

Comments on “Artificial Intelligence and Copyright”

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Summary: I address three issues that span ten questions raised in this request for comments.

What control does a human have in determining the creation of a generative artificial intelligence (AI) system that replicates their individual “creative process,” and if such a system is created, what ownership claims or recourse does the human have? What control does the owner of data have over its use in training such a generative AI system? Finally, what claims might a human have over new works created by such a generative AI system? I examine the answers suggested by current law and the direction of policy change that could accelerate innovation and improve economic outcomes in this emerging era of generative AI.

The emergence of generative AI technologies reveals gaps between the economic motivations for copyright protections and the protections likely afforded by current US copyright law. I believe the resolution of ongoing litigation will further underscore these gaps. Economic studies that examine the value perceived by users from works that are generated entirely by AI versus those that are generated by humans, as well as studies that compare the performance of generative AI systems trained on AI-generated data with those trained on human-generated data are essential in determining the appropriate new division of intellectual property (IP) rights. The direction and extent of desirable changes to the law will depend in part on whether the legislature expects a vast majority of future IP to be created by machines rather than humans, and whether it assesses this shift as being beneficial to society.

1. As described above, generative AI systems have the ability to produce material that would be copyrightable if it were created by a human author. What are your views on the potential benefits and risks of this technology? How is the use of this technology currently affecting or likely to affect creators, copyright owners, technology developers, researchers, and the public?

As generative AI systems come of age, widely available large-language models (LLMs) like OpenAI’s GPT-4 and Google’s PaLM can be used to generate new written content in the style of

any specific author with just a few examples of their prior art. As few-shot learning¹ evolves, such replication will become increasingly effortless and accurate. Diffusion models like those used by OpenAI's DALL-E 3, Stable Diffusion and Midjourney can readily create new visual art in the style of a specific artist. Voice cloning systems enable the near-perfect replication by artificial intelligence of the voice of existing artists, making AI-generated music in the style of a specific artist indistinguishable from human compositions. Indeed, a song called "Heart on My Sleeve" that appeared to be written by the well-known musician Drake was released and briefly made available for streaming on YouTube and Spotify in April 2023.²

The benefits and risks of these technologies are numerous. I focus in this response on issues pertaining to intellectual property, and specifically, to copyright. The primary benefit I anticipate is a dramatic increase in the ability to create new intellectual property of economic value. The primary risk I see is that IP laws, unless reformed, may create incentives that exclude humans from creating this intellectual property. Granting excessive rights to creators and existing copyright holders will slow innovation, especially for newer entrants, and could kill what may be a vibrant future industry of commercial AI-generated artistic content and other intellectual property. But granting no IP rights whatsoever to a human over what they consider their highly individual artistic style (or their "process of creation," appropriately defined) could have a detrimental effect on both human creativity and broader societal innovation. Economic studies that examine the value perceived by users from works that are generated entirely by AI versus those that are generated by humans, as well as studies that compare the performance of generative AI systems trained with AI-generated data with those trained with human-generated data are essential in determining the appropriate new division of IP rights.

In shaping the socially optimal extent of intellectual property rights, it is customary to consider the trade-offs between three potentially countervailing **economic** objectives.

- First, the creator of intellectual property has higher motivation to create if their property rights are greater, and thus, assigning higher levels of ownership to the creator benefits society by increasing creation incentives.
- Second, society as a whole accrues greater benefits if more people have access to this intellectual property that has been created, so assigning lower levels of ownership to any specific individual benefits society by increasing the value obtained from the (non-rival) IP due to its consumption.

¹ Yaqing Wang, Quanming Yao, James T. Kwok, and Lionel M. Ni. 2020. Generalizing from a Few Examples: A Survey on Few-shot Learning. *ACM Comput. Surv.* 53, 3, Article 63 (May 2021), 34 pages. <https://doi.org/10.1145/3386252>

² Contrary to what may be generally believed, the song was not created entirely by generative AI. The music was likely composed by a human songwriter named "Ghostwriter" in the musical style of Drake. The role of AI was likely in the use of voice cloning to convert the rendition of the (human-authored) lyrics to appear to be in Drake's voice.

- Third, the future creation of intellectual property is more likely, faster and of higher quality if creators have greater access to past intellectual property, so assigning IP ownership to creators in a manner that raises access of this IP to others for the purposes of future innovation is beneficial to society.

The philosophical foundation of the intellectual property laws of most western countries stem from John Locke’s utilitarian view that when a human provides their labor to goods held in common, the human is entitled to earn “fruits of their labor” by obtaining a private property right. Although developed initially for tangible goods, the premise applies equally well to the intangibles now protected by intellectual property — the human creator is combining their labor or talent with goods in the public domain (or commons) to create something new, and is thus deserving of (intellectual) property rights over this new creation. This rationale is supplemented in some European countries by the tradition of *droit d’auteur* — that generating certain goods is an expression of personality, leading to an irrevocable bond between the author and the work, necessitating a property right in the interest of preserving the dignity of the individual. I draw primarily on the first underlying philosophy, but appeal to the second underlying philosophy in passing.

I focus on three questions.³ First, what control does a human have in determining the creation of a generative AI system that replicates their individual “creative process,” and if such a system is created, what claims or recourse does the human have? Second, what control does the owner of data have over its use in training such a generative AI system? And third, who owns the works created by such a generative AI system?

I provide detailed responses to each of these, highlighting the corresponding RFC questions that are addressed.

A. The economic effects of replicating in AI the creative process of a specific human

Addresses in part primarily the following questions of the RFC.

30. What legal rights, if any, currently apply to AI-generated material that features the name or likeness, including vocal likeness, of a particular person?

32. Are there or should there be protections against an AI system generating outputs that imitate the artistic style of a human creator (such as an AI system producing visual works “in the style of” a specific artist)? Who should be eligible for such protection? What form should it take?

³ For additional analysis, please see d’Auria, G. and A. Sundararajan, Rethinking Intellectual Property Law in an Era of Generative AI, TechREG Chronicle (November 2023), forthcoming; d’Auria, G. and A. Sundararajan, 2023, Owning your (Artificial) Intelligence: Generative AI, Human Capital and the Boundaries of Intellectual Property Protection, available via NYU or on arxiv.org, and Sundararajan, A., 2023, Foundations of AI Governance.

33. With respect to sound recordings, how does section 114(b) of the Copyright Act relate to state law, such as state right of publicity laws? Does this issue require legislative attention in the context of generative AI?

And additionally,

23. Is the substantial similarity test adequate to address claims of infringement based on outputs from a generative AI system, or is some other standard appropriate or necessary?

27. Please describe any other issues that you believe policymakers should consider with respect to potential copyright liability based on AI-generated output.

Although examples of AI systems that could replicate (or aid in replicating) the works of specific human creators existed before the mainstream advent of generative AI — examples include voice synthesizing software like Yamaha’s Vocaloid⁴, Sony Computer Science Lab’s FlowMachines that created a “new” Beatles song “Daddy’s Car,”⁵ and a system from the University of Tübingen in Germany that could mimic the style of famous artists⁶ — the technological capabilities needed to replicate the individual style of a specific writer, musician or visual artist only started to become more widely known in 2019, when experiments with OpenAI’s GPT-2 in 2019 spawned systems that could create essays in the style of the New Yorker⁷ and write poetry like famous poets.⁸

Today, the popularity of OpenAI’s ChatGPT has led to a dramatic increase in the visibility and use of generative AI technologies from numerous firms that can generate writing, music and visual art. Additionally, new content has indeed started to resemble either existing content or an existing artistic style in a manner that deserves greater scrutiny.

I make five points in response to these questions.

⁴ Yuri Kageyama, Japan's synthesized singing sensation Hatsune Miku turns 16, ABC News (Sep. 2, 2023),

<https://abcnews.go.com/Entertainment/wireStory/japans-synthesized-singing-sensation-hatsune-miku-turns-16-102879946>

⁵ Benoît Carré, Sony CSL, “Daddy’s Car,” September 19, 2016,

https://www.youtube.com/watch?v=LSHZ_b05W7o

⁶ Mike Murphy, in Computers Can Now Paint Like Van Gogh and Picasso, Quartz (Sept. 6, 2015), <https://qz.com/495614/computers-can-now-paint-like-van-gogh-and-picasso/>,

⁷ John Seabrook, Can a Machine Learn to Write for The New Yorker?, New Yorker (Oct. 14, 2019),

<https://www.newyorker.com/magazine/2019/10/14/can-a-machine-learn-to-write-for-the-new-yorker>

⁸ Kelsey Piper, A Poetry-Writing AI Has Just Been Unveiled. It’s ... Pretty Good, Vox (May 15, 2019), <https://www.vox.com/2019/5/15/18623134/openai-language-ai-gpt2-poetry-try-it>

Cushman, J. (2022) ChatGPT: Poems and Secrets, Library Innovation Lab at Harvard Law School, December 20, 2022,

<https://lil.law.harvard.edu/blog/2022/12/20/chatgpt-poems-and-secrets/>

1. The economic argument in favor of generally not assigning ownership of artistic style to a specific individual may need to be revisited, perhaps refining what is considered “artistic style” to be more nuanced and granular. If one follows Section 102(b) of the Copyright Act,⁹ one may conclude that appropriation of an *artistic style* does not constitute copyright infringement. More specifically, copyright law does not permit an artist to preclude another from mimicking an artistic style, unless the appropriation involves the artistic style as expressed in a specific work.¹⁰ The economic rationale in the past has been straightforward — assigning ownership of artistic style would have assigned, for example, excessive market power to the individual who created the first detective novel, or the first hip-hop song. However, the law could not have foreseen the emergence of technologies that could costlessly replicate the more precise and individualized “style” of a single individual. It is possible that assigning (to a person) the ownership over that subset of “artistic style” that encapsulates that specific person’s own creative process (and no more) grants them market power that is not excessive, but appropriate. This assignment may also be aligned with the philosophy of *droit d’auteur*.
2. Economic studies that examine the value perceived by users from works that are generated entirely by AI versus from those that are generated by humans could shed light on the efficient level of ownership to provide a creator over their “style” or “creative process.” To illustrate this need, consider the example of music. Lacking a sense of connection with a human singer, it is possible that most listeners will not place much value on generic AI-generated music even if this music replicates the style of well-known human artists, and may even seek out the human artists whose work resembles the style of AI-generated music they enjoy, thereby increasing the potential market of these human artists. Alternatively, listeners may place a value on music generated by an AI system that replicates a human’s “artistic style” that is comparable to that placed on the human’s original musical creations. Whether the former or latter is more likely is clearly an empirical question. As compared to the latter, the former would suggest that changes in the scope of ownership over artistic style would have a very different economic impact on the incentives of artists to create new music.
3. Studies that compare the performance of generative AI systems trained on AI-generated data with those trained on human-generated data could also shed light on the efficient level of

⁹ “In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work”.

¹⁰ As explained in *Dave Grossman Designs, Inc. v. Bortin*, 347 F. Supp. 1150, “The law of copyright is clear that only specific expressions of an idea may be copyrighted, that other parties may copy that idea, but that other parties may not copy that specific expression of the idea or portions thereof. For example, Picasso may be entitled to a copyright on his portrait of three women painted in his Cubist motif. Any artist, however, may paint a picture of any subject in the Cubist motif, including a portrait of three women, and not violate Picasso’s copyright so long as the second artist does not substantially copy Picasso’s specific expression of his idea.”

ownership to provide a creator over their “style” or “creative process.” If, for example, generative AI systems that are trained on AI-generated data produce output of inferior quality or variety, then there is greater economic value from preserving or increasing the scope of ownership humans have over their “artistic style” because absent this ownership, incentives to create new content are reduced, which in turn may lead to a slower pace of future innovation in generative AI.

4. In the interim, alternative views of the scope of protection of artistic style around less rigid definitions of substantial similarity such as the “total concept and feel” may warrant closer scrutiny. Two cases that seem to ascribe some measure of ownership over artistic style to the artist include *Steinberg v. Columbia Pictures Industries*¹¹ in which the New Yorker artist Saul Steinberg prevailed against Columbia Pictures and a case involving the 2013 song “Blurred Lines”¹² which was ruled as infringing on the artistic style of Marvin Gaye’s “Got to Give It Up” despite the songs not sharing any melodic phrases, sequences of chords or lyrics.¹³ When considering the replication of the style of an artist using generative AI, since the first customary prong (that the alleged infringers copied from their copyrighted works) is not in dispute, what constitutes “substantial similarity” between the AI-generated works and the works the AI system that generated them was trained on may rely on the inverse ratio rule which “require a lower standard of proof on substantial similarity when a high degree of access is shown.”¹⁴
5. Copyright law may not be the only body of law that applies to disputes between human creators and their AI counterparts.
 - a. Generative AI systems that respond to prompts requesting output “in the style of” specific creators could face *right of publicity* arguments. A federal standard on this front may have economic value — forcing generative AI platforms to tailor their workings to specific state and local markets is inefficient.
 - b. Other facets of *unfair competition* law may be relevant if a creator believes that the strong stylistic similarity with their existing or new works can lead consumers to believe

¹¹ *Steinberg v. Columbia Pictures Industries, Inc.*, 663 F. Supp. 706 (S.D.N.Y. 1987).

¹² *Williams v. Gaye*, 885 F.3d 1150.

¹³ This provides an interesting expansion of 114(b) of the Copyright Act, specifically that “The exclusive right of the owner of copyright in a sound recording under clause (2) of section 106 is limited to the right to prepare a derivative work in which the actual sounds fixed in the sound recording are rearranged, remixed, or otherwise altered in sequence or quality. The exclusive rights of the owner of copyright in a sound recording under clauses (1) and (2) of section 106 do not extend to the making or duplication of another sound recording that consists entirely of an independent fixation of other sounds, even though such sounds imitate or simulate those in the copyrighted sound recording.”

¹⁴ See *Smith v. Jackson*, 84 F.3d 1213, 1218 (9th Cir. 1996) (citing *Shaw v. Lindheim*, 919 F.2d 1353, 1361-62 (9th Cir. 1990).

that the the output of a generative AI system that was trained on these works was created by the famous artist, and not simply inspired by them.

- c. An artist's visual style might also be protected as *trade dress* under trademark law.

B. The use of copyrighted materials to train generative AI models

Addresses in part the following questions of the RFC.

8. Under what circumstances would the unauthorized use of copyrighted works to train AI models constitute fair use? Please discuss any case law you believe relevant to this question.

13. What would be the economic impacts of a licensing requirement on the development and adoption of generative AI systems?

A wide variety of recent lawsuits are related to the first question above. For example, a group of artists filed a class-action lawsuit against Midjourney, Stable Diffusion, and Deviant Art, claiming copyright infringement from using their creations to train their models.¹⁵ Getty Images alleges that Stability AI “copied [millions of images] without permission and used to train one or more versions of Stable Diffusion.”¹⁶ A group of artists that included Sarah Silverman proposed a class-action lawsuit against OpenAI alleging unlawful use of their written works into the datasets utilized to train ChatGPT.¹⁷ (These authors have in parallel initiated a similar suit against Meta Platforms.¹⁸) Other analogous lawsuits have been filed against Google¹⁹ and Anthropic.²⁰

I make five additional points in response to these questions.

- 6. These lawsuits are likely to expose how the emergence of generative AI makes it impossible to achieve socially optimal outcomes via the application of existing copyright law. Their resolution should catalyze legislative action.
- 7. In assessing whether the use of copyrighted materials as training data constitutes “fair use,” the fourth factor of the doctrine, namely, “the effect of the use on the potential market” is especially important. The second factor of the doctrine, “the nature of the copyrighted work,” seems to have little discriminatory power given that generative AI systems tend to be trained on a majority of extant human works, some factual, others more creative. Examining the third factor, “the amount and substantiality of the portion taken” may suggest that the new use of copyrighted material as training data is not fair use because the training process uses the copyrighted works in their entirety, but in contrast, applying the first factor, “the purpose

¹⁵ Andersen et al. v. Stability AI et al., Case No. 3:23-cv-00201 (N.D. Cal. filed Jan. 13, 2023)

¹⁶ Getty Images (US), Inc. v. Stability AI, Case No. 1:23-cv-00135 (D. Del. filed Feb. 3, 2023).

¹⁷ Silverman et al. v. OpenAI, Case No. 4:2023-cv-03416 (N.D. Cal. filed July 7, 2023).

¹⁸ Kadrey et al. v. Meta Platforms, Case No. 3:2023-cv-03417 (N.D. Cal. filed July 7, 2023).

¹⁹ J.L. et al v. Alphabet, Case No. 3:23-cv-3440-AMO (N.D. Cal. filed July 11, 2023).

²⁰ Concord Music Group, Inc. v. Anthropic PBC, 3:23-cv-01092 (M.D. Tenn. filed Oct. 18, 2023).

and character of use” may support the argument in favor of this new use of the copyrighted works in their entirety as being fair use because the use of copyrighted material in training a machine learning model is a transformative use. The eventual assessment may thus rest on the fourth factor, the effects of the use of copyrighted works as training data on their potential market.

8. To assess the impact of the use as training data of copyrighted material on its potential market, again, as suggested in point (2) on page 5, economic studies that examine the value perceived by users from works that are generated entirely by AI versus from those that are generated by humans are critical.
9. The technological details of what exactly occurs when copyrighted material is used as training data may be important in evaluating the continued economic efficiency of the division of rights between creators and users currently specified by copyright law. For example, when likening the use of data for training a generative AI system to a human reading the copyrighted material, listening to a song or viewing visual art,²¹ one might consider that while it may be theoretically possible for a human to “read” a document in a manner that is similar to what a machine learning system “does” during training — which, very simplistically, includes creating an “embedding” that maps each word as a point in a high-dimensional space based on its usage in sentences across millions of examples, and then “memorizing” the pattern contained in millions of these examples (wherein the results of this process of memorization is represented as billions of numerical parameter values in a neural network), allowing the trained system to accurately predict the appropriate next word when presented with a string of words (that may also be accompanied by directions on the literary style or author to mimic) — it is practically impossible for any human, let alone the average human, to “read” in this way. Similarly, the generative AI training process for LLMs is one that may rely extensively on the exact manner in which the ideas contained in a work are expressed, or exactly how the idea in a text is expressed in words. Indeed, the exact sequence of words and the patterns of repetition of these expressions are central to how modern generative AI “embeds” words into mathematical form.²² This may be relevant to

²¹ See Memorandum in support of Stability AI’s motion to dismiss, *Andersen et al. v. Stability AI et al.*, Case No. 3:23-cv-00201 (N.D. Cal. filed Jan. 13, 2023), 1: “[T]raining a model does not mean copying or memorizing images for later distribution. Indeed, Stable Diffusion does not “store” any images. Rather, training involves development and refinement of millions of parameters that collectively define—in a learned sense—what things look like.”

²² Tomáš Mikolov, Ilya Sutskever, Kai Chen, Greg Corrado, Jeffrey Dean, Distributed Representations of Words and Phrases and their Compositionality. CoRR abs/1310.4546 (2013); Devlin, J., Chang, M.W., Lee, K. and Toutanova, K. (2019) BERT: Pre-Training of Deep Bidirectional Transformers for Language Understanding. Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, 1, 4171-4186.

understanding whether the use of copyrighted materials as training data can be thought of as the use of their “ideas” rather than copying of their “expression.”

10. The uncertainty around the use of copyrighted content for training purposes is already being addressed partially by technological means²³ and through private licensing agreements.²⁴ An excessively restrictive technological or licensing regime applied today could have the unintended consequences of favoring early movers (who may have already gathered, organized and summarized in their generative AI models’ parameters large fractions of the world’s existing information) and may also favor larger incumbents over smaller entrants if licensing deals are bilateral and private.

C. The scope of ownership of AI-generated content

Addresses in part the following questions of the RFC.

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? For example, is selecting what material an AI model is trained on and/or providing an iterative series of text commands or prompts sufficient to claim authorship of the resulting output?

19. Are any revisions to the Copyright Act necessary to clarify the human authorship requirement or to provide additional standards to determine when content including AI-generated material is subject to copyright protection?

20. Is legal protection for AI-generated material desirable as a policy matter? Is legal protection for AI-generated material necessary to encourage development of generative AI technologies and systems? Does existing copyright protection for computer code that operates a generative AI system provide sufficient incentives?

I make two additional points in response to these questions.

11. Recent rulings place AI-generated works in the public domain.²⁵ Their economic arguments that favor the absence of any copyright holder seem to ascribe greater emphasis on the second objective of IP law — the economic benefits that accrue from sharing works as

²³ OpenAI has indicated that web sites can signal in their robots.txt file that they do not want their data used for training purpose (much like web sites could signal this to search engines); Meta allows users to opt out of their personal data being used for training purposes, and a wide variety of “do not train” metadata standards and web sites are being created.

²⁴ In July 2023, OpenAI signed a licensing deal with the Associated Press to use its archive of news stories as training data. In August 2023, Google and Universal Music indicated they were negotiating a deal on how to license the voices and melodies of artists for AI-generated songs.

²⁵ The USPTO and Federal Circuit have held that an AI system cannot be an inventor on a patent. A D.C. district court has ruled that a work of art solely generated by an AI system is not eligible for copyright registration under US law. *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022). *Thaler v. Perlmutter*, No. 1:22-cv-01564, 2023 U.S. Dist. LEXIS 145823, at *3 (D.D.C. Aug. 18, 2023).

widely as possible with the public — perhaps imagining that the first objective — the incentives of the creator to create in the first place — does not apply directly to an “AI creators” embedded in computer software. However, one might imagine individual artists (or other creators) seeking to use a new kind of generative AI platform that allows them to create “digital twins” of themselves trained on their prior works (and that can therefore generate new works in their individual style), to claim ownership over these AI systems, and to then seek ownership over new works created by their individualized generative AI systems as “fruits of their prior labor.”

12. It is useful to consider the economic advantages of permitting this kind of ownership and the potential changes in innovation, value creation and the division of value capture. A path that might yield this outcome is to classify the AI-generated works as “works made for hire” (pursuant to Sections 101 and 201(b) of the United States Copyright Act). When considering this extension, care might be taken to examine the effects that a centrally-owned collection of generative AI models trained on all existing works across all prior artists could have on the potential market for the works created by current and future human artists. Yet again, as suggested in point (2) on page 5 and point (3) on page 6, economic studies that examine the value perceived by users from works that are generated entirely by AI versus from those that are generated by humans, and studies that compare the performance of generative AI systems trained on AI-generated data with those trained on human-generated data, could be valuable.