments are offered from the perspective of an artist (a painter) and a copyright and art law scholar. For two decades I have been writing and publishing about artistic creation in the copyright context, explaining how the definitions of "original," "creative" works "fixed in a tangible medium" track the artistic creation process. I also have worked and experimented with visual generative AI systems (DALL-E 2, DALL-E 3, Stable Diffusion, and Midjourney) as well as their verbal generative cousins (Bing Chat, GPT-4, ChatGPT, and Bard) in the course of my grant to study artificial intelligence systems. The many hours and hundreds of experiments I have engaged in with these systems inform my comments here.

The question of copyrightability for works begins with the concepts of "original" "creations." "Original" as an adjective embodying the copyright concept of originality means not copied, not

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[19] *See* Naruto v. Slater, 888 F.3d 418, 422-26 (9th Cir. 2018).

[20] *See* Kelley v. Chicago Park Dist., 635 F.3d 290, 303 (7th Cir. 2011). *See also* United States Copyright Office, Second Request for Reconsideration for Refusal to Register A Recent Entrance to Paradise (Correspondence ID 1-3ZPC6C3; SR # 1-7100387071) Letter (Feb. 14, 2022), https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf (responding negatively to Stephen Thaler's second attempt to register the painting, *A Recent Entrance to Paradise*, as a work alleged to have been completely authored and created by an AI).

[21] United States Copyright Office, Zarya of the Dawn (Registration # VAu001480196) Letter (Feb. 21, 2023), https://www.copyright.gov/docs/zarya-of-the-dawn.pdf. The Office concluded "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 [but not] the images in the Work *that were generated by the Midjourney technology* [and] are not the product of human authorship." *Id.* (emphasis added).

found, not naturally occurring; something that has its origin with the artist.[22] "Created" and "creative" in copyright law mean conceived of and designed in the mind of an artist and subsequently rendered or caused to be rendered into existence by that artist using the available tools of the art-creation process.[23] Since at least the advent of mechanical tools that can be operated at a distance from the mounts (e.g., canvases) and paint products used in image creation,[24] to the technology of photography and later videography, through to the electronic and computer-based tools for the creation and editing of digital art, human authors (artists) have been removed from the surfaces of their paintings and digital creations. Yet, the narrative that human authors still conceived of the image that they wanted to create in their minds and rendered it into existence using the tools at hand has not broken our conception of "creation" for purposes of copyrightability.

A. Historical Challenges to the Narrative of Authorship

It is easy to accept the narrative of authorship in the Romantic tradition[25] where individual artists toil over a canvas or paper marking the mount directly with paints or pastels, or blow and twist molten glass, or carve stone or marble, or mold clay with their hands, all to give expression and fixation to the creation that originated in their imagination and envisioning. The narrative blurs ever so slightly when the artist applies the paint more indirectly through a silkscreening, lithographing, or printmaking process, or creates molds where a plastic media is poured to give shape to the creation. Yet it is accepted that all of these more mechanical means still are used by the human artist to give expression and fixation to the creation that originated in their imagination and envisioning and do not challenge our narrative of authorship.

The narrative of authorship cracks right down the middle with photography. The copyright knock on photography from its invention in the 1830's up to the 1880's was that there was no creativity and authorship involved in producing photographic images. Photographers simply opened up their cameras' lenses to let the image from the real world in to react with chemical plates, and so to produce an image of the preexisting reality that stood before the photographer.[26] The photographer "captured" and "recorded" the scene; he or she did not "create" or "author" the scene. The scene was already there in reality.

It was not easy to view the chemical and mechanical processes of production of photographic images as being an artistic process where individual artists used a tool to give expression and fixation to the creation that originated in their imagination and envisioning. It was easier to use

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[22] *See* LEONARD D. DUBOFF, CHRISTY O. KING & MICHAEL D. MURRAY, ART LAW IN A NUTSHELL 210-11 (5th ed. 2017).

[23] *Id.* at 211.

[24] For example, screen-printing, lithography, stamping, and print-making are hundreds of years old technologies in image creation where tools have separated the artist from a hands-on application of painting media to the surface of the image. Pace Prints, *Printmaking Techniques*, https://paceprints.com/techniques (accessed May 31, 2023).

[25] Erlend Lavik, *Romantic authorship in copyright law and the uses of aesthetics* 46-47, in THE WORK OF AUTHORSHIP (2014), https://doi.org/10.1515/9789048523009-003.

[26] *See Reading: Photography*, Lumen Art Appreciation (accessed Jun. 29, 2023), https://courses.lumenlearning.com/masteryart1/chapter/oer-1-23/.

magical thinking and find that the camera did all the work of authorship—it was a magic box in which photos were created when the operator just pushed a button. Yet, over the decades, photography became recognized as an art form requiring envisioning, composition, framing, sometimes staging,[27] and dozens of other artistic choices exercised by interaction with the tool (the camera) and by actions taken in the film development and print creation process.[28]

In the Office's March 16, 2023 Guidance[29] the Office relies on the *Burrow Giles v. Sarony* decision to reject the argument that "'a photograph is not a writing nor the production of an author' but is instead created by a camera."[30] The District Court of the District of Columbia in the recent case of *Thaler v. Perlmutter*[31] summarized the *Sarony* holding as "photographs amounted to copyrightable creations of 'authors,' despite issuing from a mechanical device that merely reproduced an image of what is in front of the device, because the photographic result nonetheless 'represent[ed]' the 'original intellectual conceptions of the author.'"[32] Yet the Copyright Office is in the process of forgetting the lessons learned from the technology of the photographic camera when confronted with the technology of generative AI.

Digital art takes another step out of the comfortable picture of Romantic authorship because artists do not toil over a canvas or other mount applying paint and pigment by hand. Authors supervise the framing and editing of the image while filters and image editing algorithms actually render the content and appearance the image. Artists communicate their desires and intentions by mouse movement and selection, but the algorithms do the actual image rendering. The artist generally gets a preview of the changes and sometimes gets a selection of possible renderings from which to choose from, all of which were rendered by the algorithms of the image editing program. Yet, this is not generally thought of as a disconnect in the authorship narrative. The Office Guidance states that, "a visual artist who uses Adobe Photoshop to edit an image remains the author of the modified image."[33] But the Office Guidance immediately rolls it back, saying "[t]o the extent, however, that an artist uses the AI-powered features in Photoshop, the edits will be subject to the above analysis."[34] Somehow the algorithms and

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[27] *E.g.,* the concept of mise en scène in the photographic and film arts recognizes the artist's control over the scene and the expression it communicates. *See generally* Michael D. Murray, *Mise en Scène and the Decisive Moment of Visual Legal Rhetoric,* 68 U. KAN. L. REV. 241 (2019).

[28] *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53 (1884), changed the analysis on copyrightability of photographs when the Supreme Court recognized that Napoleon Sarony "created" the scene that he photographed. In this conception of creativity, Sarony grouped, placed, and arranged the elements of the scene. He took great pains to arrange Oscar Wilde on a certain couch, with a book in his hand, leaning forward, sitting on fur and tapestry drapery, with a floral backdrop, all of which he set up in his studio. The result was the photograph, "Oscar Wilde No. 18," and the court ruled it had been "created" and "authored" by the artist, Sarony, and that it was copyrightable.

[29] Guidance, *supra* note 17.

[30] *Id.* at 3, 88 Fed. Reg. No. 51 at 16191.

[31] Mem. Op., Thaler v. Perlmutter, No. 22-cv-1564 (BAH), ECF No. 24 at 8 (D.D.C. Aug. 18, 2023).

[32] *Id.*

[33] Guidance, *supra* note 17, at 4, 88 Fed. Reg. No. 51 at 16193.

[34] *Id.*, n.36.

programming of pre-large language model transformer architecture PhotoShop features do not interfere with human authorship, but the algorithms and programming of the large language model transformer architecture of the current PhotoShop application are too magical and do interfere with human authorship.

B. Human Direction and Involvement in Creation

The aforementioned Copyright Office Guidance on visual generative AI[35] discusses whether the outputs of visual generative AI systems are copyrightable. The general message of the Office Guidance is that generative AI art will be uncopyrightable if it is held to lack human authorship. As noted above, one of the two conceptual requirements of copyrightable works is that they must be "created,"[36] which the law defines as conceived of in the mind of a human being,[37] and executed into a fixed and tangible expression.[38] The Copyright Office has officially stated in its Compendium (Third) of the U.S. Copyright Office Practices that:

> [T]he Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author. The crucial question is "whether the 'work' is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine."[39]

The Office Guidance further references an even earlier statement in the Compendium (Second) in 1984 that works "produced by mechanical processes or random selection without any contribution by a human author are not registrable."[40]

The Copyright Office further clarified this position in its March 16, 2023 Guidance on Works Containing Material Generated by Artificial Intelligence[41]:

> AI-generated material . . . described as "autonomously created by a computer algorithm running on a machine" . . . [can] not be registered because it was made "without any creative contribution from a human actor." . . . In the Office's view, it is well-established that copyright can protect only material that is the

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[35] Guidance, *supra* note 17, 88 Fed. Reg. No. 51 at 16191-92.

[36] 17 U.S.C. § 102.

[37] Trade-Mark Cases, 100 U.S. 82, 94 (1879).

[38] 17 U.S.C. § 102(a). *See, e.g.*, Google LLC v. Oracle Am., Inc., 141 S. Ct. 1183, 1196 (2021); Cmty. For Creative Non-Violence v. Reid, 490 U.S. 730, 737 (1989).

[39] U.S. COPYRIGHT OFFICE, COMPENDIUM OF THE U.S. COPYRIGHT OFFICE PRACTICES, ch. 300, § 313.2 (3d ed. Jan. 28, 2021), https://www.copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf (COMPENDIUM (THIRD)); U.S. COPYRIGHT OFFICE, REPORT TO THE LIBRARIAN OF CONGRESS BY THE REGISTER OF COPYRIGHTS 5 (1966).

[40] U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES §§ 202.02(b), 503.03(a) (2d ed. 1984), https://www.copyright.gov/history/comp/compendium-two.pdf (COMPENDIUM (SECOND)).

[41] Guidance, *supra* note 17, 88 Fed. Reg. No. 51 at 16191, 16192.

product of human creativity . . . [and] it "will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author."

The radical core of this concept is sound: randomly or automatically generated works do not have human authorship; they are not conceived of in the minds of human authors and the human authors do not cause their inner conceptions and designs to be rendered into fixed and tangible forms. The error comes in the Copyright Office's thinking that generative AI systems randomly or automatically create and generate works.

IV.   The "Magic Box" Conception of Generative AI

The "Magic Box" conception of visual generative AI is that in all or most instances the AI randomly or automatically creates and generates works of art. Many of the participants in the current debate on visual generative AI systems have latched onto the idea that generative AI systems have been trained on datasets and foundation models that contained data from image files scraped from the internet, that the generative AI system *randomly* or *automatically* conceives of images to create in its *mind*, and then *randomly* or *automatically* generates final images with or without a human author or artist being involved in the process. This is magical thinking.[42]

The Copyright Office cites *Sarony* so it obviously no longer believes that analog photographic cameras are magic boxes that randomly, automatically, or autonomously generate photographs. Nothing in the Guidances and Compendium provisions cited above singles out digital photography as being a random, automatic, or autonomous process when a digital camera renders an image. Yet the Office has planted a flag on the hill that the group of algorithms called visual generative AI is an impenetrable magic box that will take "suggestions" from humans but then randomly, automatically, and autonomously creates images on its own.

In its ruling denying copyright registration over Kristina Kashtanova's works created with the assistance of Midjourney, the Office explained that where a human author lacks sufficient creative control over the AI-generated components of a work, the human is not the "author" of those components for copyright purposes.[43] "Creative control" is, of course, the critical undefined concept in this statement. My thesis here is that Kashtanova maintained creative control over every step of the process of creation of the illustrations of her comic book, she only used the image-rendering algorithms of Midjourney as a tool to carry out her creative vision and design. Yet, the Office declared, in effect, that she had no such control, that Midjourney somehow took over the creative envisioning process, and not just once, but every time Kashtanova turned to the AI tool to adjust and alter the content of the images she was

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[42] On magical thinking generally, *see* sources cited *supra* note 15.

[43] U.S. Copyright Office, Cancellation Decision re: *Zarya of the Dawn* (VAu001480196) at 9 (Feb. 21, 2023), https://www.copyright.gov/docs/zarya-of-the-dawn.pdf. *See* United States Copyright Office, Notice of Inquiry re: Artificial Intelligence and Copyright, 59942 88 Fed. Reg., NO. 167 59942 at 4 (Aug. 30, 2023).

producing. In an effort to try to puzzle through this disconnect, I offer the following comparison:

Artistic Creation using a Digital Camera and Image Rendering Algorithms	
	I used a digital camera to generate an image of Wollaton Hall in Nottingham, England. I did nothing whatsoever to render the actual pixels of this image. The camera and its algorithms did 100% of the rendering of the image. It is true that I did point the camera toward the subject, but the digital camera and its algorithms did the critical step of rendering and framing the image I would capture so that I could see it on my camera screen before I touched the button to capture the image. And that ends my human artistic involvement in rendering the image at left.
	I next used the digital image rendering and editing tools built into Microsoft Word to brighten up the image. The algorithms did 100% of the rendering here. I did nothing to actually change the expression in the image other than clicking on the "Corrections" tool and making a selection from the 30 variations in brightness and contrast the algorithms rendered for me.
	I decided to go further and have the algorithms in Word's digital image rendering tools make the image look like an oil painting. Once again, I did nothing to actually change the expression in the image other than clicking on the "Artistic Effects" tool and making a selection of "Paint Brush," and then selecting the brush size at 10. The algorithms did 100% of the rendering of each pixel shown here.
Artistic Creation using a Visual Generative AI System with its Image Rendering Algorithms	
	Now let's repeat the process with a different set of image rendering algorithms. I caused the image at right to be produced by engaging with the visual generative AI system DALL-E 2. I engaged the tool by entering instructions in the form of a prompt ("photo of Wollaton Hall Nottingham") and clicking the "Generate" button. This image was the one of the four generated by DALL-E 2 that most closely matched the perspective of my digital photo above, but the

	perspective was not close enough for my tastes and the coloration was "off" compared to my image. The image at left also looked somewhat spooky compared to my cheerful sunlit photo. So, I went back to "the drawing board."
	I caused the image at left to be produced by engaging DALL-E 2 with the prompt, "photo of south side of Wollaton Hall Nottingham in bright early morning sunshine." The perspective still doesn't match what I envisioned for the photo, and although the coloration of the walls is very faithful to the actual building in early morning sunlight, I preferred the washed out, more silvery color of my digital photograph above. So, I tried again with a new prompt to try to get the image I wanted.
	This time I used the prompt, "photo of south side of Wollaton Hall Nottingham in bright early morning sunshine that causes the walls to appear slightly silvery," and the image at left was the best of the four in reflecting that "silvery" tone I wanted. I decided to skip ahead and see what DALL-E 2's algorithms would do with a prompt to make an image like an oil painting.
	I very much like this image produced with my prompt of "oil painting of south side of Wollaton Hall Nottingham in bright early morning sunshine where the walls appear silvery." I could continue to edit the painting according to my inner design through the iterative process of reprompting DALL-E 2 if I wished. But the point I am making here is that I am creating the work with the assistance of a tool that follows my design and envisioning of the image. At no point did DALL-E 2 take over the process and randomly or autonomously create images that *it* wanted to generate.

I fully expect the Copyright Office to look at my examples above and declare that I own the copyrights and the Office would happily register my copyrights over each of the images from my digital camera edited by Microsoft Word's image rendering tools because they were created with a technology that the Copyright Office understands and is comfortable with. Apparently, my copyright over each image and iteration of image is secure. There is no question about my authorship of the work and the copyrightability of the work in spite of the fact that I did very

little to contribute to the actual rendering of the image. I expect that no one will suggest that the algorithms in the camera "authored" and "created" that image.

But I also fully expect that the Office would declare that I have no ownership and no rights that can be registered as to any of the images rendered with the assistance of DALL-E 2 because that is what the Office declared with regard to James Allen's creation of the "Theatre D'opera Spatial" work. The only difference between my demonstration and Allen's work is that I only demonstrated three separate artistic choices and directions that I made to the work through the iterative process of reprompting DALL-E 2, while Allen explained that he engaged in at least 624 independent artistic decisions that changed the expressive characteristics of each iteration of his work in the form of his programming and prompting of the Midjourney art tool in order to direct the tool to produce the work that Mr. Allen had envisioned and designed in his mind.[44]

At what point did I or Mr. Allen lose control of the creative artistic process? Was it at the moment we turned to the image rendering algorithms of one product labeled a generative AI as opposed to the image rendering algorithms of Word or Photoshop or any other digital imaging and editing program that is not labeled a generative AI? At what point did DALL-E 2 or Midjourney hijack the process and start randomly or automatically generating images by its own autonomous decisions?

The answer to each question is never. Generative AI systems are tools—highly complex, deeply technological tools to be sure, but tools none the less. And these tools require a human author or artist—the end-user of the generative AI system—to provide the inspiration and design and give the description and directions on how to produce the image. An artist working with a generative AI tool is no different from an artist working with a digital or analog camera or with Photoshop or another image editing and image rendering tool.

The Copyright Office should stop looking for magic in the *post hoc, ergo propter hoc* sense of the word with generative AI image rendering. Visual generative AI systems are a complex and advanced technology, but no matter what Arthur C. Clarke might say, they are not magic.[45] Visual generative AI systems require a human author or artist—the end-user of the generative AI system—to provide the inspiration and design and often the instructions and directions on how to produce the image. The AI does not randomly and automatically create images on its own.

V.   How did the erroneous view of AI art authorship arise?

The fallacy of how visual generative AI systems produce art no doubt arises in part because the systems are so capable and appear to be so "smart" and "talented." We tend to personify

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[44] *See* Second Refusal to Register Théâtre D'opéra Spatial, *supra* note 2 at 2 (citing Email from Tamara Pester to U.S. Copyright Office (Sept. 30, 2022); Email from Tamara Pester to U.S. Copyright Office (Oct. 6, 2022)).

[45] Arthur C. Clarke stated as his third law of prediction of the future: "Any technology that is sufficiently advanced is indistinguishable from magic." Arthur C. Clark, *Hazards of Prophecy: The Failure of Imagination*, in PROFILES OF THE FUTURE: AN ENQUIRY INTO THE LIMITS OF THE POSSIBLE 14 (Rev. ed. 1973).

creatures and things that appear to have intelligence, attributing to them not only thought but artistic ingenuity, but in the end an AI system is a tool, a complex machine.[46] It remembers, it writes, it may even speak, and its visual outputs appear artistic and creative even if it did not engage in actual creativity. But for now, a visual generative AI system is not self-aware, it can only mimic creativity, and its artistic production depends on how the artist end-user tells it to produce an artwork.[47]

A thorough explanation and illustration of how the current generation of visual generative AI systems operate is beyond the scope of these comments, but I have endeavored to explain and illustrate the processes elsewhere.[48] The conclusions I draw from the study of visual generative AI is that:

- AI does not make a creative artistic decision about the contents of the art, it only responds to a human prompt and then generates images according to its training and programming. AI should not be personified as the actual author of the generative AI image. The end-user is the author and artist of the image.[49]

- In the process of creation, generative AI does not make creative design decisions, it follows rules and parameters (translated into algorithms) to generate output that the human end-user first directs in the initial prompt, and then evaluates and chooses to accept or reject in each set of samples generated by the AI tool. Human end-users using the AI tool usually are given several image options from which they can choose,[50] or they can rerun the same prompt to generate a new group of images, or they can revise the prompt in multiple iterations and generate a completely new set of images based on each revised prompt until the end-user causes the AI to generate the image envisioned and designed by the end-user.[51]

- Human artists and creators control the art generated by the AI by the prompts that they write and revise. Thus, the human artists examine the works produced in the process and either accept the fruits of the process or they keep going with different or revised prompts. This is exactly similar to the process of creating sketches, studies, or drafts (iterations of a creative artistic project) until the artist is happy with the design,

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[46] Rosenberg, *Generative AI*, *supra* note 16; Will Knight, *When AI Makes Art, Humans Supply the Creative Spark*, WIRED (Jul. 13, 2022, 7:00 AM), https://www.wired.com/story/when-ai-makes-art/.

[47] *See* Rosenberg, *Generative AI*, *supra* note 16; Knight, *supra* note 45.

[48] Michael D. Murray, *Generative AI Art: Copyright Infringement and Fair Use*, ___ SMU SCI. & TECH. L. REV. ___ (forthcoming, 2023), https://ssrn.com/abstract=4483539 at 24-32.

[49] *Id.* at 34. *See also* Rosenberg, *Generative AI*, *supra* note 16; Knight, *supra* note 45.

[50] Stable Diffusion Playground produces four images as a default generation set responsive to a creation prompt. *See* Stable Diffusion Playground, https://stablediffusionweb.com/#demo.

[51] Murray, *Generative AI Art, supra* note 47, at 34.

composition, framing, perspective, point of view, and the results of the techniques being used.[52]

The process of how an end-user of a contemporary generative AI tool creates art and how a human artist goes about the same task are very similar.[53]

Human Artists not using AI	End-Users of Visual Generative AI Tools
A human artist conceives of and designs a work.	An end-user of a visual generative AI tool conceives of and designs a work.
A human artist envisions what the image should look like drawing from images and other information the artist has been trained on or exposed to, and the human artist may be further guided and inspired by research involving preexisting images and information about schools, genres, and techniques of art, all to determine, "What does this type of image look like."	The end-user's prompt causes the generative AI tool to follow the prompt instructions and conditions and, drawing from the lessons of images and text data it has been trained on, it determines, "What does this type of image look like."
A human artist follows an inner vision and creates preliminary sketches, studies, or drafts for evaluation to determine the most desirable elements of the image (composition, style, genre, etc.) and the best techniques to achieve that image – i.e., "What is the best way to render this image."	Following the end-user's prompt instructions and conditions, the AI tool generates an initial diverse set of images with elements (composition, etc.) that match the terms in the prompt, and the end-user evaluates the samples and makes determinations about the most desirable elements (composition, style, genre, etc.) of the image – i.e., "What is the best way to render this image."
A human artist examines the initial renderings—sketches, studies, or drafts—and reworks these initial renderings to best meet the requirements of the artist's inner vision –	The end-user examines the initial renderings the user has caused the AI system to produce and engages in refinement (re-prompting) that causes the AI to delete unnecessary elements of images and retain the best

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[52] *See generally* Marion Botella, Franck Zenasni, & Todd Lubart, *What Are the Stages of the Creative Process? What Visual Art Students Are Saying*, 9 Frontiers in Psychology 1, 2-6 (Nov. 21, 2018), https://www.frontiersin.org/articles/10.3389/fpsyg.2018.02266/full (discussing stages of research, trials or sketches, techniques, evaluation); Matt Fussell, The Creative Process, The Virtual Instructor (last viewed Jan. 12, 2023), https://thevirtualinstructor.com/blog/the-creative-process (reviewing stages of research, production, critique, rework).

[53] This table follows the steps of the creative process discussed in Botella, Zenasni, et al., and Fussell, *supra* note 51. *See also* Murray, *Generative AI Art, supra* note 47, at 34-36.

Human Artists not using AI	End-Users of Visual Generative AI Tools
i.e., "What should the final image look like."	elements based on the directions and conditions of the prompts – i.e., "What should the final image look like."
Ultimately, the human artist creates a work that the artist accepts and adopts as the final iteration of the project – i.e., "This is the image that should be used."	Ultimately, the end-user accepts and adopts a final iteration for the project – i.e., "This is the image that should be used."

Not all copyright lawyers are experienced visual artists familiar with the process of artistic creation I have outlined above. And perhaps this gap in experience or imagination contributes to the fallacy of Magic Box thinking. Like analog photography 190 years ago, visual generative AI defies standard thinking about the skill or training or experience required to create beautiful expressive images. Photography enabled users with essentially no drawing or painting skills to create wonderful depictions of scenes. Similarly, a contemporary visual generative AI system enables users with limited or non-existent drawing and painting skills and limited or no artistic training and experience to produce wonderful visual art. When compared to the skills, training, and experience required to produce wonderful art using traditional artistic tools, visual generative AI is a democratizing marvel allowing art to be created by persons at all levels of skill or non-skill. But the fact that it is easier for an untrained artist to use generative AI tools than traditional tools and methods of art creation should not trouble the Copyright Office and the art law community; it has been known since at least the *Feist Publications v. Rural Telephone Service* case in 1991 that "sweat of the brow" is not the touchstone of authorship and copyrightability of works.[54] There is less romance and emotion in the generative AI process, but the steps are most definitely similar if not functionally and substantially the same as the process of creation followed by a human artist.

VI.   The Copyright Office's interpretation of AI assisted art creates a sub-class of non-copyrightable digital art that violates the Copyright Act's media neutrality standards.

Copyright protection is designed to be media neutral.[55] Congress established the media neutrality doctrine to ensure that works created with new technologies, including those not in

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[54] Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 359-60 (1991).
[55] Greenberg v. Nat'l Geographic Soc., 533 F.3d 1244, 1257 (11th Cir. 2008).

existence at the time of the Copyright Act of 1976, would qualify for copyright protection.[56] The legislative history of the Copyright Act states:

> The history of copyright law has been one of gradual expansion in the types of works accorded protection, and the subject matter affected by this expansion has fallen into two general categories. In the first, scientific discoveries and technological developments have made possible new forms of creative expression that never existed before. In some of these cases the new expressive forms—electronic music, filmstrips, and computer programs, for example—could be regarded as an extension of copyrightable subject matter Congress had already intended to protect, and were thus considered copyrightable from the outset without the need of new legislation.[57]

The broad language of the Copyright Act "is intended to avoid the artificial and largely unjustifiable distinctions . . . under which statutory copyrightability in certain cases has been made to depend upon the form or medium in which the work is fixed."[58]

Congress carefully drafted the Copyright Act in media-neutral terms that contemplate and encourage the development and use of new technologies. Beginning with its definitional provisions, the core element of copyright is the "work," which the Act provides may be fixed in any medium "now known or later developed, from which [it] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[59] A "work" is represented in a fixed and tangible form as "copies."[60] "Copies" are defined as "material objects … in which a work is fixed by any method now known or later developed," including a version created "with the aid of a machine or device,"[61] such as computer algorithms.

In defining and delineating the effect of the idea-expression distinction in what would become 17 U.S.C. § 102(b) of the Act, the legislative history shows remarkable prescience in anticipating the situation where an author working with a technology—e.g., a computer system and its algorithms—will direct and program the technology to produce results according to the expressive design ideas the author has envisioned in the author's mind. The report focuses on the copyrightability of the expression created in the process that matches or meets the author's internal creative designs that is then "adopted" by the author, which is separate from the "methodology or processes" of the technology itself:

> Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or processes adopted by the programmer, rather than

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[56] *See id*.; New York Times Co. v. Tasini, 533 U.S. 483, 502 (2001); H.R. Rep. No. 94–1476, U.S. Code Cong. & Admin. News 1976, pp. 5659, 5666–5667.

[57] H.R. Rep. No. 94–1476, U.S. Code Cong. & Admin. News 1976, p. 5664.

[58] *Greenberg*, 533 F.3d at 1257 (quoting H.R. Rep. No. 94–1476, p. 5665).

[59] 17 U.S.C. § 102(a).

[60] 17 U.S.C. §§ 101, 106(1) & (3).

[61] 17 U.S.C. § 101.

merely to the "writing" expressing his ideas. Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.[62]

The Copyright Office's interpretation of the authorship of works created by human authors with the assistance of visual generative AI systems violates these principle of media neutrality. AI technology renders the creations of human authors in a new and different manner, but as I have endeavored to demonstrate above, this manner is simply one more advancement in a technological pathway that began with analog photography, continued with early computer image-rendering technology of the 1950s-1970s, continued further with digital photography and digital image-editing tools (Photoshop and its many cousins), and has now advanced to contemporary visual generative AI systems. Media neutrality instructs us to accept the new technologies that artists use to edit and render their creations and not apply the Copyright Act in a manner that denies these artists recognition of their rights over their creations. In the Copyright Office's current Guidance on copyrightability[63] and in its denial of registrations of copyrights of artists who have used AI tools in editing and rendering their artistic creations,[64] the Office is forgetting the lessons learned long ago with the technology of photography and is again applying the Copyright Act to a new technology and denying copyrightability to AI assisted works simply on the basis of a difference in media and technology of creation. The Copyright Office is creating a subordinated class of expressive but noncopyrightable public domain work simply because of its media and method of creation. This approach violates the rules of media neutrality.

VII. By declaring that a machine is the actual author of AI-assisted work, the Copyright Office is stripping away the valid copyright of the human author who employed an AI tool at some stage of her creation of the work.

Copyright law vests rights in the author of a work at the moment that creation and fixation of the work is completed as determined by the author. Registration of the copyright is not necessary to establish the existence of a copyright, but because of copyright preemption and code provision 17 U.S.C. § 411(a), registration is required to enforce the rights protected by copyright through litigation.[65] By declaring that a machine is the actual author of AI-assisted work, the Copyright Office is stripping away the valid copyright of the human author who employed an AI tool at some stage of her creation of the work.

As noted above, this comment forum is not the appropriate venue to determine whether this stripping away of intellectual property rights is a taking. I am merely suggesting that an improper denial or cancellation of copyrights in effect works as a conversion of the underlying

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[62] H.R. Rep. No. 94–1476, U.S. Code Cong. & Admin. News 1976, p. 5670.
[63] Guidance, *supra* note 17.
[64] *Supra* notes 2, 21.
[65] Fourth Est. Pub. Benefit Corp. v. Wall-Street.com, LLC, 139 S. Ct. 881 (2019).

works to the public domain. The authors' rights are for all intents and purposes forfeited and the unenforceability of the copyrights means that the works have fallen into the public domain for the general use of the public.

VIII. The Copyright Office's approach to work created with the assistance of visual generative AI affords greater protection to usurpers than the office affords to the actual creators.

The section immediately above asserts that the Copyright Office's denial of registration of the copyrights over works as to which the authors used AI tools has the effect of relegating these works to the public domain. Ownerless and uncopyrightable works can be adopted and copied at will. Thus, because of its stance on the copyrightability of AI assisted works, the Office has declared in effect that any idle usurper can copy and adopt these works in whole or in part.

The Copyright Office has declared that the selection and adoption of uncopyrightable works is a creative act for which a copyright can be registered;[66] thus, an idle usurper can select and adopt the expression in ownerless uncopyrightable AI generated works and obtain greater copyright protection than that of the actual author, designer, and creator of the works simply because the original author made the "mistake" of using a generative AI tool at some point in the works' creation. Although I suppose in a strange way this fulfills the goal of propagating works for the public to freely consume and enjoy, it also turns the public policy and structural scheme of the current Copyright Act on its head.

IX. Conclusions

Contemporary visual generative AI systems can do extraordinary things, but as of yet not autonomously and not automatically. It is a fallacy to view AI systems as the authors of the works they generate. The process of how an end-user of a contemporary generative AI tool creates art and how a human artist goes about the same task are very similar.

Generative AI systems are tools—highly complex, deeply technological tools to be sure, but tools none the less. And these tools require a human author or artist—the end-user of the generative AI system—to provide the inspiration and design and often the instructions and directions on how to produce the image. An artist working with a generative AI tool is no different from an artist working with a digital or analog camera or with Photoshop or another image editing and image rendering tool.

Human artists create works using a generative AI tool by the artistic acts of envisioning and visualization, crafting and iterating, and selecting and adopting a final image from the output the human caused the AI tool to produce. In the process of creation, generative AI does not make creative design decisions, it follows rules and parameters (translated into algorithms) to generate output that the human end-user first directs in the initial prompt, and then evaluates

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[66] Guidance, *supra* note 17, 88 Fed. Reg. No. 51 at 16192; United States Copyright Office, Zarya of the Dawn (Registration # VAu001480196) Letter (Feb. 21, 2023), https://www.copyright.gov/docs/zarya-of-the-dawn.pdf.

and chooses to accept or reject in each set of samples generated by the AI tool. Human end-users using the AI tool usually are given several image options from which they can choose, or they can rerun the same prompt to generate a new group of images, or they can revise the prompt in multiple iterations and generate a completely new set of images based on each revised prompt until the end-user causes the AI to generate the image envisioned and designed by the end-user.

Human artists and creators control the art generated by the AI by the prompts that they write and revise. Thus, the human artists examine the works produced in the process and either accept the fruits of the process or they keep going with different or revised prompts. This is exactly similar to the process of creating sketches, studies, or drafts (iterations of a creative artistic project) until the artist is happy with the design, composition, framing, perspective, point of view, and the results of the techniques being used.

Therefore, there may come a day, perhaps this year or next, when an AI system reaches what has been labeled as the point of singularity and becomes a true artificial general intelligence entity with agency and the ability to act autonomously on its own initiative and motivation. And that AI entity might exercise that agency and autonomy to envision works on its own and render them into a fixed and tangible medium. And that AI will be the author of those works. But for now, humans using AI tools are the authors of the works they create.