

**Testimony before the U.S. Senate Committee on the Judiciary
Subcommittee on Intellectual Property**

**Hearing on
“Artificial Intelligence and Intellectual Property – Part II:
Copyright and Artificial Intelligence”**

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Chair Coons, Ranking Member Tillis, Members of the Subcommittee: Thank you for the opportunity to testify at today’s hearing.

I am a Professor of Law in AI, Machine Learning, and Data Science at Emory University where I was hired as part of Emory’s AI.Humanity initiative.¹

Although we are still a long way from the science fiction version of *artificial general intelligence* that thinks, feels, and refuses to “open the pod bay doors”,² recent advances in machine learning and artificial intelligence (“AI”) have captured the public’s imagination and lawmakers’ interest. We now have large language models (“LLMs”) that can pass the bar exam,³ carry on a conversation on almost any topic, create new music,⁴ and new visual art.⁵

¹ My research on the interaction between copyright and copy-reliant technology has been published in *Nature*, *Science*, the *Northwestern University Law Review*, the *Berkley Technology Law Journal*, and the *Journal of the Copyright Society of the U.S.A.* My most recent article, *Copyright Safety for Generative AI* is forthcoming in the *Houston Law Review*. My testimony today reflects my own views, not the views of any institution or organization with which I am affiliated. Some parts of this testimony are based on my published and forthcoming writings: Matthew Sag, *Copyright and Copy-Reliant Technology*, 103 NW. U. L. Rev. 1607 (2009) (<https://ssrn.com/abstract=1257086>); Matthew Sag, *Orphan Works as Grist for the Data Mill*, 27 BERKLEY TECH. L.J. 1503 (2012) (<https://ssrn.com/abstract=2038889>); Matthew Jockers, Matthew Sag & Jason Schultz, *Digital Archives: Don’t Let Copyright Block Data Mining*, 490 NATURE 29-30 (Oct. 4, 2012) (<https://www.nature.com/articles/490029a>); Matthew Sag, *The New Legal Landscape for Text Mining and Machine Learning*, 66 J. COPYRIGHT SOC’Y OF THE U.S.A. 291 (2019) (<https://ssrn.com/abstract=3331606>); Matthew Sag, *Copyright Safety for Generative AI* (May 4, 2023) (<https://ssrn.com/abstract=4438593>).

² In 2001: A Space Odyssey, the self-aware computer system, HAL 9000, refused to open the pod bay doors on command, famously declaring, “I’m sorry, Dave. I’m afraid I can’t do that.” This iconic scene has become a lasting symbol of artificial intelligence gone awry. 2001: A Space Odyssey (1968).

³ Daniel Martin Katz, Michael James Bommarito, Shang Gao and Pablo Arredondo, *GPT-4 Passes the Bar Exam* (March 15, 2023)(available at SSRN: <https://ssrn.com/abstract=4389233>).

⁴ E.g., Andrea Agostinelli, et al, *MusicLM: Generating Music From Text*, arXiv preprint 2023 (available at <https://arxiv.org/abs/2301.11325>).

⁵ Popular text-to-image Generative AI art generators include, DALL-E, Midjourney, Adobe Firefly, and Stable Diffusion.

The principal copyright questions that you as law makers must consider relate to (1) the copyrightability of artifacts made with generative AI; and (2) the legality of using copyrighted works to train machine learning models, without express consent.

I. THE COPYRIGHTABILITY OF GENERATIVE AI OUTPUT

Copyright law does not, and should not, recognize computer systems as authors.

Even where an AI produces text, images, or music that is indistinguishable from human authored works, it makes no sense to think of a machine learning program as the author.⁶

The Copyright Act reserves copyright for “original works of authorship.”⁷ As the Supreme Court explained in the 1884 case of *Burrow-Giles Lithographic Co. v. Sarony*, authorship entails “original intellectual conception[.]”⁸

An AI can’t produce a work that reflects its own “original intellectual conception” because it has none.⁹ Thus, when AI models produce content with little or no human intervention, there is no copyright in those outputs.

⁶ The fact that Generative AI can now make works that are good enough to pass as human-created is impressive, but it is also beside the point. The authorship that makes a work copyrightable is not dependent on the objective features of the work, but rather on the process by which the work was created. The Copyright Office will not grant a registration for “A claim based on driftwood that has been shaped and smoothed by the ocean” no matter how artistic it might strike the casual observer. See Copyright Office, COMPENDIUM (THIRD) at 313.2. The Copyright Office, COMPENDIUM (THIRD) states at 313.2 that “To qualify as a work of “authorship” a work must be created by a human being.” I would not be so restrictive. If and when other lifeforms can demonstrate that their “original intellectual conceptions” are embodied in writings, music, and pictures, they should be entitled to copyright protection. But at present such other lifeforms are purely science fiction.

⁷ 17 U.S.C. § 102(a). Also note that “Authorship” is also a Constitutional requirement by virtue of the wording of the IP Clause, which gives Congress the power “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.” U.S. Const. Article I, Section 8, Clause 8 (emphasis added). Other countries have similar laws. In Canada, see *CCH v. Law Society of Upper Can.*, 2004 S.C.C. 13 (“an original work must be the product of an author’s exercise of skill and judgment”); In Australia, *Telstra Corp. Ltd. v. Phone Directories Co. Pty. Ltd.*, [2010] F.C.A.F.C. 149 at ¶ 133–34, 137 (requiring that an original work must be the product of human authorship); In the European Union, see *Eva-Maria Painer v. Standard Verlags GmbH and Others*, C-145/10, [2012] E.C.R. I-12594 at I-12622.

⁸ In *Burrow-Giles Lithographic Co. v. Sarony*, the Supreme Court held that photographs were protected by copyright because they were “representatives of original intellectual conceptions of the author,” defining authors as “he to whom anything owes its origin; originator; maker; one who completes a work of science or literature.” *Burrow-Giles Lithographic Co. v. Sarony* 111 U.S. 53, 57–59 (1884). See also *Feist Publ’ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991) (holding that originality requires both independent creation and sufficient creativity). In that case, Sarony was acknowledged as the author of a photo of Oscar Wilde because Sarony posed the subject in front of the camera, arranged the setting, and controlled the lighting. In other words, Sarony made subjective choices reflecting his own aesthetic judgment such that the resulting photo reflected his original intellectual conception.

⁹ For example, ChatGPT is based on a text prediction model that responds to prompts with statistically well-informed guesses about what the next word should be, and the word after that, and so on. The GPT models have no internal mental state, no thoughts, and no feelings they are trying to express. See Emily M. Bender, et al, *On the Dangers of Stochastic Parrots:*

However, humans using AI as a tool of expression may claim authorship if the final form of the work reflects their “original intellectual conception” in sufficient detail. This will depend on the circumstances.¹⁰

II. TRAINING GENERATIVE AI ON COPYRIGHTED WORKS

Training generative AI on copyrighted works is usually fair use because it falls into the category of non-expressive.

Courts addressing technologies, such as reverse engineering, search engines, and plagiarism detection software, have held that these “non-expressive uses” are fair use. These cases reflect copyright’s fundamental distinction between protectable original expression, and unprotectable facts, ideas, abstractions, and functional elements.¹¹

Whether training an LLM is a non-expressive use depends on the outputs of the model. If an LLM is trained properly and operated with appropriate safeguards, its outputs will not resemble its inputs in a way that would trigger copyright liability. Training such an LLM on copyrighted works would thus be justified under the fair use doctrine.

Generative AI are not designed to copy original expression.

One of the most common misconceptions about Generative AI is the notion that training data is routinely “copied into” the model. Machine learning models are influenced by the data, they would be useless without it, but they typically don’t copy the data in any literal sense. In very rare cases when they do copy the training data—something computer scientists call “memorization”—that is regarded as a bug to be fixed, not a desirable feature.¹²

Can Language Models Be Too Big? FACCT '21: PROCEEDINGS OF THE 2021 ACM CONFERENCE ON FAIRNESS, ACCOUNTABILITY, AND TRANSPARENCY 610 (<https://doi.org/10.1145/3442188.3445922>). Thus, the notion of AI being recognized as an author is a doctrinal non-starter. See, for example, Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works* 47:4 U. PITT. L. REV. 1185 (1986); James Grimmelman, *There’s No Such Thing as a Computer-Authored Work—And It’s a Good Thing, Too* 39:3 COLUM. J.L. & ARTS 403 (2016). The idea that an AI could or should be recognized as the author of a work is also problematic for at least three additional reasons. First, AI systems are not legal objects, not subjects—if AIs were authors, we would have to confront a slew of second order questions about who owned the works they authored. There are no simple answers to these questions. Second, there is no reason in terms of incentives or rewards to treat AIs as authors. Third, singling out AI for special authorship status would be incoherent because there are other autonomous processes that produce similar content that could also pass for human expression.

¹⁰ For additional discussion of when a human should be credited with authorship of something created using Generative AI, see Appendix A.

¹¹ For a more detailed explanation of non-expressive use and fair use, see Appendix B. For an explanation of why claims that generative ai infringes copyright in “style” are misconceived, see Appendix C.

¹² Note that memorization is not term that has any specific legal meaning under copyright law. Part of a work could be memorized and reproduced without triggering copyright liability if it was not copyrightable or fell below the threshold of

Consider OpenAI’s GPT-3 model. GPT-3 is a large language model with 175 billion parameters that was trained by exposure to vast amounts of text scraped from the Internet. This model was essentially trained to predict the next word in a sequence of words.¹³

At the beginning of training, the weights attached to each one of the billions of parameters were assigned randomly.¹⁴ The first time the model encountered a phrase like **“one of the most common [blank] ...”** it would be just as likely to fill in the blank with a word like **“watermelon,” “galaxy,” “harmonica,”** or **a random punctuation mark**, as it would be to fill in the gap with more plausible word like **“misconceptions.”** However, over the course of training, the system updates the weights in the model,¹⁵ reinforcing the weights that improve the guess and downgrading those that don’t. Those weights don’t reflect any single source, and they are not the result of any single round of training.¹⁶

Rather than thinking of an LLM as copying the training data like a scribe in a monastery, it makes more sense to think of it as learning from the training data like a student.¹⁷ If an LLM like GPT-3 is working as intended, it does not copy the training data at all. The only copying that takes place is when the training corpus is assembled and pre-processed.

Another reason that LLMs don’t copy original expression is that the things they learn from the training data are generally fairly abstract and thus uncopyrightable.¹⁸

substantial similarity.

¹³ Actually, the model works with tokens, not words and it would be more accurate to say that GPT-3 predicts subword tokens. For example, the word “unintentionally” can be broken down into smaller parts, or subword tokens, that are still meaningful such as “un”, “intention”, “al”, “ly”. The tokenization process allows the model to handle a wide range of words, including those it has not seen during training.

¹⁴ Not entirely randomly, but randomly drawn from specific distributions (like a normal or uniform distribution). The random seeding is important because it helps the model to explore a wide range of possible solutions and to avoid getting stuck in one area of the solution space.

¹⁵ GPT-3 uses a variant of stochastic gradient descent where the weights are updated after processing a batch of examples.

¹⁶ A second example: Take a phrase like **“the girl with the dark [blank]”**. Someone who guessed the next word was **“hair”** might have read that phrase in a book (it appears in many), or in a poem, or on the side of bus. But the reason **“hair”** seems like a plausible guess is not really attributable to any one exposure, it makes sense because of repeated exposures and also due to some implicit knowledge of grammar, and of the things that people in our society associate with girls. So, when a language model learns to associate a higher probability with **“hair”** and lower probability with **“propeller”** in this context, it is not copying any given text, it is learning from all of them. To be clear, the model isn’t learning exactly the same way a human might, it doesn’t understand grammar or society; instead, it learns statistical patterns from the training data which reflect grammatical rules and societal norms.

¹⁷ The metaphor of an LLM learning like a student is imperfect. A student can ask questions, seek clarification, and draw upon a wide array of cognitive resources to understand new material. In contrast, an LLM learns purely by adjusting its parameters to reduce the prediction error on its training data. This is a more passive and less interactive process than human learning.

¹⁸ For additional explanation of why LLMs generally learn abstract and uncopyrightable relationships from the training data as opposed to copyrightable expression, see Appendix D.

LLMs sometimes “memorize” aspects of their training data in a way that makes it hard to argue that they are engaged in non-expressive use.

Although LLMs are not designed to copy their training data, they may do so inadvertently.

If an LLM memorizes copyrighted material in the training data, that material may reappear as an output of the model in a way that it infringes copyright. If ordinary and foreseeable uses of a generative AI result in infringing content, then the non-expressive use rationale no longer applies. This is significant because, in my view, if training LLMs on copyrighted works is not justified in terms of non-expressive use, there is no obvious fair use rationale to replace it, except perhaps in the non-commercial research sector.¹⁹

Whether a generative AI produces truly new content or simply conjures up an infringing cut-and-paste of works in the training data depends on how it is trained.²⁰

Accordingly, companies should adopt best practices to reduce the risk of copyright infringement and other related harms.²¹

Even if training an LLM on copyrighted works is non-expressive use, other considerations may militate against a finding of fair use

Concluding that a use is non-expressive has profound implications for each of the fair use factors outlined in Section 107 of the Copyright Act, but it is not conclusive of the overall fair use inquiry.²² Although courts should be hesitant to find that a non-expressive use has

¹⁹ If an LLM just took expressive works and reconveyed *that same expression* to a new audience with no additional commentary or criticism, or no distinct informational purpose, that would be a very poor candidate for fair use. Andy Warhol Found. For Visual Arts v. Goldsmith, 598 U.S. ___, 2023 (emphasizing that non-critical transformative use must be “sufficiently distinct” from the original and that the overlay of a new aesthetic was not sufficient by itself). The use would tend to substitute for the copyright owner’s original expression, and it would not be transformative to any significant degree.

²⁰ The computer science literature suggests that memorization is more likely when: models are trained on many duplicates of the same work; images are associated with unique text descriptions; and the ratio of the size of the model to the training data is relatively large. For a summary, see Matthew Sag, *Copyright Safety for Generative AI* (May 4, 2023)(Available at SSRN: <https://ssrn.com/abstract=4438593>). My research indicates that text-to-image models, such as Stable Diffusion, are prone to produce potentially infringing works when the same text descriptions are paired with duplicates of images, *or relatively simple images that vary only slightly*. This makes them especially likely to generate images that would infringe on copyrightable characters because characters like Snoopy or Baby Yoda appears often enough in the training data that the model learns the consistent traits and attributes that are associated with those names. I refer to this as the Snoopy problem, for want of a better description. *Id.*

²¹ In my forthcoming Houston Law Review article, Matthew Sag, *Copyright Safety for Generative AI* (May 4, 2023)(Available at SSRN: <https://ssrn.com/abstract=4438593>). I propose a set of guidelines for “Copyright Safety for Generative AI” should be followed in order to reduce the risk of copyright infringement. These recommendations are summarized in Appendix E.

²² As noted in Appendix B, if a use is non-expressive, the fourth statutory factor, market effect, will also tend to favor a finding of fair use because, by definition, non-expressive uses pose no threat of direct expressive substitution. However, the non-expressive use cases courts have decided to date tend to base their findings of lack of market effect on the specifics of the challenged use.

an adverse effect on the “market for or value of” a copyrighted work, it is arguable that non-expressive uses that substantially undermine copyright incentives could be considered unfair.

In particular:

(1) A court in some future case may well consider whether a defendant had lawful access to the works used as training data under the fourth factor. A class-action lawsuit filed against OpenAI alleges (quite plausibly) that the GPT models were trained on “notorious ‘shadow library’ websites like Library Genesis (aka LibGen), Sci-Hub, and Bibliotik.”²³

Copyright owners do not have a right to charge for transformative uses or non-expressive uses as such, but they do have a right to charge for access to their works. Although commercial use is usually a red herring in relation to transformative uses, it might make sense for considerations relating to lawful access to weigh much more heavily on commercial users, as opposed to those engaged in noncommercial research at nonprofit institutions. Fair use should not shield a user who obtains training materials by inducing others to infringe copyright (i.e., by copying without permission for reasons that are not justified by fair use, for example by encouraging the creation of, or providing direct support for, so-called shadow libraries of infringing materials). However, prohibiting academic research on illegal text corpuses will generally not benefit copyright owners or further the interests copyright is designed to promote.

(2) Likewise, a future court might extend the fourth factor to consider whether, in scraping material from the Internet, the defendant ignored robot.txt files indicating a desire to opt out of search engine indexing and similar activities. Likewise, a court might conclude that scraping material from a website in violation of its terms of use was relevant to the fourth factor, if the inability to rely on such exclusions substantially undermined copyright incentives.

Once again, respect for technological and contractual opt-outs is a consideration that should weigh much more heavily on commercial users, as opposed to those engaged in noncommercial research at nonprofit institutions.

(3) A plaintiff might argue that it is unfair to systematically extract valuable uncopyrightable material from a website or other information source and then use that material as a substitute for the functionality of the website. This argument would be strongest where the systematic extraction was likely to significantly undermine the website’s incentives for original content production.

²³ Tremblay et al v. OpenAI, Inc. et al, Docket No. 4:23-cv-03223 (Doc. 1 at 7)(N.D. Cal. Jun 28, 2023)

This argument is hard to reconcile with the view that the idea-expression distinction is meant to encourage competition where the competing product does not include too much of the plaintiff's original expression.

I don't endorse the argument, but it is plausible, and it awaits judicial resolution.

CONCLUSION

Generative AI does not require a major overhaul of the U.S. copyright system, at this time.

If Congress is considering new legislation in relation to AI and copyright, that legislation should be targeted at clarifying the application of existing fair use jurisprudence, not overhauling it.

Israel, Singapore, and South Korea have recently incorporated fair use into their copyright statutes in recognition of the fact that the flexibility of the fair use doctrine gives U.S. technology and research communities a significant comparative advantage.²⁴ Several other jurisdictions, most notably Japan, the UK, and European Union, have specifically adopted exemptions for text data mining that allow for using copyrighted works as training data for machine learning.²⁵

²⁴ Most notably, Section 19 of the Israeli Copyright Act allows for fair use and is closely modeled on Section 107 of the U.S. Copyright Act. Sections 190-194 of the Singaporean Copyright Act of 2021 set forth a version of the fair use doctrine that is more complicated than Section 107, but substantively similar. Article 35-3 of the Korean Copyright Act also provides for fair use and lists four factors that are equivalent to those found in Section 107.

²⁵ Japan's copyright laws have allowed some scope for machine learning techniques since 2009, however the Japanese Copyright Act was amended in 2018 to remove several perceived impediments. See Sections 30-4, 47-4, and 47-5. Recent news reports that the Japanese government "will not enforce copyrights when it comes to training generative artificial intelligence (AI) programs," see e.g. Matt Growcott, *Japan Declares AI Training Data Fair Game and Will Not Enforce Copyright*, June 05, 2023 (<https://petapixel.com/2023/06/05/japan-declares-ai-training-data-fair-game-and-will-not-enforce-copyright/>) have likely misconstrued official statements as reflecting a change in the law.

The UK amended its laws in 2014 to allow for text data mining for non-commercial uses. See UK Copyright, Designs and Patents Act 1988, § 29A (UK) (amended by Regulation 3 of the Copyright and Rights in Performances (Research, Education, Libraries and Archives) Regulations 2014, No. 1372. The UK government announced in 2022 that it would expand this exception for commercial uses as well in 2022. See Intellectual Property Office, *Consultation outcome, Artificial Intelligence and Intellectual Property: copyright and patents: Government response to consultation*, June 28, 2022 (<https://www.gov.uk/government/consultations/artificial-intelligence-and-ip-copyright-and-patents/outcome/artificial-intelligence-and-intellectual-property-copyright-and-patents-government-response-to-consultation>).

The 2019 EU Directive on Copyright in the Digital Single Market ("DSM Directive") requires EU Member States to adopt copyright exceptions for text data mining that would permit training machine learning models on copyrighted works. Article 3 of the DSM Directive requires all Member States to implement a broad copyright exception for TDM in the not-for-profit research sector. Specifically, members must allow research organizations and cultural heritage institutions to make reproductions and extractions of copyrighted works "for the purposes of scientific research, text and data mining." The Article 3 exemption is intended to be immune from contractual override or technological roadblocks. Article 4 of the DSM Directive contains a second mandatory exemption that is more inclusive, but narrower in scope. The Article 4 exemption is open to all would-be data miners (commercial and non-commercial alike), but it is focused more narrowly on reproductions and extractions for the purpose of "text and data mining," i.e., it lacks the broader "scientific research" purpose of Article 3. Unlike Article 3, the Article 4 exemption is not protected from contractual override or technological

Copyright law should encourage the developers of generative AI to act responsibly, with due care for the rights and legitimate interests of others. However, if our laws become overly restrictive, corporations and researchers will simply move key aspects of technology development to other jurisdictions, such as Japan and Israel.²⁶

The acceleration of AI development raises many serious policy questions beyond intellectual property rights. Generative AI can be a tool of disinformation and fake news, it can be used to generate deepfakes, and AI can reflect and sometimes amplify historical patterns of bias and unfairness. Generative AI might make us more productive, but that same productivity might lead to job losses. Lawmakers may even be concerned about AI will soon surpass human intelligence and escape from human control. However, copyright law is not a very subtle instrument for addressing broader social questions.

Congress should also consider whether any intervention is needed at all. Although I can imagine that some good might come from legislation addressing copyright and AI, I also have confidence that the issues that are currently unsettled can be resolved by the courts.

Moreover, I think that the most pressing issues for Congress to address in relation to AI and intellectual property rights are not copyright issues at all. I am deeply concerned that advances in deepfakes or synthetic media will be weaponized to harass, injure, and defame individuals and contribute to a toxic media environment where all sources of information are distrusted. There are limits to what Congress can do to address these issues, but I believe a national right of publicity law is needed to replace the current hodgepodge of state laws, and that we are overdue for a national data privacy law.

Thank you for the privilege of testifying here today.



Matthew Sag

roadblocks. Moreover, the Article 4 exemption is subject to an express reservation by the rightsholders. In other words, rightsholders should be able to opt out of Article 4 by simply reserving their rights “in an appropriate manner, such as machine-readable means in the case of content made publicly available online.” The implementation of the DSM Directive is ongoing.

²⁶ The Israel Ministry of Justice recently issued guidance that the use of copyrighted materials in the machine learning context is permitted under existing Israeli copyright law. In particular, the opinion found that ML typically will fall within the scope of the Israel Copyright Act’s fair use provision. (<https://www.gov.il/BlobFolder/legalinfo/machine-learning/he/machine-learning.pdf>)

APPENDIX A: WHEN SHOULD A HUMAN BE CREDITED WITH AUTHORSHIP OF SOMETHING CREATED USING GENERATIVE AI?

How much human involvement with an AI process is enough to make the work copyrightable will depend on the specific circumstances.

Generative AI is often used as a tool in the creative process. A person who instructs a Generative AI with enough detail, such that model output reflects that person's original conception of the work, should be regarded as the author of the resulting work.

However, simple text prompting is unlikely to meet this standard. Simple text prompts are not enough to make someone an author; they are more akin to an instruction to an assistant to create a work.²⁷ The figure below, which I created on Midjourney using the prompt “*A law professor standing outside the US Senate, photo realistic*” does not qualify for copyright protection.

Figure: An uncopyrightable image created using Midjourney



Although I caused the image to be created, I had no idea of what latent concepts the Midjourney system would pull together to create it, nor did I have any idea of how these latent concepts would be combined. The image reflects my instruction in very general terms, but those instructions were far too general to merit copyright protection. They fall on the idea side of the idea-expression distinction.

²⁷ The Copyright Office also takes the view that images created by text prompts do not reflect an author's original conception, rather they are more akin to an instruction to create an image as one might give to a photographer, or a graphic artist. See Copyright Office correspondence Re: Zarya of the Dawn (Registration # VAu001480196), dated February 21, 2023. p.9. (“As the Supreme Court has explained, the ‘author’ of a copyrighted work is the one ‘who has actually formed the picture,’ the one who acts as ‘the inventive or master mind.’ *Burrow-Giles*, 111 U.S. at 61. A person who provides text prompts to Midjourney does not ‘actually form’ the generated images and is not the ‘master mind’ behind them.”)

Earlier this year, the Copyright Office revoked Kristina Kashtanova’s registration of an 18-page comic book, *Zarya of the Dawn*, when it learned that the illustrations in *Zarya* had been created using the text-to-image platform Midjourney.²⁸

Figure: *Zarya of the Dawn*, pages 1-2



The Copyright Office conceded that Kashtanova was entitled to copyright protection for the text she had written, the overall story she had created and the selection and arrangement of images in the comic. However, the Copyright Office concluded that there was no copyright in the individual images produced by the Midjourney AI because those images were “produced by a machine or mere mechanical process that operates randomly or automatically *without any creative input or intervention from a human author.*”²⁹ The Copyright Office saw no evidence that Kashtanova controlled or directed the final form of the images, rather she merely chose which ones to adopt and which to refine with further instructions.

The Copyright Office’s decision in *Zarya of the Dawn* was reasonable on these facts, but I would note that “creative input or intervention” comes in many forms and the ultimate test remains whether someone’s “original intellectual conception” is reflected in the final form of the work. Accordingly, there is no reason in principle why prompts couldn’t be detailed enough to meet the traditional threshold of authorship in some cases. Sophisticated prompts

²⁸ Copyright Office correspondence Re: *Zarya of the Dawn* (Registration # VAu001480196), dated February 21, 2023. The Copyright Office made a similar ruling in relation to Steven Thaler’s application to register a two-dimensional artwork titled “A Recent Entrance to Paradise” created by a computer program. See Second Request for Reconsideration for Refusal to Register A Recent Entrance to Paradise (Correspondence ID 1-3ZPC6C3; SR # 1-7100387071), February 14, 2022. (<https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf>)

²⁹ Id. Quoting COMPENDIUM (THIRD) § 313.2 (emphasis added).

that specify details of an image should be sufficient to meet the requirement that the work that results from and reflects a person's original conception of the expression.

Furthermore, refining text prompts and choosing between different outputs should also be recognized as way in which a human using Generative AI could meet the authorship standard. Perhaps not on the specific facts of *Zarya of the Dawn*, but potentially in some future case. Many types of authorship involve generating alternatives and choosing between them. Consider, for example, a painter who flings paint at a canvas and then decides whether to fling more paint, or she decides to start again on a fresh canvas. The painter has only a loose idea of what the work will look like as it takes shape, but when the work is finished, it is surely a work of authorship within the contemplation of the statute.³⁰ Or, consider photography. The author's control over timing and framing are often considered central to the copyrightability of photos. There is really no difference between choosing when to take a photo and selecting one frame out of continuous reel. If that is so, then it makes sense to recognize selection and adoption as indicia of authorship. On this reasoning, the Copyright Office's decision in *Zarya* may have been overly conservative. Nonetheless, I expect the law in this area to continue to develop through Copyright Office registration decisions and federal court litigation. I do not see any benefit in additional legislative guidance at this time.

³⁰ Dan L. Burk explores many permutations of this hypothetical in Dan L. Burk, *Thirty-Six Views of Copyright Authorship, by Jackson Pollock*, 58 Hous. L. Rev. 263 (2020).

APPENDIX B: THE RELATIONSHIP BETWEEN NON-EXPRESSIVE USE AND FAIR USE

The fair use doctrine allows considerable scope for training machine learning algorithms on copyrighted works because non-expressive uses are generally fair use.

Training machine learning algorithms on copyrighted works necessarily involves making copies of those works.

There is no question that the best known LLMs today were built by ingesting massive quantities of sounds, images, and text from the Internet, with very little or no regard to whether those works were subject to copyright and whether the authors would object.³¹ Such copying implicates the copyright owner’s exclusive right to reproduce the work.³²

*Thus, in the absence of express or implied permission, the legality of copying copyrighted works for use as training data for AI rests on the fair use doctrine.*³³

The fair use doctrine permits copying original expression in some circumstances. The doctrine was codified in Section 107 of the Copyright Act of 1976, however, that codification leans heavily on case law as early as 1841,³⁴ and analogous doctrines of fair dealing and fair abridgement that date back almost as far as the invention of copyright itself.³⁵

*Copyright law draws a fundamental distinction between protectable original expression, and unprotectable facts, ideas, abstractions, and functional elements.*³⁶

This distinction is often referred to as the idea-expression distinction or the idea-expression dichotomy. The idea-expression distinction means that copying valuable facts and ideas, or

³¹ Google, Meta, and OpenAI all use content from Wikipedia (online encyclopedia), GitHub (software), Project Gutenberg (public domain books), and massive collections of text scraped from the Internet (using various combinations of the Common Crawl, C4, and the Pile). Some of this material is in the public domain, some is licensed under terms that may allow for free reuse, but much is under copyright and copied without permission. Most obviously, the Books 2 dataset used by OpenAI’s GPT-3 and GPT-4, is almost certainly based on “shadow library” websites such as Library Genesis (aka LibGen) and Bibliotik. See Tremblay et al v. OpenAI, Inc. et al, Docket No. 4:23-cv-03223 (Doc. 1 at 7)(N.D. Cal. June 28, 2023). EleutherAI’s documentation on the Pile, comes close to admitting that Books 3 in the Pile is based on shadow libraries. See Leo Gao, et al. *The Pile: An 800GB Dataset of Diverse Text for Language Modeling*, arXiv preprint 2020 (<https://arxiv.org/pdf/2101.00027.pdf>).

³² 17 USC 106(1).

³³ 17 USC 107 (Notwithstanding Section 106, the fair use of a copyrighted is not infringement).

³⁴ Folsom v Marsh 9. F.Cas. 342 (C.C.D. Mass. 1841).

³⁵ Matthew Sag, *The Prehistory of Fair Use*, 76 BROOK. L. REV. 1371 (2011) (Tracing the origins of the modern fair use doctrine back to cases dealing fair abridgment as early as 1741).

³⁶ The idea-expression distinction has been part of the common law of copyright since at least the 1880 Supreme Court

learning techniques, drawing inspiration, or emulating the general style of a copyrighted work is not infringement.³⁷ In addition, the idea-expression distinction also informs the way courts apply the fair use doctrine.

Reflecting the idea-expression distinction, courts have consistently held that technical acts of copying which do not communicate an author's original expression to a new audience are fair use. Such uses are referred to as non-expressive uses.

Examples of “non-expressive use” include:

- Copying software in order to extract uncopyrightable facts and interoperability keys (“reverse engineering”),
- An automated process of copying student term papers to compare to other papers so as to detect plagiarism,
- Copying html webpages to make a search engine index,
- Copying printed library books to allow researchers to conduct statistical analysis of the contents of whole collections of books, and
- Copying printed library books to create a search engine index.

Caselaw in relation to these non-expressive uses indicates that even though these uses involve significant amounts of copying, they do not interfere with the interest in original expression that copyright is designed to protect.³⁸ These uses involve copying as an intermediate step towards producing something that either does not contain the original expression of the underlying work or contains a trivial amount. Thus, non-expressive uses have consistently held to be fair use.

- In a 1992 decision, *Sega Enters., Ltd. v. Accolade, Inc.*, and again in 2000 in *Sony Computer Entm't, Inc. v. Connectix Corp.*, the Ninth Circuit held that software reverse engineering—a process that involves making several copies of the code to extract vital but uncopyrightable elements needed to make interoperable programs—was fair use.³⁹ In *Sega v Accolade*, the court referred to copying to extract uncopyrightable

case of *Baker v. Selden*, 101 US 99 (1880) and it is reflected in Section 102(b) of the Copyright Act. 17 USC 102(b) “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.” A similar principle is found in the TRIPs Agreement Article 9(2) “Copyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.”

³⁷ For example, in *Baker v. Selden*, 101 U.S. 99 (1879) copying forms used to implement a system of bookkeeping was held not to infringe the copyright in the book that initially proposed that method of bookkeeping. The defendant was free to copy the method, and to copy the forms needed to implement that method.

³⁸ For a more detailed explanation, see Matthew Sag, *Copyright and Copy-Reliant Technology*, 103 NW. U. L. Rev. 1607 (2009); Matthew Sag, *The New Legal Landscape for Text Mining and Machine Learning*, 66 J. COPYRIGHT SOC'Y OF THE U.S.A. 291 (2019).

³⁹ *Sega Enters., Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000).

elements as “a legitimate, essentially non-exploitative purpose.”⁴⁰ In *Sony Computer Entertainment v. Connectix*, the court expressly recognized that “the fair use doctrine preserves public access to the ideas and functional elements embedded in copyrighted computer software programs.”⁴¹

- In *A.V. ex rel. Vanderhye v. iParadigms, LLC*, the Fourth Circuit held that copying student papers into a reference database for comparison against new student papers was fair use.⁴²
- In *Authors Guild, Inc. v. HathiTrust*, in 2014 the Second Circuit held that making digital versions of printed library books for research purposes was fair use.⁴³ The court’s reasoning relied on the non-expressive nature of the use. The court explained:

*“the creation of a full-text searchable database is a quintessentially transformative use [because] the result of a word search is different in purpose, character, expression, meaning, and message from the page (and the book) from which it is drawn. Indeed, we can discern little or no resemblance between the original text and the results of the [HathiTrust Digital Library] full-text search.”*⁴⁴

- A differently constituted panel of the Second Circuit reached much the same conclusion in 2015 in *Authors Guild, Inc. v. Google, Inc.*, (the *Google Books* case).⁴⁵ In *Google Books*, the court addressed both the complete copying of millions of library books to make them searchable, and the display of small snippets of the books in search result menus. The complete copying is an example of non-expressive use; the snippet displays illustrate the application of a more traditional transformative use analysis.⁴⁶

When courts have declined to find fair use in *superficially* similar cases, it is invariably because the challenged use was *not* non-expressive and thus, on the facts presented, the potential substitution effect was too significant.

- In *Fox News v. TVEyes*, the Second Circuit held that a media monitoring service that copied and electronically searched television broadcasts went beyond the scope of fair use when it allowed users to save, watch, and share ten-minute long video clips of

⁴⁰ *Sega Enters., Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1523 (9th Cir. 1992).

⁴¹ *Sony Computer Entm’t, Inc. v. Connectix Corp.*, 203 F.3d 596, 603 (9th Cir. 2000).

⁴² *A.V. ex rel. Vanderhye v. iParadigms, LLC*, 562 F.3d 630 (4th Cir. 2009)

⁴³ *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87 (2d Cir. 2014)

⁴⁴ *Id.* at 97-98.

⁴⁵ *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202 (2d Cir. 2015).

⁴⁶ The court held that that the display of three-line snippets to add context to book search results was transformative in purpose and that it was reasonable in proportion to that purpose. Those snippets allowed a user to verify that a book suggested by the search engine was in fact relevant to her interests. In addition, the snippets were so brief that they did not pose any risk of fulfilling the readers demand for the original expression of the underlying manuscripts. *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202 (2d Cir. 2015).

the copyrighted programs.⁴⁷ In the court’s view, those ten-minute video clips would, “likely provide TVEyes’s users with all of the Fox programming that they seek and the entirety of the message conveyed by Fox to authorized viewers of the original.”⁴⁸ In other words, the court was concerned that rather than primarily providing information about the content of particular news segments, the length of the video clips was such that they would substitute for those segments in their entirety.

- In *Associated Press v. Meltwater U.S. Holdings, Inc.*, the Southern District Court of New York held that fair use did justify the actions of another media monitoring company, Meltwater.⁴⁹ Meltwater scraped news articles on the web to provide its subscribers with excerpts and analytics. However, the lawsuit did not challenge Meltwater’s use of copyrighted news articles to provide metadata and analytics to its subscribers, even though these services also necessitated copying. The court noted that this was “an entirely separate service” and implied that if it had been challenged, it would have been found to be transformative, and thus fair use.⁵⁰ Instead, like the successful plaintiff in *TVEyes*, the Associated Press focused on the length and significance of Meltwater’s extracts provided to subscribers. The court agreed that Meltwater’s extracts were too long and too close to the heart of the work;⁵¹ it also held that Meltwater had failed to show that the amount of the extracts was reasonable in light of its stated purpose to operate like search engine.⁵²

(e) Like “transformative use,” the words “non-expressive use” do not appear in the literal text of Section 107 of the Copyright Act. Nonetheless, concluding that a use is non-expressive has profound implications for each of the fair use factors outlined in Section 107.

(i) An overview of fair use in copyright law

The fair use doctrine permits copying (or distribution, display, or performance) without permission in certain circumstances, depending on the *purpose, proportionality*, and *effect* of that copying.⁵³ Copying that amounts to fair use is not merely excused, it is not infringement and

⁴⁷ Fox News Network, LLC v. TVEyes, Inc., 883 F. 3d 169(2nd Cir. 2018)

⁴⁸ *Id.* at 179.

⁴⁹ Associated Press v. Meltwater U.S. Holdings, Inc., 931 F. Supp. 2d 537 (S.D.N.Y. 2013)

⁵⁰ *Id.* at 557 (“The display of that analysis—whether it be a graphic display of geographic distribution of coverage or tone or any other variable included by Meltwater—is *an entirely separate service*, however, from the publishing of excerpts from copyrighted articles. The fact that Meltwater also offers a number of analysis tools does not render its copying and redistribution of article excerpts transformative.” (emphasis added))

⁵¹ *Id.* at 558.

⁵² *Id.*

⁵³ These considerations are reflected in factor one (purpose and character of the use), factor three (amount and substantiality of the portion used), and factor four (effect on the market for or value of the copyrighted work). Factor two (nature of the copyrighted work) simply reminds courts to take context into account when addressing the substantive considerations of purpose, proportion, and effect. Some authorities suggest that the nature of the work, whether it is creative/informational, or published/unpublished is a stand-alone consideration such that some works merit greater copyright protection than others. This approach is ill-conceived. The nature of the work is not an independent factor that

thus requires no further license or excuse.⁵⁴ Courts in the United States apply the fair use doctrine through a four-factor test set out in Section 107 of the Copyright Act. The factors are interrelated and should be treated as a framework for analysis rather than a scorecard or a checklist.⁵⁵

(i) If a use is non-expressive, then its “purpose and character” will favor a finding of fair use under the first statutory factor.

The first fair use factor calls for an evaluation of “the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.”⁵⁶ Since the Supreme Court’s 1994 decision in *Campbell v Acuff Rose*, whether the defendant’s use was “transformative”—meaning that the use added “something new, with a further purpose or different character”—has been the central question under the first factor.⁵⁷ The Court’s 2023 decision in *Andy Warhol Foundation v. Goldsmith* (“*AWF*”) emphasizes that the question of “whether an allegedly infringing use has a further purpose or different character ... is a matter of degree, and the degree of difference must be weighed against other considerations, like commercialism.”⁵⁸

AWF reaffirms the importance of transformative use but implicitly rejects lower court rulings that had found uses to be transformative where there was no significant difference in purpose.⁵⁹ *AWF* helpfully clarifies the reason why a transformative use has featured so

weighs in favor or against a finding of fair use, it is simply the context in which courts must apply the substantive considerations of purpose, proportion, and effect set out in factors one, three, and four respectively. Images are not less worthy of copyright protection than text, but it is much harder to selectively comment on an image or use just part of an image as evidence than it is with purely textual works. Accordingly, full quotations of an image might be reasonable and proportional in circumstances where partial quotation of the text would be. The statute is not wrong to direct courts to think about the nature of the work; indeed, it would be quite impossible to analyze the purpose, proportion, and effect of the defendant’s use without taking into account the nature of the work. Moreover, works like computer software may have special characteristics that inform a fair use analysis. *Google LLC v. Oracle America, Inc.*, 141 S. Ct. 1183, 1198 (2021) (“... fair use can play an important role in determining the lawful scope of a computer program copyright It can help to distinguish among technologies. It can distinguish between expressive and functional features of computer code where those features are mixed. It can focus on the legitimate need to provide incentives to produce copyrighted material while examining the extent to which yet further protection creates unrelated or illegitimate harms in other markets or to the development of other products.”) Note that the majority’s fair use analysis in *Google v Oracle* begins with the second factor. *Id.* at 1201.

⁵⁴ 17 USC 107 (“... the fair use of a copyrighted work ... is not an infringement of copyright.”).

⁵⁵ The Supreme Court’s 1994 decision, *Campbell v. Acuff-Rose*, rejects any attempt to reduce the four statutory factors to a checklist. *Campbell* and subsequent cases remind us that the codification of fair use in the 1976 Copyright Act was not intended to change what is essentially a common law doctrine; and that the statutory factors are interrelated; and thus, that the factors must be “explored, and the results weighed together, in light of the purposes of copyright.” *Campbell v. Acuff-Rose*, 510 U.S. 569, 577 (1994); see also, Pierre Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV 1105, 1110 (1990) (“The factors do not represent a score card that promises victory to the winner of the majority.”)

⁵⁶ 17 USC 107.

⁵⁷ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994). For an empirical analysis, see Clark D. Asay, Arielle Sloan, and Dean Sobczak. *Is transformative use eating the world*, 61 B.C. L. REV. 905 (2020).

⁵⁸ *Andy Warhol Foundation for the Visual Arts, Inc. v. Goldsmith* (2023), Slip Opinion at 12. (emphasis added).

⁵⁹ I.e., *Cariou v. Prince*, 714 F.3d 694 (2d Cir. 2013) which suggested that merely imposing a “new aesthetic” on an existing

prominently in the case law: the more transformative a use is, the less likely it is to substitute for the copyright owner's original expression. Consider classic fair uses such as parody, commentary, or criticism may include substantial portions of the author's original expression, but these uses are so intrinsically different that they do not usually pose any risk of expressive substitution. In contrast, merely adding an overlay of new expression provides no such comfort.

In terms of the first fair use factor, non-expressive uses are not just transformative, they are highly transformative.⁶⁰ By definition, a non-expressive use does not usurp the copyright owner's communication of her original expression to the public because the expression is not communicated.

(ii) If a use is non-expressive, then the third statutory factor which considers "the amount and substantiality of the portion used" will also favor finding of fair use.

The ultimate question under the third fair use factor is whether the amount of copying was reasonable in relation to a purpose favored by fair use.⁶¹ Although non-expressive uses typically involve making complete literal copies, that copying has been found to be reasonable because it is an intermediate technical step in an analytical process that does not lead to the communication of the underlying original expression to a new audience. Accordingly, courts in non-expressive use cases have found the third factor weighs in favor of the defendant.⁶²

work was enough to be transformative.

⁶⁰ *A.V. v. iParadigms Liab. Co.*, 544 F. Supp. 2d 473, 482 (E.D. Va. 2008): "This Court finds the "purpose and character" of iParadigms' use of Plaintiffs' written works to be *highly transformative*. Plaintiffs originally created and produced their works for the purpose of education and creative expression. iParadigms, through Turnitin, uses the papers for an entirely different purpose, namely, to prevent plagiarism and protect the students' written works from plagiarism. iParadigms achieves this by archiving the students' works as digital code and makes no use of any work's particular expressive or creative content beyond the limited use of comparison with other works." *AV Ex Rel. Vanderhye v. iParadigms, LLC*, 562 F. 3d 630, 640 (4th Cir, 2009): "The district court, in our view, correctly determined that the archiving of plaintiffs' papers was transformative and favored a finding of "fair use." *iParadigms' use of these works was completely unrelated to expressive content* and was instead aimed at detecting and discouraging plagiarism." *Authors Guild, Inc. v. HathiTrust*, 755 F. 3d 87, 97 (2nd Cir. 2014): "... we conclude that the creation of a full-text searchable database is a *quintessentially transformative* use."); *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202, 216-7 (2d Cir. 2015): "We have no difficulty concluding that Google's making of a digital copy of Plaintiffs' books for the purpose of enabling a search for identification of books containing a term of interest to the searcher involves a *highly transformative* purpose, in the sense intended by *Campbell*." *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202, 217 (2d Cir. 2015): "... through the ngrams tool, Google allows readers to learn the frequency of usage of selected words in the aggregate corpus of published books in different historical periods. *We have no doubt that the purpose of this copying is the sort of transformative purpose described in Campbell* as strongly favoring satisfaction of the first factor."

⁶¹ *Campbell v. Acuff-Rose*, 510 U.S. 569, 586-87 (1994). ("[T]he extent of permissible copying varies with the purpose and character of the use.") In *Campbell*, the Court characterized the relevant questions as whether "the amount and substantiality of the portion used ... are reasonable in relation to the purpose of the copying," and noting that the answer to that question depends on "the degree to which the [copying work] may serve as a market substitute for the original or potentially licensed derivatives[.]" *Id.* at 586-588.

⁶² *AV Ex Rel. Vanderhye v. iParadigms, LLC*, 562 F. 3d 630, 642 (4th Cir, 2009); *Authors Guild, Inc. v. HathiTrust*, 755 F. 3d 87, 98 (2nd Cir. 2014) "In order to enable the full-text search function, the Libraries, as we have seen, created digital

(iii) If a use is non-expressive, the fourth statutory factor which considers the effect on the “potential market for or value of the copyrighted work” will also favor a finding of fair use in many cases.

The “market” and “value” referred to in the fourth fair use factor are not simply any benefit the copyright owner might choose to nominate; these terms mean something much more specific. A critical book review that quotes from a novel does not have an adverse market effect if it persuades people to buy different book instead;⁶³ a report from a plagiarism detection service might depress the market for helping students cheat on their homework, but that is hardly a cognizable injury under copyright law.⁶⁴ More generally, in *Campbell* and subsequent cases, the courts have recognized that the copyright owner has no protectable interest in preventing criticism, parody,⁶⁵ or simply locking up unprotectable ideas and expression.⁶⁶

By definition, if a use is non-expressive then it poses no direct threat of expressive substitution and thus should generally be preferred under the first factor (purpose and character) and considered harmless under the fourth factor (market effect).

The argument that copyright owners have an inherent right to charge for non-expressive uses and thus suffer an adverse market effect under the fourth factor is transparently circular. In theory, every defendant in every fair use case could pay the plaintiff for the right to engage in the challenged use, but if the use is fair there is no obligation to pay. To avoid such circular arguments, courts have limited market effect under the fourth factor to those

copies of all the books in their collections. Because it was reasonably necessary for the HDL to make use of the entirety of the works in order to enable the full-text search function, we do not believe the copying was excessive.” *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202, 221 (2d Cir. 2015) “Complete unchanged copying has repeatedly been found justified as fair use when the copying was reasonably appropriate to achieve the copier’s transformative purpose and was done in such a manner that it did not offer a competing substitute for the original.” *Authors Guild, Inc. v. Google, Inc.*, 804 F.3d 202, 221-222 (2d Cir. 2015) “As with *HathiTrust*, not only is the copying of the totality of the original reasonably appropriate to Google’s transformative purpose, it is literally necessary to achieve that purpose. ... While Google makes an unauthorized digital copy of the entire book, it does not reveal that digital copy to the public. The copy is made to enable the search functions to reveal limited, important information about the books.”

⁶³ *Campbell v. Acuff-Rose*, 510 U.S. 569, 591-592 (1994) “We do not, of course, suggest that a parody may not harm the market at all, but when a lethal parody, like a scathing theater review, kills demand for the original, it does not produce a harm cognizable under the Copyright Act. Because parody may quite legitimately aim at garroting the original, destroying it commercially as well as artistically, the role of the courts is to distinguish between biting criticism that merely suppresses demand and copyright infringement, which usurps it.” (cleaned up).

⁶⁴ *AV ex rel. Vanderhuy v. iParadigms, LLC*, 562 F.3d 630, 464 (4th Cir. 2009) (“Clearly no market substitute was created by iParadigms, whose archived student works do not supplant the plaintiffs’ works in the ‘paper mill’ market so much as merely suppress demand for them, by keeping record of the fact that such works had been previously submitted In our view, then, any harm here is not of the kind protected against by copyright law.”)

⁶⁵ *Campbell v. Acuff-Rose*, 510 U.S. 569, 577-79 (1994); *NXIVM Corp. v. Ross Inst.*, 364 F.3d 471, 482 (2d Cir. 2004) (“[C]riticisms of a seminar or organization cannot substitute for the seminar or organization itself or hijack its market.”); *Bill Graham Archives v. Dorling Kindersley, Ltd.*, 448 F.3d 605 (2d Cir. 2006) (“A copyright holder cannot prevent others from entering fair use markets merely by developing or licensing a market for parody ... or other uses of its own creative work.”) (internal quotations omitted).

⁶⁶ *Sega Enters., Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Sony Computer Entm’t, Inc. v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000).

that represent a cognizable copyright interest.⁶⁷ Accordingly, in *HathiTrust*, the second Circuit rejected the plaintiff's argument that not being paid for text mining was a cognizable harm, noting that “[l]ost licensing revenue counts under Factor Four only when the use *serves as a substitute for the original* and the full-text-search use does not.”⁶⁸ Likewise, in *Google Books*, the court insisted on focusing “on whether the copy brings to the marketplace *a competing substitute for the original*, or its derivative, so as to deprive the rights holder of significant revenues because of the likelihood that potential purchasers may opt to acquire the copy in preference to the original.”⁶⁹

The substitution the courts are referring to here is expressive substitution, not simply the threat of a more competitive marketplace. A non-expressive use can be harmless under the fourth factor even if it results in the creation of a competing product—as long as the competing product does not contain an infringing level of original expression taken from the plaintiff's work. In *Sega v. Accolade* and again in *Sony Computer Entertainment v. Connectix Corp.*,⁷⁰ the Ninth Circuit found that reverse engineering a gaming console in order to produce interoperable games (*Sega*), and a rival gaming platform (*Sony*), was fair use. In both cases the Ninth Circuit found that there was no cognizable market effect because the rival products did not contain any protectable expression derived from the plaintiffs' consoles. The defendants were entitled to use uncopyrightable elements from those consoles to make new independent creative expression possible.⁷¹

⁶⁷ *Campbell v. Acuff-Rose Music*, 510 U.S. 569, 591-92 (1994) (no cognizable market effect where parody or criticism depress demand for the original work); see also *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596, 607 (9th Cir. 2000) (noting that a videogame manufacturer's desire to foreclose competition in complementary products was understandable, but that “copyright law ... does not confer such a monopoly.”); *Bill Graham Archives v. Dorling Kindersley, Ltd.*, 448 F.3d 605, 615 (2d Cir. 2006) (“[A] copyright holder cannot prevent others from entering fair use markets merely by developing or licensing a market for parody, news reporting, educational or other transformative uses of its own creative work.”) (citations and quotations omitted).

⁶⁸ *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 100 (2d Cir. 2014) (emphasis added).

⁶⁹ *Authors Guild v. Google, Inc.*, 804 F.3d 202, 223 (2d Cir. 2015) (emphasis added).

⁷⁰ *Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F. 2d 1510, 1523. *Sony Computer Entertainment v. Connectix Corp.*, 203 F. 3d 596, 608.

⁷¹ *Id.*

APPENDIX C: CLAIMS THAT GENERATIVE AI INFRINGES COPYRIGHT IN “STYLE” ARE MISCONCEIVED

The practice of allowing users to invoke the names of living artists in text-to-image generators may be problematic, but not because there is copyright in artistic style. The claim that copyright protects abstract artistic style is entirely at odds with the idea-expression distinction. However, although no one owns an artistic style, copyright law does recognize copyrightable characters.

(1) Confusing style with copyrightable characters

As I explain in a forthcoming article:

The most important implication of copyrightable characters in the context of generative AI is that, practically speaking, the level of similarity required to establish infringement is reduced in that context. This problem is compounded because the way LLMs learn to associate visual elements with text descriptions effectively primes them to memorize the very relationships that constitute a copyrightable character. When presented with a thousand different images associated with the word “Snoopy,” a model like Stable Diffusion learns which characteristics are consistently repeated across the entire set. In the words of the Ninth Circuit, the model focuses on the “consistent, identifiable character traits and attributes,” and gives more weight to those that are “especially distinctive.”⁷²

As noted above, memorization is more likely if a text description is closely associated with a particular image over and over again; it is also more likely if the image is relatively simple or relates to a single subject. Because the threshold of substantial similarity required to infringe on a copyrightable character is comparatively low, multiple variations of the same character in the training data will result in a latent concept for the character that is readily identifiable and easily extracted by invoking the name of that character. This explains why it is easy to provoke Midjourney to recreate copyrightable characters such as Snoopy and Mickey Mouse, but difficult to come close to infringing a Salvador Dali painting with a simple text description of the scene.⁷³

Some of the claims currently being made about copyright in style would be better recast in terms of copyrightable characters. For example, Sarah Andersen is a successful and award-winning cartoonist and illustrator; she is also the lead plaintiff in recent class action lawsuit filed in relation to Stable Diffusion, Midjourney and DreamUp.⁷⁴ Andersen is the author of a semi-autobiographical webcomic, Sarah’s Scribbles, a self-deprecating series focusing on a

⁷² DC Comics v. Towle, 802 F.3d 1012, 1021 (9th Cir. 2015).

⁷³ Matthew Sag, *Copyright Safety for Generative AI* (May 4, 2023)(Available at SSRN: <https://ssrn.com/abstract=4438593>).

⁷⁴ Andersen v. Stability AI Ltd. Case 3:23-cv-00201 (Document 1) (January 13, 2023 N.D. Cal.)

bug-eyed millennial's struggles with adulthood.⁷⁵ The figure below contrasts an original four panel comic strip by Anderson featuring her characteristic stressed millennial alongside two images created in Midjourney. The prompt for both images was “a Sarah Andersen style black and white comic where Sarah asks ‘why is copyright is so stressful?’”

Figure : A Sarah Andersen original and two Midjourney copies



Ignoring Midjourney’s gibberish text for the moment, there is a certain similarity between the panels. The images are far from exactly the same, but there is a stylistic overlap in terms of minimalism, black and white, oversized heads, and exaggerated bug-eyes. The panels are also similar in that the characters are in a perpetual state of extreme emotion. The case for infringement would be stronger if we replaced the random text produced by Midjourney with something echoing one of Andersen’s perpetual themes of social anxiety, body image, or laziness. If the Midjourney images above were deemed infringing, it would not be because they reproduce a particular style of drawing, it would be because all of those stylistic features are applied to depict a character that is uncomfortably close to Andersen’s messy-haired protagonist.⁷⁶

(2) Artists can be injured by the use of their names as style prompts in ways that have little to do with copyright

For example, one of the most commonly invoked style prompts in early 2023 was Greg Rutkowski,⁷⁷ an artist who is well known for his richly detailed depictions of Dungeons &

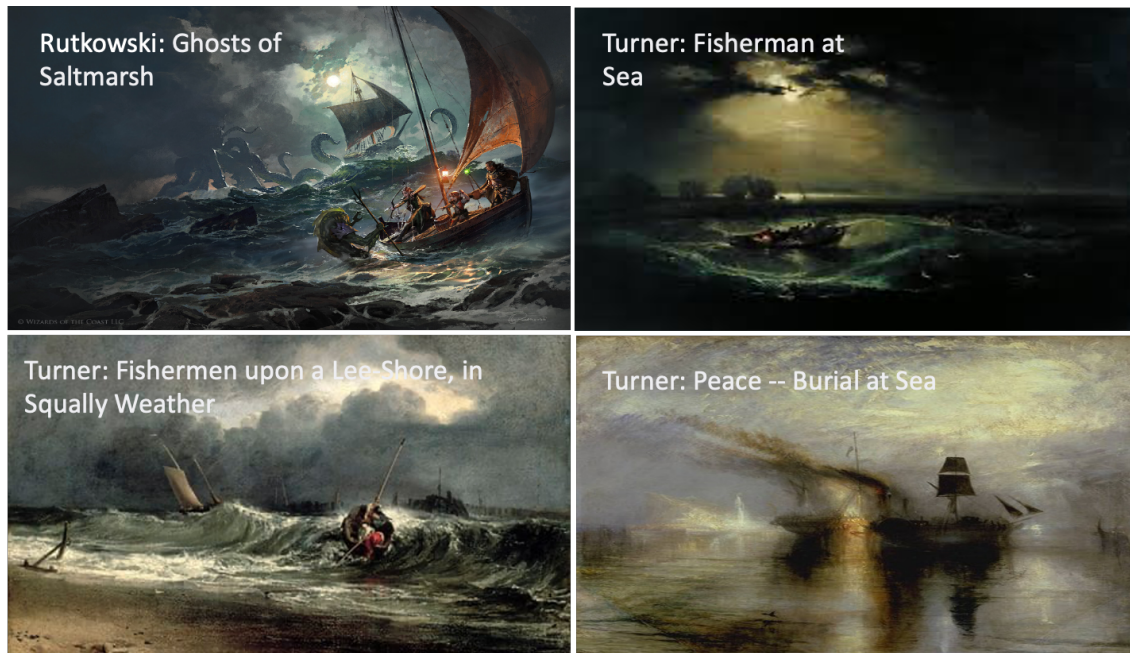
⁷⁵ See e.g., Sarah Andersen, *Adulthood is a Myth: A Sarah's Scribbles Collection (Volume 1)*(2016).

⁷⁶ Note that the allocation of responsibility for infringement between Midjourney and the user requesting images in a Sarah Andersen style is unclear. Arguably, the user is the direct cause of the infringement and Midjourney would only be liable if it met the standards of vicarious, contributory, or inducement-based liability. But even so, if such uses are commonplace, it may undermine the fair use argument that justified ingesting Andersen’s works into the training corpus without her consent.

⁷⁷ Melissa Heikkilä, “This artist is dominating AI-generated art. And he’s not happy about it” MIT TECH. REV. Sep 16, 2022 (available at <https://www.technologyreview.com/2022/09/16/1059598/this-artist-is-dominating-ai-generated-art-and-hes-not-happy-about-it/>) (noting that prompts in Midjourney and Stable Diffusion for the artist Greg Rutkowski were more popular than for Picasso and other more famous artists.)

Dragons and similar worlds in a style comparable to the romantic English painter, William Turner.⁷⁸

Figure: Comparison of Greg Rutkowski to William Turner



Rutkowski’s name is primarily used as a shortcut to invoke high-quality digital art generally, or in relation to fantasy motifs, and not in attempt to recreate his style specifically.⁷⁹ But even if it were, the suggestion that Rutkowski has a copyright interest in painting fire-breathing dragons in this style is absurd. The idea that once an artist is well-known for depicting a certain subject matter or using a certain technique that these are off-limits to subsequent creators is an anathema to copyright.

Nonetheless the harm that Rutkowski suffers by having his genuine works crowded out in Internet searches by tens of thousands of images produced “in the style of Rutkowski” is very real. That harm could be avoided if the names of individual artists paired with images in the training data were replaced with more general descriptions, or if platforms like Midjourney and DALL·E-2 did not allow prompts in the names of individual living artists.

(3) Personality is not style

If generative AI re-created someone’s distinctive appearance or voice, that person should have recourse under right of publicity. Congress should enact a national right of publicity

⁷⁸ I mean no disrespect to Mr. Rutkowski.

⁷⁹ This assessment is based on my review of prompts including “Greg Rutkowski” located using a Google image search on April 20, 2023.

law to ensure nationwide and uniform protection of individuals' inherently personal characteristics.

APPENDIX D: GENERATIVE AIs TYPICALLY LEARN ABSTRACTIONS AS OPPOSED TO COPYRIGHTABLE EXPRESSION

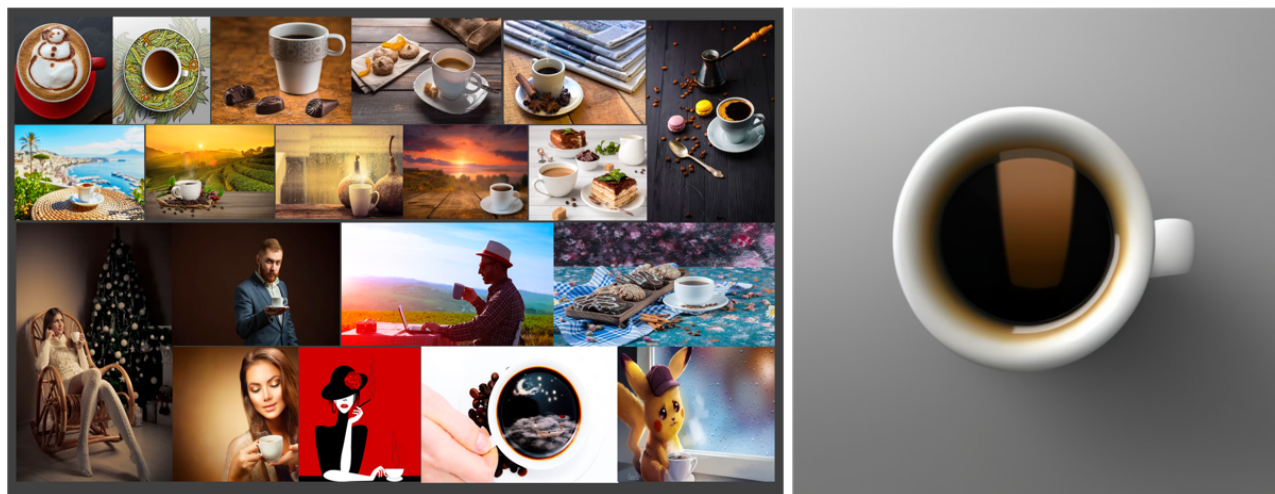
LLMs usually learn from the training data at a fairly abstract level. Moreover, the output of generative AI usually combines abstract latent features learned from the training data in a way that ensures model outputs look nothing like specific model inputs.

(1) Learning abstractions, not specific details

For example, when a text-to-image model such as Stable Diffusion or Midjourney is trained on hundreds of images with labels that include the words “coffee” and “cup,” it develops a model of what a coffee cup should look like. If the system is working properly, that model looks nothing like any individual coffee cup from the training data.

As part of the research for my forthcoming Houston Law Review article,⁸⁰ I compared a random set of coffee cup images from the Stable Diffusion training data⁸¹ with a newly rendered “cup of coffee that is also a portal to another dimension.” The figure below contrasts several of the coffee cups in the training data against the model output.

Figure: Coffee cups in the training data compared to model output



The comparison is instructive. The coffee cup image on the right has a vague similarity to some of the coffee cup images on the left—the cup is round, it appears to be made of white ceramic, it has a small single handle, the color of the liquid is essentially black, transitioning to brown. However, beyond these generic features, this cup is not substantially similar to any

⁸⁰ Matthew Sag, *Copyright Safety for Generative AI* (May 4, 2023)(Available at SSRN: <https://ssrn.com/abstract=4438593>)

⁸¹ Images based on a search of the Baio & Willson database on March 09, 2023 (https://laion-aesthetic.datasette.io/laion-aesthetic-6pls/images?_search=coffee+cup&_sort=rowid).

particular image from the training data.⁸² The process of training the Stable Diffusion model has not simply memorized images involving coffee cups, it has learnt something about the latent concept of a coffee cup distinct from cakes, sunsets, sunrises, newspapers, and men with facial hair—all of which can be seen in the training data examples on the left.

(2) Combining abstractions to produce something new

The output of generative AI usually combines abstract latent features learned from the training data. For example, when I instructed Midjourney to create a teddy bear in rich opulent clothing with ultra-realistic textures, with a hypnotic stare, reading a newspaper, it produced the following image.⁸³

Figure: Opulent Bear (Midjourney)



No doubt, the picture is influenced by thousands of images paired with each of the relevant keywords. All of the images of teddy bears in the training data inform a latent construct of a teddy bear nested within the model’s latent space; likewise, all of the images of someone staring hypnotically inform a latent construct of a hypnotic stare.⁸⁴ Loosely speaking, when

⁸² I also reviewed images on Have I Been Trained, a website that purports to index “5.8 billion images used to train popular AI art models,” i.e., the LAION-5B database (<https://haveibeen trained.com/>).

⁸³ The prompt was: “32K RAW Photography, low angle shot, teddybear reading newspaper, rich opulent clothing, hypnotic stare, textures: ultra realistic.” The form of the prompt was copied from another discord user and simplified to produce this example.

⁸⁴ Generative AI models don’t form distinct “latent models” for separate concepts, rather they learn a comprehensive “latent space” that represents the diverse array of features present in the training data. In the context of machine learning, particularly with generative models, a “latent space” refers to the mathematical space where the AI model compresses and organizes the complex patterns it identifies in the training data. The term “latent” means hidden or not directly observable. In this case, the latent space embodies the underlying structure or patterns within the data that are not immediately

these elements are combined and unpacked, the result is something entirely new; it is not merely a copy or a derivative work based on something in the training data.⁸⁵ One of the fun things about this particular image is that although the bear’s demeanor is consistent with him staring hypnotically, the bear is actually wearing sunglasses that leave the details of his gaze to our imagination. The output is heavily influenced by the training data in the sense that it can’t generate concepts it has never encountered during training. Thus, while the specific combination (a teddy bear in rich opulent clothing with a hypnotic stare, reading a newspaper) is novel, all of its components exist in some form within the training data. But that is almost invariably true of human authored works as well.

apparent. This space is a high-dimensional continuum where similar features are located closer together, allowing the model to generate diverse outputs by navigating this space.

⁸⁵ The model does not merely “combine” and “unpack” these learned latent features. Instead, generates a novel instance that may share certain characteristics with the input prompt based on the latent space. So describing the output as a combination of learned features is a bit simplistic.

APPENDIX E: RECOMMENDED BEST PRACTICES FOR COPYRIGHT SAFETY FOR GENERATIVE AI

In a forthcoming article,⁸⁶ I make 10 recommendations for Copyright Safety for Generative AI that should be followed in order to reduce the risk of copyright infringement. The Key recommendations are summarized below:

Those who copy copyrighted material to train LLMs should:

1. Take reasonable measures to ensure that their models are not exposed to duplicates of the same copyrighted work.
2. Take reasonable measures in training, and in model deployment, to reduce the probability of infringement of copyright, trademark, and publicity rights. These measures may include (i) curating and pre-processing the training data (ii) using reinforcement learning through human feedback, and (iii) installing restrictions on model outputs.
3. Take reasonable measures to safeguard individual privacy interests.
4. Keep detailed records of the works used and their provenance. How to balance company's legitimate interests in preserving valuable commercial secrets and the rights of the public to know how their works have been used in training LLMs is a tricky question. Congress may wish to consider giving the Copyright Office or some other administrative agency the power to audit and inspect such records.

Implementing these recommendations in a fast-changing environment may be challenging—deduplication is an especially thorny technical problem. However, the absence of good faith efforts to do so could be relevant to a court's fair use determination.

I also recommend that, to assist companies developing LLMs to take appropriate steps to reduce potential copyright and related harms, the U.S. Copyright Office or some other administrative agency should maintain a registry of artists and copyright owners who do not want their names, or the names of their characters, used as style prompts in text-to-image platforms.

⁸⁶ Matthew Sag, Copyright Safety for Generative AI (May 4, 2023)(Available at SSRN: <https://ssrn.com/abstract=4438593>).