

Copyright Office Issues - August 30, 2023

## Comment

Re: Notice of Inquiry on Copyright and Artificial Intelligence

Docket No. 2023–6, 88 Fed. Reg. 167

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To the Copyright Office of the Library of Congress:

In response to your notice of inquiry, I offer these comments regarding the second issue of inquiry, “proper scope of copyright protection for material created using generative AI.” In particular, my comments address questions 7.1, 7.4, 8, 8.1, 8.2, 14, 22, 23, 24, 25, and 32.

### Part 1: The Technology of Training

Questions:

- 7.1. How are training materials used and/or reproduced when training an AI model? Please include your understanding of the nature and duration of any reproduction of works that occur during the training process, as well as your views on the extent to which these activities implicate the exclusive rights of copyright owners.
- 7.4. Absent access to the underlying dataset, is it possible to identify whether an AI model was trained on a particular piece of training material?

Copyright infringement claims require proof that a copyrighted work was actually copied: “[T]he plaintiff must, as a factual matter, prove that the defendant ‘actually used the copyrighted material to create his own work.’”<sup>2</sup> In an effort to find an act of copying of their works, many of the participants in the current debate on visual generative AI systems have latched onto the idea that generative AI systems have been trained on datasets and foundation models that contained actual copyrighted image files, .jpgs, .gifs, .png files and the like. Artists would like to

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<sup>2</sup> Gen. Universal Sys., Inc. v. Lee, 379 F.3d 131, 141 (5th Cir. 2004).

believe that their digital works posted in freely accessible locations on the internet were at some point *scraped* from the internet, that *somehow* the creator of a dataset or foundation model must have made and stored copies of these works, and *somehow* a generative AI system that trained on the data of the dataset further selected and copied individual images out of that dataset, and *somehow* the AI system copied and incorporated significant copyrightable parts of these individual image files into the final generated images that are offered to the end-user by the generative AI system. This is an incorrect understanding of the technology of generative AI training and image generation that borders on magical thinking.<sup>3</sup>

Visual generative artificial intelligence is a complex technology, but it is not magic. A visual generative AI is not an impenetrable magic box that takes in whole images and spits out duplicate images. The connected chain of assumptions described in the paragraph above is wrong. The actual steps of the AI image generation process involve:

- (1) building a training dataset,
- (2) using the dataset to create a foundation model,
- (3) using the foundation model to supply data to the generative AI service, and
- (4) taking in an end-user's design instructions in the form of prompts to start the process of generating images according to the end-user's design.

The recurring word in these steps is “data” and not actual images. And as discussed below, most of these steps can be and often are performed by different entities, which means that responsibility or liability for an alleged act of copying—if copying actually took place—does not always align with the same party or type of party in the process.

#### **(1) Erroneous assumptions about “scraping” images in the creation of a dataset**

Using the example of the claims in the complaint filed by three artists as class representatives of all artist's whose works were used in the datasets used to train Stable Diffusion (owned by Stability AI), Midjourney, and Deviantart's AI system, *Andersen v. Stability AI*,<sup>4</sup> the artist plaintiffs alleged the following about the Stability AI's use of their artworks (excerpted below, starting with ¶ 2 of the complaint):

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<sup>3</sup> The concept of “magical thinking” is a fallacy in logic and reasoning where obvious disconnects in causation or correlation are ignored in favor of a belief that the causations simply exist as if by magic. It is also referred to as “associative thinking” or the “Post hoc” fallacy (*post hoc, ergo propter hoc*) that roughly translates to, “Because event Y followed event X, event X must have caused event Y,” thus finding causation where only a sequential relationship exists. See *Magical thinking*, ART & POPULAR CULTURE (accessed Jun. 13, 2023), [http://www.artandpopularculture.com/Magical\\_thinking](http://www.artandpopularculture.com/Magical_thinking); *Post hoc, ergo propter hoc*, RATIONAL WIKI (accessed Jun. 13, 2023), [https://rationalwiki.org/wiki/Post\\_hoc,\\_ergo\\_propter\\_hoc](https://rationalwiki.org/wiki/Post_hoc,_ergo_propter_hoc).

<sup>4</sup> Sarah Andersen, Kelly McKernan, & Karla Ortiz v. Stability AI Ltd., Stability AI, Inc., Midjourney, Inc., & Deviantart, Inc., No. 3:23-cv-201 (N.D. Cal. Jan. 13, 2023).

¶ 2. Stability downloaded or otherwise acquired copies of billions of copyrighted images without permission to create Stable Diffusion, including Plaintiffs'. These images are defined below as "Training Images."

¶ 3. By training Stable Diffusion on the Training Images, Stability caused those images to be stored at and incorporated into Stable Diffusion as compressed copies. Stability made them without the consent of the artists and without compensating any of those artists.

¶ 4. When used to produce images from prompts by its users, Stable Diffusion uses the Training Images to produce seemingly new images through a mathematical software process. These "new" images are based entirely on the Training Images and are derivative works of the particular images Stable Diffusion draws from when assembling a given output. Ultimately, it is merely a complex collage tool.

\* \* \*

¶ 6. All AI Image Products operate in substantially the same way and store and incorporate countless copyrighted images as Training Images.<sup>5</sup>

Each of these allegations in the complaint is fundamentally wrong and reveals the disconnect between how people imagine the technology of generative AI training sets works and the reality of how the technology actually works.

**(a) The designers and programmers of generative AI systems are often completely separate from the entity that created their training dataset.**

Visual artists and designers who complain that their artworks and designed have been incorporated into a training dataset generally look directly at the creator of the visual generative AI service (e.g., Stability AI and its Stable Diffusion service) to respond to the core allegation of an unauthorized copying. But the creators of the visual generative AI service may have had nothing whatsoever to do with selecting the works on the web from which the data is extracted and compiling the data in the datasets. Stability AI did not create a training set of images or image data scraped from the internet to build its foundation model for Stable Diffusion. The party that did these actions is LAION,<sup>6</sup> the creator of the LAION-5B dataset. Stable Diffusion trains on the LAION-5B dataset and Stability AI is a donor to or investor in LAION, but Stability AI did not play a role in gathering image data for the LAION-5B dataset.

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<sup>5</sup> Complaint ¶¶ 2-4, 6, Andersen v. Stability AI Ltd., No. 3:23-cv-201 (N.D. Cal. Jan. 13, 2023).

<sup>6</sup> LAION stands for Large-scale Artificial Intelligence Open Network. LAION, <https://laion.ai/>. See Christoph Schuhmann, Romain Beaumont, et al., *LAION-5B: An open large-scale dataset for training next generation image-text models*, Cornell Univ. aiXrv (Oct. 16, 2022), <https://arxiv.org/pdf/2210.08402.pdf>.

**(b) Training dataset compilers do not copy digital image files from the internet.**

Copyright infringement claims require proof that a copyrighted work was actually copied, but in fact, works found on the internet most likely never were “copied” in any meaningful copyright sense of this term. The Copyright Act does not define “copying,” but it does define “works” as expressions represented in a fixed and tangible form as “copies,”<sup>7</sup> and “copies” are defined as “material objects ... in which a work is fixed by any method now known or later developed.”<sup>8</sup> A massive scale creator of a visual generative AI training set, such as LAION, does not copy images found on the internet in the traditional copyright way by “fixing” a duplicate of the image in a tangible form. Instead LAION collects *data about the images* that are drawn from Common Crawl, a public web archive.<sup>9</sup>

**Common Crawl collects image data not images**

Starting in 2008, the Common Crawl organization crawls the web gathering image and text data from, in recent years, the approximately 3 billion websites on the World Wide Web that contain images. Common Crawl does not capture or download actual images, it collects “raw web page data, extracted metadata, and text extractions.”<sup>10</sup> Common Crawl stores the data in WAT files—Web Archive Transformation files<sup>11</sup>—that use WebAssembly text format to store web page data (including data about images) in an intermediate form that can be reassembled later to binary code (1’s and 0’s) so that a web browser or other tools can read it and further process it.<sup>12</sup> The WAT file does not contain actual .jpg or .png files or any other digital format image files. The data Common Crawl stores and publishes in WAT files gives enough information to allow an end-user such as LAION to evaluate the metadata and alt-txt data of images on websites without copying or downloading the actual images.

**LAION sorts and filters image data not images**

Nor does LAION copy any actual image files when it assembles its dataset from the Common Crawl data. The LAION Data Assembly Pipeline has the following steps (see diagram<sup>13</sup> below):

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<sup>7</sup> 17 U.S.C. §§ 101, 106(1) & (3).

<sup>8</sup> 17 U.S.C. § 101.

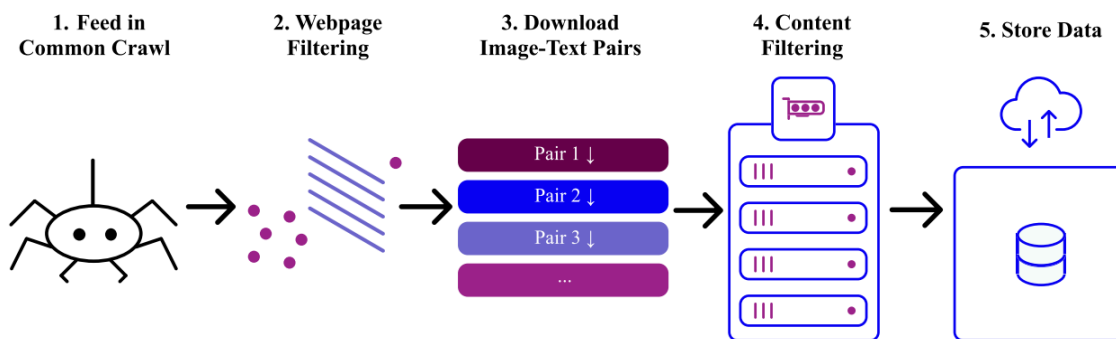
<sup>9</sup> Common Crawl, <https://commoncrawl.org/>.

<sup>10</sup> Common Crawl, <https://commoncrawl.org/the-data/get-started/>.

<sup>11</sup> *Details of extension .wat*, FILEDESC.COM (accessed Jun. 7, 2023), <https://www.filedesc.com/en/file/wat>; *WAT file format description*, DATATYPES.NET (accessed Jun. 7, 2023), <https://datatypes.net/open-wat-files>.

<sup>12</sup> Mozilla, *Converting WebAssembly text format to Wasm*, MDN WEB DOCS (accessed Jun. 7, 2023), [https://developer.mozilla.org/en-US/docs/WebAssembly/Text\\_format\\_to\\_wasm](https://developer.mozilla.org/en-US/docs/WebAssembly/Text_format_to_wasm).

<sup>13</sup> Diagram (Figure 2) of LAION Data Assembly Pipeline, in Schuhmann, Beaumont, *supra* note 6, at 4-5.



LAION starts in step 1 with the raw web page data, extracted metadata, and text extractions from Common Crawl.<sup>14</sup>

In step 2, LAION filters the raw web page data to select web pages that have images with associated HTML image (IMG) tags containing the alt-text for the image. If a page does not have images with HTML IMG tags, then its images, if any, will not be included in the downloading. The web page data is analyzed for its language, e.g., English, a different language, or no detectable language.<sup>15</sup> In this step of the process no image files are copied; LAION sorts the web pages and collects the URLs for the images on the “approved” web pages, 500 million at a time, for processing in step 3.<sup>16</sup>

Step 3 involves downloading WAT files with coded information regarding image and text pairs on the internet using the source information (URLs) from Common Crawl.<sup>17</sup> This step still does not involve “copying” of image files because it is the textual WebAssembly WAT file information that is being downloaded, not digital graphic files from the internet.<sup>18</sup>

Step 4 is the post-processing step where the image URLs from downloaded web page data are filtered. LAION applied several filters including the CLIP (Contrastive Language–Image Pre-training) model to remove data from low-quality image-text pairs, meaning images whose cosine similarity with the text in the image’s alt text did not meet CLIP’s threshold for semantic similarity between the image and the text.<sup>19</sup> LAION also weeded out data from images on websites whose alt text had fewer than five characters, typically meaning the alt text was a person’s name.<sup>20</sup> It eliminated data from duplicate images with the same URLs and applied Not Safe for Work (NSFW) and toxicity detectors to filter out pairs that contained sexualized “adult” images or offensive content, and LAION also purportedly removed pairs that had watermarks,

<sup>14</sup> Schuhmann, Beaumont, *supra* note 6, at 5.

<sup>15</sup> LAION uses Google’s Compact Language Detector 3 (CLD3) for this language detection process. *Id.* See also Jeroen Ooms, *CLD3: Google’s Compact Language Detector 3* (2022), <https://rdr.io/cran/cld3/>.

<sup>16</sup> See Schuhmann, Beaumont, *supra* note 6, at 5.

<sup>17</sup> *Id.*

<sup>18</sup> See *id.*; Romain Beaumont, LAION-5B: A New Era of Open Large-Scale Multi-Modal Datasets, LAION (Mar. 31, 2022), <https://laion.ai/blog/laion-5b/>.

<sup>19</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

<sup>20</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

corrupted images, or empty texts.<sup>21</sup> After filtering, LAION had identified data for 5.85 billion image-text pairs on the World Wide Web that could be used for assembling the dataset.<sup>22</sup> Although that number seems staggering, it represents only 10% of the image file data that was included in the Common Crawl WAT files before filtering.<sup>23</sup>

Step 5, the last step, involves storage of the filtered web data containing image URLs. Once again, LAION does not store actual .jpg or .png files or any other digital format image files. It only stores the filtered curated web data taken from the Common Crawl WAT files that has been processed in steps 1-4 here.<sup>24</sup>

**A generative AI system uses the web data in the dataset for image generation,  
it does not use actual image files**

What happens next when a dataset such as LAION-5B is completed is that a client such as Stability AI uses the data in the set as its foundation model for its image generation system. The steps of that process are discussed in response to questions 22-25 in Part 2 below.

OpenAI's CLIP (Contrastive Language–Image Pre-training) model can also function as a foundation model when it curates and stores image data from the World Wide Web.<sup>25</sup> As discussed in response to questions 22-25 in Part 2 below, OpenAI's DALL-E 2 model uses CLIP directly as a sorter of image-text pairs with proper cosine semantic similarity that are then used by DALL-E 2's text encoder and image encoder to create the working numeric representations of images in latent space which enable the DALL-E 2 diffusion process to generate representations that match up with the data points from the text prompt.<sup>26</sup>

**(2) The developer of a visual generative AI dataset does not copy or store any  
image files.**

I reiterate here what I stated above: because an act of copying is required for any suit for copyright infringement, it is important to understand that the creators of generative AI datasets—the sources of image data used to train the generative AI systems—have not copied or stored any image files. The narrative alleged by those who complain that their images were “used” to make competing or derivative works is that their *images* were downloaded, copied, and used to make allegedly infringing copies or derivative images. This narrative simply is incorrect. No digital image files are downloaded, none are stored, none are copied, combined, or collaged to make new images.

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<sup>21</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

<sup>22</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

<sup>23</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

<sup>24</sup> See Schuhmann, Beaumont, *supra* note 6, at 5; Beaumont, *supra* note 18.

<sup>25</sup> OpenAI, *CLIP: Connecting text and images* (Jan. 5, 2021), <https://openai.com/research/clip>.

<sup>26</sup> See Part 2 *infra*. I have not extended my research to confirm whether OpenAI's current model, DALL-E 3, uses the same CLIP processing for its transformer and diffusion model.

This observation is not a semantic trick. The technologies involved do not work with actual image files. Even if in the course of parsing the claims of persons who are annoyed by current visual generative AI's ability to generate images that resemble these person's artworks, and the claimants point out that their image was one of the 5.85 billion images whose image URL and metadata were included in the training dataset, the resemblance if any between the two images is not because the training dataset copied and stored and made derivative works of some of the 5.85 billion image files. Instead, as discussed in Part 2 below, the visual generative AI system used the data from 5.85 billion images still on the Web to learn what images look like so that the system can generate brand new images in the diffusion process and condition the new images until the system can produce final images that are responsive to the requirements communicated by the end-users' text prompts.

**(3) With access to the underlying dataset, is it possible to identify whether data from a particular image on the web was included in an AI model**

In response to Question 7.4, in a generative AI copyright dispute, if the record of the images that were indexed in a web crawl is open and accessible, as is the case with the Common Crawl index of image data, it is possible to find that data from a specific work was *included* in the crawl. From there, it follows that if a dataset compiler that used the Common Crawl data to build a foundation model of a generative AI system is open and accessible for scrutiny, which is the case with the LAION-5B dataset that used the Common Crawl data to compile the dataset used to train Stable Diffusion, then the LAION 5B dataset can be searched for individual images whose data was *included* in the dataset. LAION 5B can be searched in this way by use of a tool such as "Have I Been Trained" ([www.haveibeen trained.com](http://www.haveibeen trained.com)).<sup>27</sup>

But assuming that a plaintiff's suspect image shows up in the "Have I Been Trained" results, all that represents is that the image was *included* in the billions of materials collected at the initial stage of the formation of LAION-5B which was later used by Stable Diffusion to provide the data for its visual generative AI system.<sup>28</sup> It does not mean the suspect image was actually copied or used in any particular manner, lawful, infringing, or fair. In other words, if this discussion involved an actual infringement claim, a positive result using the "Have I Been Trained" results that indicates an individual work's *data* was included in a training dataset, and that establishes the *possibility* that someone using the dataset for image generative had *access* to the *image data* from the work. It is not proof that the actual image file was copied nor is it proof that the

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<sup>27</sup> Have I Been Trained, <https://haveibeen trained.com/>. An example search would be [https://haveibeen trained.com/?search\\_text=kelly\\_mckernan](https://haveibeen trained.com/?search_text=kelly_mckernan).

<sup>28</sup> As far as my research indicates, there is no such service for searching OpenAI's CLIP and DALL-E 2's dataset or Midjourney's dataset. The founder and CEO of Midjourney admits that it used "a big scrape of the internet." Rob Salkowitz, *Midjourney Founder David Holz on The Impact of AI on Art, Imagination and the Creative Economy*, FORBES (Sep. 16, 2022), <https://www.forbes.com/sites/robsalkowitz/2022/09/16/midjourney-founder-david-holz-on-the-impact-of-ai-on-art-imagination-and-the-creative-economy/?sh=465c981a2d2b>; Christian Heidorn, *What We Know About the Midjourney Model*, TOKENIZED (May 28, 2023), <https://tokenizedhq.com/midjourney-model/>.

author of an allegedly infringing work generated using the dataset actually copied and incorporated copyrightable parts of the individual work.

## **Part 2: Infringement by visual generative AI assisted works**

### Questions

14. Please describe any other factors you believe are relevant with respect to potential copyright liability for training AI models.
22. Can AI-generated outputs implicate the exclusive rights of preexisting copyrighted works, such as the right of reproduction or the derivative work right? If so, in what circumstances?
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?
24. How can copyright owners prove the element of copying (such as by demonstrating access to a copyrighted work) if the developer of the AI model does not maintain or make available records of what training material it used? Are existing civil discovery rules sufficient to address this situation?
25. If AI-generated material is found to infringe a copyrighted work, who should be directly or secondarily liable—the developer of a generative AI model, the developer of the system incorporating that model, end users of the system, or other parties?
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?

There are five separate requirements for a copyright infringement action<sup>29</sup> that must be established by the plaintiff:

- (1) The plaintiff must be the owner of a valid, copyrightable work that is registered with the U.S. Copyright office; the work must be original, created, expression, fixed in a tangible medium, that is not limited or precluded by the idea-expression distinction, or the originality doctrines of merger and scènes à faire.
- (2) The defendant must have made an unauthorized copy of original elements of the valid, copyrightable work owned by the plaintiff.
- (3) The portion copied must be substantial and material and more than de minimis.
- (4) The defendant’s copy must be substantially similar to the original and copyrightable portions of plaintiff’s work that were copied.

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<sup>29</sup> See MICHAEL D. MURRAY, A SHORT AND HAPPY GUIDE TO COPYRIGHT, chap. 10 (2d ed. 2022); LEONARD D. DUBOFF & MICHAEL D. MURRAY, ART LAW: CASES AND MATERIALS 125-32 (3d ed. 2023)



- (5) The defendant must not have a fair use.

Each of these requirements will be explained in the subsections below in the context of actions for copyright infringement involving works created with the assistance of visual generative AI.

**(1) Plaintiff must own and register a valid, copyrightable work**

The starting point of an infringement analysis is not the defendant's actions but the nature and qualifications of the plaintiff's work. This concept is essential to consider when addressing the Office's Questions 14, 22, and 32. If generative AI is to be fairly evaluated for what use it makes of the data indexed, sorted, and filtered from freely available image files on the internet, the analysis must consider the limitations on the original artists' copyrights imposed by the two conceptual requirements and two formal, physical requirements for copyrightability.

**Infringing style or genre**

The two conceptual requirements of copyright are that the plaintiff's work be original and that it be a work of authorship,<sup>30</sup> meaning a work conceived of and created by an act of authorship,<sup>31</sup> which together are referred to as the **originality** and **creativity** requirements. Under copyright law, original means the work is not copied from another preexisting work, and that the work contains copyrightable subject matter—e.g., pictorial, graphic, and sculptural expression<sup>32</sup>—as opposed to noncopyrightable subject matter—e.g., an idea, procedure, process, system, method of operation, concept, principle, or discovery.<sup>33</sup>

At this point in the discussion, one should already see that there are fundamental limitations on what artists can complain about in copyright law when expressing their frustration with generative AI systems that trained on data that was indexed, sorted, and filtered, in miniscule part, from some of the artists' images. Artists rarely complain that an exact, original, creative image or part of an image was copied by an AI; they complain instead that their "style" or "genre" was copied. But style or genre are ideas—concepts and principles, and sometimes processes, procedures, or methods of operation. An AI learning about style and genre through its training is following a well-trod path of learning the processes and procedures of certain ideas, principles, or concepts that we associate with an artistic style or genre. The AI is not automatically making infringing copies of individual works when it follows the style or genre of those works that were included in its training dataset or foundation model.

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<sup>30</sup> 17 U.S.C. § 102(a).

<sup>31</sup> Google LLC v. Oracle Am., Inc., 141 S. Ct. 1183, 1196 (2021).

<sup>32</sup> 17 U.S.C. § 102(a)(5).

<sup>33</sup> 17 U.S.C. § 102(b).

### Infringing fixed expression

The two formal requirements of **expression** and **fixation in media** also remind us of limitations on the artists' potential claims against the creators of AI assisted art. "Expression" means the artist's work has to have some communicative potential for one of the senses.<sup>34</sup> Copyright is looking for an author to communicate a concept that can exist as an idea in the mind of the author and be communicated to the mind of someone else through some communicative media.<sup>35</sup> And "fixation in media" means that the expression has to be in some form in which it can be perceived by one of the senses for long enough that we can tell what the creation is and receive its communication. The law defines "fixation" as: "authorship fixed in any tangible medium of expression, now known or later developed, from which [the works] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."<sup>36</sup> Artists must point to a fixed and tangible piece of expression in their work that they then allege has been copied by the AI. It will not suffice to argue the magical thinking that "My work was *included* in the AI's training dataset," and "I don't like works produced by the AI that resemble my works' style and genre" so therefore, "the AI *somehow* must have copied my works to produce that output."

### Works "in the style of" a specific artist

Of particular note when addressing Question 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)?"—the originality and creativity requirements of copyright law have prompted the development of several doctrines that limit copyrightability by focusing on what and how much of an artist's creation truly was original to the artist, not preexisting and not borrowed or adopted from earlier works. The **scènes à faire** doctrine in visual art refers to work that contains stock scenes or stock images and commonplace expressions or elements that are firmly rooted in a style or genre's traditions, that are not original to the artist, and that the artist copied or at least adapted for her own expressions.<sup>37</sup> **Merged** ideas and expression subject to the **merger doctrine** in copyright are also not original to one artist and are not copyrightable because they function as section 102(b) ideas, not section 102(a) expression.<sup>38</sup>

A merged idea and expression in the visual arts means that the visual expression of a certain concept, or the depiction of a certain scene or object, or the use of a certain artistic technique, process, or procedure dictates that the outputs of this activity will naturally and predictably

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<sup>34</sup> See *Google LLC*, 141 S. Ct. at 1196.

<sup>35</sup> See *Georgia v. Public.Resource.Org, Inc.*, 140 S. Ct. 1498, 1510–11 (2020).

<sup>36</sup> 17 U.S.C. § 101 (definition of "fixed").

<sup>37</sup> *Gray v. Hudson*, 28 F.4th 87, 97–98 (9th Cir. 2022); *Design Basics, LLC v. Kerstiens Homes & Designs, Inc.*, 1 F.4th 502, 503 (7th Cir. 2021).

<sup>38</sup> *Ets-Hokin v. Skyy Spirits, Inc.*, 225 F.3d 1068, 1082 (9th Cir. 2000); *Morrissey v. Procter & Gamble Co.*, 379 F.2d 675, 678–79 (1st Cir.1967); 17 U.S.C. § 102(a),(b).

resemble each other because the work incorporates the visual features of the merged concept.<sup>39</sup> Artists following a certain genre or style or school of art are almost inevitably incorporating merged, *scènes à faire*, or uncopyrightable imagery because the artists are following preexisting methods of depiction, and stylistic and genre-specific formulas, processes, or procedures (*i.e.*, ideas) in their works.<sup>40</sup> Therefore, works allegedly created “in the style of” a specific artist are almost always works following the uncopyrightable elements of style and genre that do not belong to the artist herself because they are merged or *scènes à faire* concepts of the artist’s genre. Until an artist produces a specific piece of original creative expression that is fixed in a tangible medium and makes the allegation that original and creative portions of the work (*i.e.*, not merged or *scènes à faire* elements) were copied in a substantially similar manner, then we are dealing only with a complaint against emulation by an AI system that is following a similar path of uncopyrightable style or genre.

All of these tests—originality, idea-expression, merger, and *scènes à faire*—are a stress on the plaintiff’s copyright that might turn a properly thick copyright with a broad scope of protection against duplicates and unauthorized derivative works into a thin copyright.<sup>41</sup> A **thin copyright** prevents little except nearly exact duplicates.<sup>42</sup> The court might find the plaintiff’s copyright to be so thin that it cannot possibly preclude the defendant’s work, and dismiss the lawsuit.

It is therefore essential in any claim against the creators of a training dataset, a foundation model, an image generating system, or the end-users of such a system, that the claimant reveal their work that they claim has been copied so that the work can be analyzed or parsed for its uncopyrightable elements. After that the various accused parties can defend against the allegation that their activities copied substantial and material portions of the plaintiffs’ *copyrightable* elements of their works.

## **(2) Plaintiff must prove an unauthorized act of copying.**

As alluded to in section (1) above, there is an “act of copying” requirement that provides that “the plaintiff must, as a factual matter, prove that the defendant ‘actually used the copyrighted material to create his own work.’”<sup>43</sup> And not just any form of copying will do, as the court must find the defendant copied elements of the plaintiff’s work that are themselves original and copyrightable.<sup>44</sup>

As noted in Part 1 above, “copying” itself is not defined in the statute, but “copies” are defined as “material objects . . . in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either

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<sup>39</sup> See MURRAY, SHORT & HAPPY COPYRIGHT, *supra* note 29, at 59-69; DUBOFF & MURRAY, ART LAW, *supra* note 29, at 79-89.

<sup>40</sup> See MURRAY, SHORT & HAPPY COPYRIGHT, *supra* note 29, at 59-69; DUBOFF & MURRAY, ART LAW, *supra* note 29, at 79-89.

<sup>41</sup> Corbello v. Valli, 974 F.3d 965, 973–74 (9th Cir. 2020).

<sup>42</sup> See, *e.g.*, Satava v. Lowry, 323 F.3d 805, 812 (9th Cir. 2003).

<sup>43</sup> Gen. Universal Sys., Inc. v. Lee, 379 F.3d 131, 141 (5th Cir. 2004).

<sup>44</sup> Feist Publications, Inc. v. Rural Telephone Service Co., 499 U.S. 340, 361 (1991).

directly or with the aid of a machine or device.”<sup>45</sup> Further, in defining the rights possessed by copyright owners, the owner has the right to preclude others from actions “(1) to reproduce the copyrighted work in copies or phonorecords; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies or phonorecords of the copyrighted work to the public . . .”<sup>46</sup> These two definitions together indicate that the act of copying must be one that produces a copy or derivative work that is expressive and communicative and that contains and incorporates copyrightable portions of the claimant’s work.<sup>47</sup>

### **Proof of access and substantial similarity**

As in most alleged copyright infringement scenarios, the plaintiff making an allegation that an AI-assisted artwork infringed on her own work will have no direct evidence nor a concession or stipulation regarding actual copying.<sup>48</sup> Therefore, the law has substituted a test for the “likelihood of copying” rather than proof of actual copying. The test is (a) proof that the defendant had access to the work, and (b) substantial similarity between the two works.<sup>49</sup> In response to Question 23, I believe the substantial similarity test used currently in copyright law is adequate in establishing or refuting an “act of copying” (and, if that stage is reached, in making the infringement determination).

In a generative AI copyright dispute, it is possible to find that data from a specific work was *included* in a dataset that was then used to train the foundation model of a generative AI system by use of a search tool such as “Have I Been Trained” ([www.haveibeentrained.com](http://www.haveibeentrained.com)) which searches the LAION-5B dataset that was used to train Stable Diffusion.<sup>50</sup> (Whether the image was *copied* or not is discussed immediately below). Assuming that the plaintiff’s suspect image shows up in the “Have I Been Trained” results, then that would be evidence that the image was *included* in the billions of materials collected at the initial stage of the formation of LAION-5B which was then used by Stable Diffusion.<sup>51</sup> But while this fact gives the *possibility* of access, it is not complete proof that the author of the allegedly infringing work actually copied and incorporated copyrightable parts of the first work.

Because a showing of potential *access* at the proof of copying stage is not proof of actual *copying*, the inquiry must turn to the second step of the analysis which introduces the concept of “substantial similarity.” A test with this name is part of the overall copyright infringement requirements, and at the proof of an act of copying stage the elements of the analysis are the

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<sup>45</sup> 17 U.S.C. § 101 (definition of “copies”)

<sup>46</sup> 17 U.S.C. § 106(1)-(3).

<sup>47</sup> *E.g.*, *Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1527–28 (9th Cir. 1992) (reproduction of copyrighted works, if incidental to a nonexpressive purpose, was non-infringing fair use).

<sup>48</sup> And then there are cases such as *Rogers v. Koons*, 960 F.2d 301 (2d Cir. 1992), and *Cariou v. Prince*, 714 F.3d 694 (2d Cir. 2013), where there was ample direct evidence of copying.

<sup>49</sup> See MURRAY, SHORT & HAPPY COPYRIGHT, *supra* note 29, at 11-14.

<sup>50</sup> Have I Been Trained, <https://haveibeentrained.com/>.

<sup>51</sup> *Id.*

same.<sup>52</sup> At the proof of an act of copying stage, substantial similarity requires, first, that the court must determine whether the two works are “extrinsically similar because they contain substantially similar ideas that are subject to copyright protection”; and second, the court must ask whether the works are “intrinsically similar” in the sense that they express those ideas in a substantially similar manner from the perspective of the intended audience of the work.<sup>53</sup> This analysis requires that the allegedly infringed work must be presented side-by-side with the allegedly infringing work for extrinsic and intrinsic comparison.<sup>54</sup>

What is relevant about this requirement is that for copyright infringement to be established, the defendant must have created a work that is expressive and fixed that can be compared side-by-side with the allegedly infringed work. If the alleged “act of copying” happened at the AI training stage when LAION created its dataset, it will be impossible for a plaintiff to pass a substantial similarity test of their fixed expressive work compared to the binary code of the dataset that is in fact the “expression” created by LAION. And similarly, the operations of the creators of generative AI systems produced computer code—algorithms—not expressive works that can be compared side-by-side with the artist’s allegedly infringed expressive works. Only the end-user of a generative AI system—the human operator who prompts the machine to create actual expressive works of art—has produced a work that could be compared side-by-side with the complainant artist’s work.

### **(3) Potential of Infringement by the End-Users of Generative AI Systems**

In direct response to Question 25—“If AI-generated material is found to infringe a copyrighted work, who should be directly or secondarily liable—the developer of a generative AI model, the developer of the system incorporating that model, end users of the system, or other parties?”—the only true and proper defendants in a lawsuit involving the creation of an allegedly infringing image rendered by a visual generative AI system are the end-users of the AI system. The end-users are the authors and creators of the images that might arguably be substantially similar to works whose image data was included in the AI system’s training data. The end-users design and cause their vision for a work to be produced by the AI system through their prompting; the end-users review the samples produced by the AI system and select an image or further condition the creation process with new prompts and instructions; and the end-users determine the ultimate purpose and function for the works they have designed and adopted as the final work from the samples produced by the AI system, which is the critical step in the fair use analysis under *Warhol* (discussed in Part 3 below). In terms of liability for infringement or exemption for fair use, the end-users are the only realistic and appropriate subjects for the infringement

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<sup>52</sup> See *Gray v. Hudson*, 28 F.4th 87, 96 (9th Cir. 2022) (equating the requirements of substantial similarity at the proof of copying stage with substantial similarity at the infringement stage).

<sup>53</sup> *Lyons P'ship, L.P. v. Morris Costumes, Inc.*, 243 F.3d 789, 801 (4th Cir. 2001).

<sup>54</sup> *Gen. Universal Sys., Inc. v. Lee*, 379 F.3d 131, 142 (5th Cir. 2004).

claims or the fair use defenses because they are the only parties with agency making all the decisions relevant to infringement or fair use.

### **Copyright authorship and AI generated works**

AI systems are not working on their own to outproduce and replace human artists.<sup>55</sup> Instead, AI is best understood as a tool for a human artist or creator to make art in ways that were difficult and time-consuming prior to the advent and widespread adoption of generative AI mechanisms.<sup>56</sup> Authorship directly impacts the question of infringement or fair use in copyright law because the test examines what the author of the new work appears to have done that is an “act of copying” of the original authors’ work that appears to have been used in the new creation. This should not be read to suggest that the law delves into the subjective intentions and motivations of the new work’s author,<sup>57</sup> but instead focuses on the new work itself and what it shows has been done with and to the earlier work that appears to have been borrowed, copied, or otherwise incorporated in some manner in the new work.<sup>58</sup> If an AI somehow was determined to be the author of an infringing work, then the AI would be the defendant, the real party in interest responsible for the infringing work, which would place the dispute at an impasse because AIs have not been determined to be legal persons.<sup>59</sup> But if the AI is just a sophisticated tool for generating images at the direction of a human artist or creator, then the analysis fits the normal fair use analysis discussed in the next section.

### **End-Users as artists, the authors of the creation**

To analyze the infringement complaint against the end-users of visual generative AIs, it is important to understand the different roles played by the end-user and the generative AI system:

- Generative AI is best understood as a tool for a human artist or creator to use.<sup>60</sup> AI does not make a creative artistic decision about the contents of the art, it only responds to a human prompt and then generates images according to its training and programming. AI should not be personified as the actual author of the generative AI image. The end-user is the author and artist of the image.

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<sup>55</sup> Louis Rosenberg, *Generative AI: The technology of the year for 2022*, BIG THINK (Dec. 20, 2022), <https://bigthink.com/the-present/generative-ai-technology-of-year-2022/> [Rosenberg, *Generative AI*].

<sup>56</sup> See Will Knight, *When AI Makes Art, Humans Supply the Creative Spark*, WIRED (Jul. 13, 2022, 7:00 AM), <https://www.wired.com/story/when-ai-makes-art/>.

<sup>57</sup> Copyright deals with the objective attributes of the examined work, not the motive or creative intentions of its author. *Star Athletica, L.L.C. v. Varsity Brands, Inc.*, 580 U.S. 405, 137 S. Ct. 1002, 1015 (2017).

<sup>58</sup> See *generally Campbell*, 510 U.S. at 577-78.

<sup>59</sup> See, e.g., David C. Vladeck, *Machines Without Principals: Liability Rules and Artificial Intelligence*, 89 WASH. L. REV. 117, 121, 124 (2014); Lawrence B. Solum, *Legal Personhood for Artificial Intelligences*, 70 N.C. L. REV. 1231, 1239 (1992).

<sup>60</sup> Rosenberg, *Generative AI*, *supra* note 55; Knight, *supra* note 56.

- In the process of creation, generative AI does not make creative design decisions, it follows rules and parameters (translated into algorithms) to generate output that the human end-user first directs in the initial prompt, and then evaluates and chooses to accept or reject in each set of samples generated by the AI tool. Human end-users using the AI tool usually are given several image options from which they can choose,<sup>61</sup> or they can rerun the same prompt to generate a new group of images, or they can revise the prompt in multiple iterations and generate a completely new set of images based on each revised prompt until the end-user causes the AI to generate the image envisioned and designed by the end-user.
- Human artists and creators control the art generated by the AI by the prompts that they write and revise. Thus, the human artists examine the works produced in the process and either accept the fruits of the process or they keep going with different or revised prompts. This is exactly similar to the process of creating sketches, studies, or drafts (iterations of a creative artistic project) until the artist is happy with the design, composition, framing, perspective, point of view, and the results of the techniques being used.<sup>62</sup>

### **An act of copying by the End-User**

The claimant's copyright infringement suit will founder if the claimant cannot prove that the end-user copied a substantial, material, original, and copyrightable part of the claimant's work. Direct evidence of copying will not be possible because the end-user of a visual generative AI system never had direct access to any of the image and text data of the training set and foundation model, let alone access to any actual image files whose data was used in the training process—at least not through the visual generative AI system. Nor does the end-user of a generative AI find and copy or collage images using actual image files. The end-user does not rifle through a drawer of images to find one to copy. An end-user of a generative AI system conceives of an image and directs the AI with instructions and conditions about the image she wants to create using the AI tool.

There is a name for the “search, copy, and collage” theory of art creation: it is called a Google image search. It is much simpler and often even faster than the fastest generative AI system for a person to write a prompt (i.e., search query) seeking a certain image or a more general

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<sup>61</sup> Stable Diffusion Playground produces four images as a default generation set responsive to a creation prompt. See Stable Diffusion Playground, <https://stablediffusionweb.com/#demo>.

<sup>62</sup> See generally Marion Botella, Franck Zenasni, & Todd Lubart, *What Are the Stages of the Creative Process? What Visual Art Students Are Saying*, 9 *Frontiers in Psychology* 1, 2-6 (Nov. 21, 2018), <https://www.frontiersin.org/articles/10.3389/fpsyg.2018.02266/full> (discussing stages of research, trials or sketches, techniques, evaluation); Matt Fussell, *The Creative Process*, *The Virtual Instructor* (last viewed Jan. 12, 2023), <https://thevirtualinstructor.com/blog/the-creative-process> (reviewing stages of research, production, critique, rework).

description of an image. And through this tool, the end-user is given a selection of actual thumbnail image files and links to full-size image files, which the end-user can right click on, and have a brand-new exact copy of an image to work on. From there, a “paintbrush” can be applied in the form of a highly sophisticated image editing program such as Adobe’s PhotoShop®, or the more modest but very user-friendly filters and image-editing tools built right into Microsoft Word and other Office365 applications.

Assuming a court might turn a blind eye to the technical realities of the AI image generation process and the fact that the end-user in the act of using the generative AI tool never had and could not have had access to any individual image whose data was used in the training process and further used in the actual AI generation process, the court might still give the claimant the opportunity to present a case for substantial similarity. Assuming for purposes of this argument that the end-user knew that some of the claimant’s artworks might have been scraped and their image data harvested for use in the AI’s training set, the end-user could embark on a calculated path to direct the AI to produce an image that is substantially similar to the claimant’s image. That argument requires further exploration of generative AI’s ability to make works that are substantially similar to works whose data was used in the training dataset and foundation model.

**(4) End-users using a generative AI tool can match a human artist’s ability to emulate the styles and genres of other artists**

Referring again to Question 32 on works created “in the style of” specific artists, it is natural and expected that end-user artists will draw from earlier works of earlier artists.<sup>63</sup> Schools of art are formed from the common approaches used by artists that develop into a similar genre of art.<sup>64</sup> The *Warhol*, *Google*, and *Campbell* courts each acknowledged that all artists draw inspiration from artists’ works of the past.<sup>65</sup> The style and genre and the techniques and processes that lead to a certain appearance of works are uncopyrightable elements of prior works, and copying them does not lead to liability for infringement because of the originality doctrine, the idea-expression distinction, and the doctrines of merger and scènes à faire.<sup>66</sup> To say that a generative AI enables an end-user to make works that are substantially similar in style or genre to works whose data was used in the training dataset and foundation model does not imply that this means the AI generates *infringing* works at the command of the end user. Human end-users using the AI may want to use the AI tool to make a new work that follows the same uncopyrightable style and genres of other artists. The general attributes and imagery associated with a certain style, genre, school, or theme of art are uncopyrightable and unprotectable ideas

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<sup>63</sup> *E.g.*, *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 575-76 (1994).

<sup>64</sup> *E.g.*, *Dr. Seuss Enterprises, L.P. v. Penguin Books USA, Inc.*, 109 F.3d 1394, 1399 (9th Cir. 1997).

<sup>65</sup> *Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith*, 143 S. Ct. 1258, 1286–87 (2023) (I will refer to this case as *Warhol* hereafter); *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1203-04 (2021); *Campbell*, 510 U.S. at 575 (citing *Emerson v. Davies*, 8 F. Cas. 615, 619 (No. 4,436) (CCD Mass.1845)).

<sup>66</sup> See text accompanying notes 37-42, *supra*.



on the scale of ideas vs. expressions. The merger and scènes à faire doctrines exist specifically to account for the fact that artists *and generative AI systems* study and learn from the work of other artists in various schools and genres of art, and produce works that are “distinctly reminiscent of” the style of other artists.<sup>67</sup>

The point at which the originality doctrine, the idea-expression distinction, and the doctrines of merger and scènes à faire give way to copyright infringement is when a work is substantially similar to another work not just because it shares some common elements relating to genre and theme, but because it copies original, copyrightable parts and captures the “total concept and feel” of the work.<sup>68</sup> The next section addresses this scenario.

**(5) An AI is capable of creating infringing works *if* the human operator works hard enough on trying to achieve this end**

I have spent over a hundred hours experimenting with visual generative AI systems, and I have tried mightily to get Stable Diffusion and DALL-E 2 to reproduce a specific work of art, and every time I have failed. I would attribute this to the fact that the variational text encoders and image encoders directing the diffusion process make it extremely difficult to recreate a specific image, or perhaps guardrails put in place by OpenAI or Stability AI try hard to close off this practice. But there will be instances when an end-user manages to produce a work that is substantially similar to a preexisting work whose image data was included in the training data of the AI used by the end-user as shown in the following exhibits from a research paper on this exact topic.<sup>69</sup>



I believe the academic paper from which the images at left were drawn supports my conclusion that it is extremely difficult to get a visual generative AI to replicate a preexisting image because of all the examples shown in the paper, which I assume were cherry-picked to show the most illustrative and indicative examples from the study, only about 20 or so images out of the 9,000 images used in the study actually appear to have copied substantial *copyrightable* elements and the “total concept and feel” of preexisting works beyond the works’ style, genre,

<sup>67</sup> See text accompanying notes 37-42, *supra*.

<sup>68</sup> *E.g.*, *Designworks Homes, Inc. v. Thomson Sailors Homes, L.L.C.*, 9 F.4th 961, 963 (8th Cir. 2021), *cert. denied sub nom. James v. Thomson Sailors Homes, L.L.C.*, 143 S. Ct. 147 (2022); *Abdin v. CBS Broad. Inc.*, 971 F.3d 57, 66 (2d Cir. 2020).

<sup>69</sup> Gowthami Somepalli, Vasu Singla, *Diffusion Art or Digital Forgery? Investigating Data Replication in Diffusion Models*, Cornell Univ. arXiv (Dec. 12, 2022), <https://arxiv.org/pdf/2212.03860.pdf>. I have shown what I believe to be the two best examples from the study.

techniques, and themes, and other merged and scènes à faire elements. So, if 20 out of 9,000 (0.2 %) is the batting average, I would conclude that it is *very* difficult to get a hit in this game.<sup>70</sup>

**(6) The End-User’s function and purpose for any potentially infringing works will determine if the End-User has authored any transformative artworks**

If the planets align, and the plaintiff is able to get through all of the requirements of a copyright infringement action, then the question of fair use will need to be considered. Because, after all is said and done, the end user’s copying may be transformative.

As discussed in more detail in Part 3 below, the function and purpose of the use for which an allegedly infringing derivative work is created will be the determinative factor in whether the end-user has a fair use. If the function and purpose is comment and criticism, such as a parody of the original work or the artist of the original work, then the end-user will be on fairly firm ground in asserting a fair use claim, assuming that the parodic elements of the new work can be observed in the work itself.<sup>71</sup> However, if the end-user is found to have created a substantially similar visual work created to be used for its aesthetic artistic qualities and it allegedly infringes another visual work created to be used for its aesthetic artistic qualities, and the original work shines through in the new work, then the use will not be found to be transformative and not a fair use.<sup>72</sup>

**(7) Contributory or vicarious liability for infringement by the designer of the Generative AI system**

Question 25—“If AI-generated material is found to infringe a copyrighted work, who should be directly or secondarily liable—the developer of a generative AI model, the developer of the

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<sup>70</sup> Naturally, these figures are based on my evaluation of substantial similarity. A commentator on the study believed that the authors had observed a rate of 1.88% substantial similarity, but that evaluation did not take into account the merged and scènes à faire elements arising from the style, genre, techniques, and themes of the original images which were responsible for much of the similarity in the AI generated images. *See id.*; Kyle Wiggers, *Image-generating AI can copy and paste from training data, raising IP concerns*, TECHCRUNCH (Dec. 13, 2022, 7:30 am), <https://techcrunch.com/2022/12/13/image-generating-ai-can-copy-and-paste-from-training-data-raising-ip-concerns/>.

<sup>71</sup> *Compare* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569 (1994) (the rap group 2 Live Crew’s song “Pretty Woman” was a parody of Roy Orbison’s song “Oh, Pretty Woman” because it targeted the original song for criticism and comment, and used only as much of the original as necessary to conjure up the original), *and* Leibovitz v. Paramount Pictures Corp., 137 F.3d 109 (2d Cir. 1998) (the movie poster for Naked Gun 3½: The Final Insult was a parody of Annie Leibovitz’s photograph of a pregnant Demi Moore on the cover of Vanity Fair because it was obvious from the poster that it was making fun of Leibovitz and her artwork), *with* Dr. Seuss Enterprises v. Penguin Books USA, Inc., 109 F.3d 1394 (9th Cir. 1997) (the book “The Cat NOT in the Hat!” was not a parody of Dr. Seuss’s works because it did not target them for comment or criticism, but merely borrowed their style to tell a story about the O.J. Simpson murder trial).

<sup>72</sup> *E.g.*, Dr. Seuss Enters., L.P. v. ComicMix LLC, 983 F.3d 443 (9th Cir. 2020); Salinger v. Colting, 607 F.3d 68 (2d Cir. 2010); Gaylord v. United States, 595 F.3d 1364 (Fed. Cir. 2010); Castle Rock Entertain. v. Carol Publish. Group, 150 F.3d 132 (2d Cir. 1998).

system incorporating that model, end users of the system, or other parties?”—contemplates the scenario where a plaintiff seeks to find new targets to sue instead of focusing solely on the end-user of a generative AI who created the allegedly infringing work. Even after finding that the end-user is the most appropriate defendant in any copyright infringement suit regarding work generated with an AI tool, the plaintiff in such a dispute will inevitably look around for a defendant with deeper pockets than a typical end-user of an AI system. The plaintiff may then try to assert a claim for contributory or vicarious liability for the infringement.

I will not pause overly long to consider a contributory or vicarious liability claim asserted against the creators of an AI training dataset, such as LAION, because as explained in Part 1, the creator of the training dataset never produced any image that could have infringed on any of the works indexed, sorted, and filtered in the training process. Nor did the dataset creator play any role—participatory, supervisory, or otherwise—in the AI systems designers’ creation of their visual generative systems. So, the creators of AI training sets should be the last persons sued in a direct infringement or contributory or vicarious liability claim.

The more likely target of such a claim will be the designers of the AI systems that were used by end-users to create allegedly infringing works. But the creators of a generative AI system such as OpenAI and Stability AI should not be held liable for contributory infringement or vicarious liability for creating a visual generative AI system such as DALL-E 2 or Stable Diffusion because the designers are not directly involved in the creation or distribution of infringing content by the end-users of their systems let alone having control over such conduct.

Contributory infringement occurs when a party knowingly induces, causes, or materially contributes to the infringing conduct of another.<sup>73</sup> Vicarious liability occurs when a party has the right and ability to control the infringing conduct of another and derives a direct financial benefit from it.<sup>74</sup> Neither of these theories apply to the creators of generative AI systems for the following reasons:

First, the creators of generative AI systems do not have knowledge of or control over the specific content that end-users of their systems have caused the systems to generate. Generative AI systems are based on complex algorithms and large datasets and foundation models that are designed to produce outputs that are not predictable or predetermined by the AI designers.<sup>75</sup> The design and normal operation of the system is to create new and original artworks according

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<sup>73</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 437 (1984); *Leonard v. Stemtech Int'l Inc.*, 834 F.3d 376, 387 (3d Cir. 2016).

<sup>74</sup> *Metro-Goldwyn-Mayer Studios Inc. v. Gorkster, Ltd.*, 545 U.S. 913, 914 (2005); *Sony*, 64 U.S. at 437.

<sup>75</sup> Damian Brady, What developers need to know about generative AI, Github Blog (Apr. 7, 2023), <https://github.blog/2023-04-07-what-developers-need-to-know-about-generative-ai/>.

to specifications and requirements provided by the end-user.<sup>76</sup> As discussed in the section above, it is possible for an end user to work at prompt engineering to get the generative AI tool to produce an artwork that could be determined to be infringing, but this outcome defies the normal design for the systems.<sup>77</sup> The AI system creators do not monitor, review, or approve the outputs before they are generated or distributed by the end-users. Therefore, the creators do not have the requisite knowledge or control to be liable for contributory infringement or vicarious liability.

Second, the creators of generative AI systems do not induce, cause, or materially contribute to the infringing conduct of their users. The creators do not provide any instructions, guidance, or encouragement to their users on how to use their systems to create *infringing* content. Each service discussed here, DALL-E 2 and Stable Diffusion, provides instructions of a very general nature about writing prompts and editing prompts to guide the AI tool toward the rendering of the work imagined and envisioned by the end user. That is a far cry from giving instructions on how to recreate preexisting works. Other than the generative AI system itself, the creators do not provide any tools or services that facilitate the creation or distribution of infringing content by their users. The creators do not receive any direct financial benefit from the works created by the end-users, whether they are infringing or not. In this manner, the creators do not have the requisite causation or contribution to be liable for contributory infringement or vicarious liability.

A third reason why the creators of generative AI systems such as OpenAI and Stability AI should not be held liable for contributory infringement or vicarious liability for creating a visual generative AI system such as DALL-E 2 or Stable Diffusion is that there are many lawful, non-infringing uses for the technology under *Sony*.<sup>78</sup> In *Sony*, the Supreme Court held that a technology manufacturer cannot be held liable for its users' copyright infringement if the technology enables substantial non-infringing uses as well.<sup>79</sup> The Court held that Sony was not liable for contributory infringement for selling video tape recorders to consumers who recorded copyrighted television programs because the video tape recorders had substantial non-infringing uses, such as time-shifting and educational purposes.<sup>80</sup>

Similarly, generative AI systems have substantial non-infringing uses, such as artistic expression, education, research, scientific innovation, and entertainment. Generative AI systems primarily

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<sup>76</sup> *Id.*; Altexsoft, Generative AI Models Explained, altexsoft.com (Oct. 13, 2022), <https://www.altexsoft.com/blog/generative-ai/> (with generative AI, "[t]he main idea is to generate completely original artifacts that would look like the real deal.").

<sup>77</sup> See, e.g., Stephen Wolfson, *Fair Use: Training Generative AI*, Creative Commons (Feb. 17, 2023), <https://creativecommons.org/2023/02/17/fair-use-training-generative-ai/>.

<sup>78</sup> *Sony*, 464 U.S. at 442-47.

<sup>79</sup> *Id.*

<sup>80</sup> *Sony*, 464 U.S. at 442-47, 454-56.

are used to create original artworks, music, stories, poems, and games, none of which are copies of preexisting works, and none of which would infringe any copyrighted work. Generative AI systems can be used to conduct research and promote scientific discovery and innovation by generating new structures and forms for analyzing and summarizing data, for generating hypotheses and designing experiments, and for developing solutions to critically important problems for the benefit of the world.<sup>81</sup> Therefore, generative AI systems are not merely tools for infringing activities, but rather technologies that enable significant non-infringing activities that benefit society and culture under the *Sony* doctrine.

### Part 3 – Fair use and visual generative AI assisted works

#### Questions

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.
- 8.1. In light of the Supreme Court’s recent decisions in *Google v. Oracle America* and *Andy Warhol Foundation v. Goldsmith*, how should the “purpose and character” of the use of copyrighted works to train an AI model be evaluated? What is the relevant use to be analyzed? Do different stages of training, such as pre-training and fine-tuning, raise different considerations under the first fair use factor?
- 8.2. How should the analysis apply to entities that collect and distribute copyrighted material for training but may not themselves engage in the training?

The current test for fair use should reveal that works created with the assistance of a visual generative AI system should do very well on the fair use analysis. The Supreme Court has defined a path of fair use for nonexpressive copying especially in the context of a copy-reliant technology that must make transient or incidental replication or duplication of material in order to perform a function in the creation of publicly beneficial works. This path is well-designed for machine learning, particularly the kind of transformer based foundation model AI and earlier Generative Adversarial Network (GAN) technologies.

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<sup>81</sup> Scientists believe that AI will be critically important in dealing with the effects of climate change, Megan Mastrola, *How Ai Can Help Combat Climate Change*, JOHNS HOPKINS UNIV. HUB (Mar. 7, 2023), <https://hub.jhu.edu/2023/03/07/artificial-intelligence-combat-climate-change/>, in developing new drugs and drug therapies, Maya Yang, *Scientists use AI to discover new antibiotic to treat deadly superbug*, THE GUARDIAN, May 25, 2023, <https://www.theguardian.com/technology/2023/may/25/artificial-intelligence-antibiotic-deadly-superbug-hospital>; and in finding cures for diseases. *To accelerate search for an Alzheimer’s cure, scientists use artificial intelligence to identify likely drug targets*, Ariz. College of Medicine News (May 15, 2023), <https://medicine.arizona.edu/news/2023/accelerate-search-alzheimers-cure-scientists-use-artificial-intelligence-identify-likely>.

**(1) Transformative fair use in the context of nonexpressive copying and copy-reliant technologies**

The concept of nonexpressive copying in the context of computer operations of programming and “training,” the functioning of algorithms, and data analysis, refers to the incidental duplication of data and raw source material to carry out a function unrelated to the creation, consumption, or distribution of the expressive elements of the material.<sup>82</sup> The situations covered by this concept involve a form of copying that is so far removed from the normal copying protected under the rights granted to the copyright owner in 17 U.S.C. § 106, it does not count as an “act of copying” or it is excused from infringement by the fair use doctrine.<sup>83</sup> Examples of this type of nonexpressive copying are incidental or intermediate processing of data from expressive works that requires the works to be downloaded (which in the digital context means a copy of the digital work necessarily was made) or copied in the functional process of analysis.<sup>84</sup> The copies might be temporarily stored for the purpose of the process, but not consumed or distributed.<sup>85</sup> This incidental or collateral copying is necessary for the process to be carried out, leading to the description that the process is reliant on this form of copying, and so named copy-reliant technology.<sup>86</sup> As discussed below, the creation of AI foundation models used to train generative AI systems uses a form of copy-reliant nonexpressive copying.

The newness of the technology of the current generation of visual generative AI has not allowed courts to weigh in on the specific application of the transformative fair use test in the context of generative AI. But the courts have considered extremely similar and analogous uses in other contexts involving the incidental copying of copyrighted works for a functional and nonexpressive purpose.

*Sega Enterprises Ltd. v. Accolade*<sup>87</sup> was one of the earliest examples of nonexpressive copying in order to allow a permissible use of noncopyrightable source code. *Sega* involved a conflict between Sega, the maker of the “Genesis” gaming console, and Accolade, a video game company that wanted to create Genesis-compatible games without Sega’s license. Accolade reverse-engineered a Genesis console and some Sega games to copy the functional code that enabled compatibility. Accolade’s reverse-engineering produced exact copies of Sega’s source code, but only the functional code related to the Genesis interface was used in Accolade’s

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<sup>82</sup> On nonexpressive copying generally, see James Grimmelman, *Copyright for Literate Robots*, 101 IOWA L. REV. 657, 662-63, 665 (2015); James Grimmelman, *There’s No Such Thing as a Computer-Authored Work - and It’s a Good Thing, Too*, 39 COLUM. J.L. & ARTS 403, 403 (2016); Matthew Sag, *Orphan Works as Grist for the Data Mill*, 27 BERKELEY TECH. L.J. 1503, 1503 (2012); Matthew Sag, *Copyright and Copy-Reliant Technology*, 103 NW. U. L. REV. 1607, 1624-25, 1637-38 (2009).

<sup>83</sup> See *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1205 (2021) (citing *Campbell*, 510 U.S. at 588; *New Era Publications Int’l, ApS v. Carol Publishing Group*, 904 F.2d 152, 158 (2d Cir. 1990)).

<sup>84</sup> See, e.g., *id.*

<sup>85</sup> See sources cited in note 82, *supra*.

<sup>86</sup> See Sag, *Copyright and Copy-Reliant Technology*, *supra* note 82 at 1608-09, 1610-11.

<sup>87</sup> *Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992).

games. The Ninth Circuit found that Accolade’s “intermediate copying” of Sega games was fair use, because it was needed to access the “functional requirements for Genesis compatibility”—a functional aspect of Sega’s games not protected by copyright.<sup>88</sup> The ruling established that copying copyrighted works for a nonexpressive purpose was fair use.<sup>89</sup>

The use of search engines that crawl the web to scrape images—i.e., to indiscriminately make exact copies of copyrighted images—was evaluated in two cases: *Kelly v. Arriba Soft Corp.*<sup>90</sup> and *Perfect 10, Inc. v. Amazon.com, Inc.*<sup>91</sup> These cases both involved tech companies that ran image search engines and were sued by image owners for copying their images, reducing them to thumbnail size, storing them on their servers, and showing them to online users through their search engine services.<sup>92</sup> Each service not only made exact duplicates of the copyrighted images, in full color, in the same medium—digital photography and digital imagery—but the services also stored these duplicate images and made the duplicates available—i.e., distributed them—to internet users for their viewing and consumption.<sup>93</sup> And in both cases, these activities were found to be transformative fair uses.

The image search cases differed from *Sega*’s case because the defendants copied and displayed all of the expressive visual elements of the plaintiffs’ works, unlike Accolade, who only copied functional elements (source code). In *Kelly*, the defendant, Arriba Soft Corp. obtained images through the operation of a “crawler,” a computer program that automatically browsed and indexed web pages. When the crawler encountered an image, it would download (i.e., copy) a full-size copy to Arriba’s servers, copy it again to reduce it to a thumbnail size, delete the full-size copy, and display (distribute) the thumbnail copy in its search results.<sup>94</sup> Google’s more famous “image search” works the same way by using a web crawler to locate image files on the web, copy them by downloading them, copy them again by converting them to a smaller, thumbnail size, and storing the thumbnail copies for display (distribution) in the course of reporting the results of the image search.<sup>95</sup>

The courts rejected the plaintiffs’ claims that Arriba and Google infringed their expression by emphasizing the nonexpressive function of the defendants’ image search engines.<sup>96</sup> The defendants’ image search engines turned photographs into “tool[s]”—mere machines—not means of conveying expression.<sup>97</sup> In terms of transformative fair use, the search engines had

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<sup>88</sup> *Id.* at 1518, 1526.

<sup>89</sup> *Id.* at 1527-28.

<sup>90</sup> *Kelly v. Arriba Soft Corp.*, 336 F.3d 811 (9th Cir. 2003).

<sup>91</sup> *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146 (9th Cir. 2007).

<sup>92</sup> *Perfect 10*, 508 F.3d at 1154-56; *Kelly*, 336 F.3d at 815.

<sup>93</sup> *Perfect 10*, 508 F.3d at 1154-56; *Kelly*, 336 F.3d at 815. The thumbnails displaying exact duplicates of the original work also came with links to the original images which facilitated consumption not only of the thumbnails but the original images, too.

<sup>94</sup> *Kelly*, 336 F.3d at 815.

<sup>95</sup> *Perfect 10*, 508 F.3d at 1155.

<sup>96</sup> *Perfect 10*, 508 F.3d at 1165; *Kelly*, 336 F.3d at 818.

<sup>97</sup> *Perfect 10*, 508 F.3d at 1165; *Kelly*, 336 F.3d at 818.

adapted the expressive visual content of the original images for a completely new function and purpose: pointers directing a viewer to a source of information and as an archival reference tool, which is completely different from their original function and purpose as aesthetic objects.

A key factor in *Kelly's* fair use analysis was Arriba's lack of artistic or expressive purpose in reproducing and redistributing Kelly's images. The original function and purpose of Kelly's photographs was as "artistic works meant to inform and to evoke an aesthetic response from the viewer[.]" while Arriba's thumbnails are only instrumental: they are part of a "tool to help index and enhance access to images[.]"<sup>98</sup> Furthermore, Arriba's use was not artistic expression: "The thumbnails do not inhibit artistic creativity because they are not used for illustrative or artistic purposes and therefore do not replace the need for the originals."<sup>99</sup> Google's Image Search is the same: it converts visual images into "pointer[s] directing a user to a source of information" as part of an "electronic reference tool[.]" rather than copying and using them as aesthetic objects for viewing and consumption.<sup>100</sup>

*Authors Guild v. Google Inc.*<sup>101</sup> rounds out the discussion of nonexpressive fair uses by applying the doctrine to literature. Google partnered with libraries to scan over twenty million books, some copyrighted, some public domain, and many out of print.<sup>102</sup> Google did not first seek permission or a license from the authors and copyright owners of the copyrighted works it included in its scans; it simply scanned them along with the others.<sup>103</sup> Google used these scans to create a corpus of machine-readable texts for its "Google Books" service. Google Books is a public search engine that lets users search for keywords in the Google Books corpus and shows a list of books with those keywords.<sup>104</sup> The search results further include bibliographic data, the frequency of the terms searched for in the text of the books, and, if available, links to buy the books.<sup>105</sup> One of the more popular features of Google Books, and the aspect that tested copyright infringement and fair use to the highest degree, is that Google Books copied and displayed to users all or part of a book's text.<sup>106</sup> Google limited its service by only showing the full text of public domain books and books authorized by publishers and copyright owners for full-text display.<sup>107</sup> But Google Books also featured the "Snippet View" that showed keywords and phrases in a book and "a few snippets—a few sentences to display [a] search term in context."<sup>108</sup> This last function copied and displayed (distributed) the expressive content of the original works without the permission or license of the copyright owners.

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<sup>98</sup> *Kelly*, 336 F.3d at 818.

<sup>99</sup> *Id.*

<sup>100</sup> *Perfect 10*, 508 F.3d at 1165.

<sup>101</sup> *Authors Guild v. Google Inc.*, 804 F.3d 202 (2d Cir. 2015).

<sup>102</sup> *Id.* at 208.

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 208-09.

<sup>105</sup> *Id.* at 209.

<sup>106</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*



The *Author's Guild* opinion was written by none other than Judge Pierre Leval, the spiritual father of the transformative use test, and the opinion found Google's unauthorized and unlicensed copying of the expressive text of the works for analysis of the text and for display and distribution of portions of the text was a transformative fair use.<sup>109</sup> Even though the "snippet view" copied and displayed the expressive text that surrounds a search term, this copying and distribution of the text still supports Google's transformative function and purpose by showing how a term is used in a book without exposing enough of the original author's expression to "harm the author's copyright interests[.]"<sup>110</sup>

The *Author's Guild* court held that Google's function and purpose matched that of the libraries that facilitated the scanning (copying) of entire books in the earlier *HathiTrust* case.<sup>111</sup> The *Authors Guild v. Google* court recognized that the libraries in *HathiTrust* and Google Books had downloaded and stored complete digital copies of entire books, but it further noted that such copying was essential to permit searchers to identify and locate the books in which words or phrases of interest to them appeared.<sup>112</sup> The new function and purpose for this copying and storage was to serve the interests of education, research, archiving, and historical preservation that are supported in the preamble of the copyright fair use provision.<sup>113</sup> The court concluded "that the creation of a full-text searchable database is a quintessentially transformative use ... [as] 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."<sup>114</sup>

The lessons of these cases are that nonexpressive copying to facilitate a machine function may not be an act of copying that results in an infringing work, and it is very likely that a copyright infringement analysis would fail at this stage because there may not be a copy of a work to compare side-by-side with the original work.<sup>115</sup> Even if there were to be an interim or intermediate copy that could be identified and that does contain expressive content that could potentially have been adapted from the allegedly infringed image, the infringement action would fail if that copy was made to facilitate a completely new function and purpose compared to those of the original work. The reduction of photos and images to numeric data so that this data can train the machine learning of a generative AI foundation model is much the same as changing the audio visual expression of a video game into source code or changing photos and images to data points in a search engine as seen in *Sega*, *Kelly*, and *Perfect 10*.

To the extent that the transformation of images into machine readable numeric data is found to be a form of copying, it is a machine function that allows the users of the machine to express

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<sup>109</sup> *Id.* at 216-17.

<sup>110</sup> *Id.* at 218.

<sup>111</sup> *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87 (2d Cir. 2014).

<sup>112</sup> *Authors Guild v. Google, Inc.*, 804 F.3d at 217 (citing *HathiTrust*, 755 F.3d at 97).

<sup>113</sup> See *id.* at 216-18 (citing *A.V. ex rel. Vanderhye v. iParadigms, LLC*, 562 F.3d 630, 639-40 (4th Cir.2009); *Perfect 10*, 508 F.3d at 1165; *Kelly*, 336 F.3d at 819; *HathiTrust*, 755 F.3d at 97). See also 17 U.S.C. § 107.

<sup>114</sup> *Id.* at 217.

<sup>115</sup> See *Sag, Copyright and Copy-Reliant Technology*, *supra* note 82, at 1617-18.

themselves through the generation of new and original images.<sup>116</sup> The machine's function is copy-reliant on learning what images of various kinds look like by training on hundreds of millions or billions of images, but the copying of image *data* serves a function and purpose of building machine systems that enable new artists to create original artistic expression. The system creator's copying of data is completely different from the function and purpose of the original works which was an aesthetic purpose in the display and enjoyment of the works while the system creator only wants the image data embedded on vectors in a nonexpressive numeric form to be available for the diffusion process to occur for the generation of new, original artworks, not copies of works whose data was part of the training dataset. This new function and purpose of the machine system is completely supported by the Copyright Act's primary function and purpose which is to promote the progress of science and the arts by encouraging the production of original expressive works.<sup>117</sup>

**(2) The *Andy Warhol Foundation v. Goldsmith* opinion does not change the balancing or application of the transformative test in the context of nonexpressive copying by copy-reliant technologies.**

In direct response to Question 8.1 – “In light of the Supreme Court’s recent decisions in *Google v. Oracle America* and *Andy Warhol Foundation v. Goldsmith*, how should the “purpose and character” of the use of copyrighted works to train an AI model be evaluated?” – the *Warhol* opinion does not change the balancing or application of the transformative test in the context of nonexpressive copying by copy-reliant technologies. The U.S. Supreme Court in *Andy Warhol Foundation v. Goldsmith*<sup>118</sup> clarified the copyright fair use transformative test for only the second time since it was adopted in 1994 in *Campbell v. Acuff Rose Music*.<sup>119</sup> *Campbell* provided the foundational discussion of the test and how it should operate, and *Google v. Oracle*<sup>120</sup> explained and applied the test in the context of computer code and the fair use copying of code for a new function and purpose in a new computer application. *Warhol* affirmed both *Google* and *Campbell*, and early commentary on the *Warhol* case appears to agree that the Supreme Court did not significantly reinterpret the transformative test nor did it fundamentally alter the way the test operates in fair use analyses.<sup>121</sup>

The basic statement of the transformative test accepted by *Warhol* and *Google* and promulgated by *Campbell* is “whether the copier's use ‘adds something new, with a further

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<sup>116</sup> Which is what occurs with DALL-E 2, Stable Diffusion, and Midjourney.

<sup>117</sup> *Warhol*, 143 S. Ct. at 1276; *Authors Guild v. Google, Inc.*, 804 F.3d at 214; *Campbell*, 510 U.S. at 579.

<sup>118</sup> *Warhol*, 143 S. Ct. at 1258.

<sup>119</sup> *Campbell*, 510 U.S. at 569.

<sup>120</sup> *Google*, 141 S. Ct. at 1183.

<sup>121</sup> E.g., Corynne Mcsherry, Cara Gagliano, & Katharine Trendacosta, *What the Supreme Court’s Decision in Warhol Means for Fair Use*, ELECTRONIC FREEDOM FRONTIER (May 23, 2023), <https://www EFF.ORG/deep links/2023/05/what-supreme-courts-decision-warhol-means-fair-use>; Anthony J. Dreyer, Shay Dvoretzky, et al., *Supreme Court Addresses Copyright Fair Use Defense in Goldsmith*, Skadden (May 19, 2023), <https://www.skadden.com/insights/publications/2023/05/supreme-court-addresses-copyright-fair-use-defense>.

purpose or different character, altering' the copyrighted work 'with new expression, meaning or message.'"<sup>122</sup> *Campbell* created and applied the test primarily in reference to the first fair use factor, the purpose and character of the use. Factor one draws on Justice Story's formulation of the fair use analysis in *Folsom v. Marsh*, that when considering "the nature and objects of the selections made" in the new work copying the first work, does the new work merely "supersede the objects of the original creation."<sup>123</sup> To this, *Campbell* added the words of Judge Pierre Leval, asking whether the new work "instead adds something new, with a further purpose or different character, altering the first with new expression, meaning, or message; it asks, in other words, whether and to what extent the new work is 'transformative.'"<sup>124</sup>

Later in the same opinion, *Campbell* broadened the scope of the test to relate to all of the fair use factors so that there would be an equilibrium between the fair use factors with no one factor, such as commerciality, being "dispositive" or "conclusive."<sup>125</sup> The Court referred to the "preamble" (sentence one) of section 107 in defining the transformative test, and connected the test to the public policies favoring free expression and the creation of new, original expression.<sup>126</sup> Transformation is not tied to one factor because a properly transformative use of original work would tip the scales in favor of fair use on all of the factors when they all are considered together.<sup>127</sup> This broader scope helps the transformative test to fulfill the goal of copyright, to promote science and the arts, because this goal is furthered by the creation of transformative works. The Court held that transformative works lie at the heart of the fair use doctrine's guarantee of breathing space within the confines of copyright, and the more transformative the new work, the less will be the significance of other factors, like commercialism, that may weigh against a finding of fair use.<sup>128</sup>

The lower federal courts have, of course, worked to interpret and apply the transformative test in the years after *Campbell*. My study of the application and interpretation of the transformative test in the federal appellate courts between 1994 and 2011<sup>129</sup> indicated two important lessons about the test: first, the courts regarded a change in the function *and* purpose of the new work compared to those of the first work to be highly relevant and in most cases dispositive; in other

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<sup>122</sup> *Campbell*, 510 U.S. at 579; *Google*, 141 S. Ct. at 1202. *Accord Warhol*, 143 S. Ct. at 1274–75.

<sup>123</sup> *Folsom v. Marsh*, 9 F. Cas. 342, 348 (C.C.D. Mass. 1841) (Story, J., sitting as circuit justice); *accord*, Harper & Row, 471 U.S. at 562 ("supplanting" the original).

<sup>124</sup> *Campbell*, 510 U.S. at 579 (quoting Pierre N. Leval, *Commentary, Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1111 (1990)).

<sup>125</sup> *Id.* at 578, 584–85, 594: "Nor may the four statutory factors be treated in isolation, one from another. All are to be explored, and the results weighed together, in light of the purposes of copyright" and that there are "no hard evidentiary presumption[s]. . . . [T]he commercial . . . character of a work is 'not conclusive,' . . . but rather a fact to be 'weighed along with other[s] in fair use decisions.' . . . No such evidentiary presumption is available to address . . . whether a transformative use . . . is a fair one." [inner citations omitted].

<sup>126</sup> *Id.* at 579.

<sup>127</sup> *See id.* at 578, 579, 594.

<sup>128</sup> *See id.* at 579.

<sup>129</sup> Michael D. Murray, *What Is Transformative? An Explanatory Synthesis of the Convergence of Transformation and Predominant Purpose in Copyright Fair Use Law*, 11 CHI.-KENT J. INTELL. PROP. 260, 273 (2012).

words, a change in the purpose and function of the two works is more highly indicative that a second work is transformative than a change in the content, meaning, and expression of the first work.<sup>130</sup> Even significant alteration of the form, or genre, or theme, or tone, or even the overall meaning of the works will not be found to be fair use if some of the creative, artistic, and expressive virtues of the original works are not replaced or overwhelmed by the expression in the second work.<sup>131</sup> If the creative, artistic, and expressive virtues of the original works still are discernable in the second work and still add value to the secondary work, the use of the original work will be deemed unfair.<sup>132</sup>

Second, that the courts are to consider transformation of the content, context, and the predominant purpose of the original work to evaluate whether the alleged fair use changes the content, context, or purpose in a manner that furthers the public policies reflected in the first sentence of section 107.<sup>133</sup> Otherwise, you are making an unauthorized exploitation of the creative expression of the work for exactly the same reasons and purposes that the original author or artist created the work, and you are depriving the original author or artist of the derivative works right guaranteed by copyright.<sup>134</sup>

This observation of eleven years ago was nearly exactly repeated in the Court's decision in *Warhol*. The Court stated that although the addition of new expression to an existing work may be relevant to whether a copying use has a sufficiently distinct purpose or character, it is not, without more, dispositive of the first factor, the purpose and character of the work.<sup>135</sup> Indeed, in the *Warhol* case, the specific function and purpose of Goldsmith's photograph matched that of Warhol's work: both had the function and purpose to be portraits of Prince used to depict Prince in magazine stories about Prince.<sup>136</sup> The Court noted that the use of an original work to achieve a purpose that is the same as or highly similar to that of the original work is more likely to substitute for, "supersede the objects" of, or "supplant" the original work.<sup>137</sup> A use that has a distinct purpose is justified because it furthers the goal of copyright, namely, to promote the

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<sup>130</sup> *Id.* at 276-80. *Accord*, R. Anthony Reese, *Transformativeness and the Derivative Work Right*, 31 COLUM. J.L. & ARTS 467, 484-85 (2008).

<sup>131</sup> *E.g.*, *Salinger v. Colting*, 607 F.3d 68 (2d Cir. 2010); *Gaylord v. United States*, 595 F.3d 1364 (Fed. Cir. 2010); *Bridgeport Music v. UMG*, 585 F.3d 267 (6th Cir. 2009); *Castle Rock Entertain. v. Carol Publish. Group*, 150 F.3d 132 (2d Cir. 1998); *Dr. Seuss Enterprises, L.P. v. Penguin Books USA, Inc.*, 109 F.3d 1394 (9th Cir. 1997).

<sup>132</sup> We can add to the list in note 131 the recent case of *Dr. Seuss Enters., L.P. v. ComicMix LLC*, 983 F.3d 443 (9th Cir. 2020) (significant alteration of the genre, theme, and meaning of the original Seuss work, *Oh the Places You'll Go*, was insufficient to find transformative fair use because the *Boldly Go* work did not change the function and purpose of the material it copied; *Boldly Go* replicated "the exact composition, the particular arrangements of visual components, and the swatches of well-known illustrations" of the famous Seuss work for their same artistic and expressive purposes), and *Warhol* itself (Warhol's artistic style and genre changes still allowed the basic artistic function of the original Goldsmith work, to portray Prince, to shine through in Warhol's work).

<sup>133</sup> *Id.* at 272-73, 291-92.

<sup>134</sup> Murray, *What is Transformative*, *supra* note 129, at 292.

<sup>135</sup> *Warhol*, 143 S. Ct. at 1273.

<sup>136</sup> *See id.*

<sup>137</sup> *See id.* at 1274.

progress of science and the arts, without diminishing the incentive to create,<sup>138</sup> but a use that shares the purpose of the original work is more likely to provide the public with a substantial substitute for matter protected by the copyright owner's interests in the original work or derivatives of it, which undermines the goal of copyright.<sup>139</sup> The Court concluded that, “an overbroad concept of transformative use, one that includes any further purpose, or any different character, would narrow the copyright owner's exclusive right to create derivative works, . . . [and] the degree of transformation required to make “transformative” use of an original must go beyond that required to qualify as a derivative.”<sup>140</sup>

Adding new expressive content that adds new meaning to an earlier work will not be sufficient for fair use if the function and purpose of the two works remains the same, or if artistic content of the original work still shines through and adds value to the new work. The *Warhol* court accepted that Andy Warhol had altered Goldsmith’s work with new expression, meaning, and message, and that Warhol’s work had a different aesthetic from Goldsmith’s work.<sup>141</sup> But many “derivative works, including musical arrangements, film and stage adaptations, sequels, spinoffs, and others that ‘recast, transfor[m] or adap[t]’ the original, . . . add new expression, meaning or message, or provide new information, new aesthetics, new insights and understandings.”<sup>142</sup> And to allow all such adaptations and alterations of original content to be transformative fair uses would “swallow the copyright owner's exclusive right to prepare derivative works.”<sup>143</sup> Goldsmith’s depiction of Prince in her photograph was easily discernable in Warhol’s adaptation of the work<sup>144</sup>:



Figure 6 from the *Warhol* opinion: Warhol's orange silkscreen portrait of Prince superimposed on Goldsmith's portrait photograph.

Warhol’s work added a new aesthetic by its coloration and posterization, which fit the work within the genre of pop art portraiture that Warhol himself invented and popularized. But in terms of transformation, Goldsmith’s exact composition, her particular arrangements of visual components—the pose, the “attitude” of Prince’s depiction (the exact angle of the head and forward facing gaze)—were replicated in the Warhol work. And the *Warhol* court made particular note of the fact that both images were created and used for the same commercial

<sup>138</sup> *Id.* at 1276.

<sup>139</sup> *See id.*

<sup>140</sup> *See id.* at 1275

<sup>141</sup> *See id.* at 1282.

<sup>142</sup> *See id.* (citing 17 U.S.C. § 101, definition of “derivative work”).

<sup>143</sup> *Id.*

<sup>144</sup> *Id.* at 1271, figure 6.

function and purpose: the function and purpose to be portraits of Prince used to depict Prince in magazine stories about Prince.<sup>145</sup> Thus, the *Warhol* court found that Warhol's use of Goldsmith's work did not constitute fair use.

**(3) The purpose and character of an AI training dataset's use and a generative AI's use of data from original images is entirely different from the expressive, artistic, and aesthetic purposes of the original images.**

When AI training datasets which are used to train foundation models for visual generative AI systems<sup>146</sup> were first compiled, the composition of the data in the training dataset drew information from images whose image data, metadata, and alt-text information had been "scraped" from the web by a web crawler.<sup>147</sup> The whole purpose of this activity was to provide a dataset of code (WAT file) that could be converted to binary code and used by visual generative AI systems. This functional purpose is entirely separate from the expressive, artistic, and aesthetic purposes of the original images.

Generative AI systems such as DALL-E 2, Midjourney, or Stable Diffusion learn from the data in the training dataset what images look like. This allows these systems to respond to prompts that call for the system to create an image with certain characteristics. The systems can do it because they know after being trained on billions of images what many different images with descriptions correlating to the prompt description look like. In other words, if an artist or AI system already knows what barns look like, and cats look like, and cats sitting on things look like, it will not be remarkable for the artist or AI system to produce a few drafts of an image of "a cat sitting on a barn."

What DALL-E 2 or Stable Diffusion or other transformer and diffusion model generative AI systems do *not* do is search the data from the training set for information from an individual image and they do not search the internet for any individual .jpg, .png, or .gif image that matches the text prompt terms. If such an attempt were made, it might properly be called a fool's errand because of the variety and complexity of text prompts that can be used, ranging from the inane<sup>148</sup> to the sublime.<sup>149</sup> An image generating AI does not work like Google's image search which is expressly designed to search for and produce a thumbnail and web address for

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<sup>145</sup> *Id.* at 1273.

<sup>146</sup> Rick Merritt, *What Are Foundation Models?*, NVIDIA (Mar. 13, 2023), <https://blogs.nvidia.com/blog/2023/03/13/what-are-foundation-models/>; Mike Murphy, *What are foundation models?*, IBM (May 9, 2022), <https://research.ibm.com/blog/what-are-foundation-models>.

<sup>147</sup> Gulbahar Karatas, *Comprehensive Guide to Web Crawling vs Web Scraping in 2023*, AI MULTIPLE (Sep. 11, 2023), <https://research.aimultiple.com/web-crawling-vs-web-scraping/>.

<sup>148</sup> Inane prompt example: "orange tabby cat wearing Evel Knievel suit riding a motorcycle." <https://labs.openai.com/s/Uh9aHakug5RvyWb0N04h7GGz>.

<sup>149</sup> Sublime prompt in Midjourney: "aerial view of a giant fish tank shaped like a tower in the middle of new york city, 8k octane render, photorealistic --ar 9:20." <https://prompthero.com/prompt/90abe624731-midjourney-3-aerial-view-of-a-giant-fish-tank-shaped-like-a-tower-in-the-middle-of-new-york-city-8k-octane>.

preexisting images that match the textual search prompt given to Google.<sup>150</sup> Instead, each visual generative AI program draws on its learning of what images need to look like to match up with textual words and phrases that are used to describe images on the internet and in databases—e.g., award winning, studio quality, high resolution photograph, rendered with Octane, etc.<sup>151</sup> And the system proceeds to work on rendering an image that fulfills the prompt requirements.

**(4) Images rendered by visual generative AI systems have a different character with new expression, meaning and or message because these systems are designed *not* to copy any images.**

In transformer based diffusion systems such as DALL-E 2 and Stable Diffusion, a text encoder and image encoder work to form a model of latent space numeric information that can be processed by diffusion and denoising by linking textual and visual semantics to render responsive images.<sup>152</sup> In the case of DALL-E 2, the target of the process is defined by the descriptive terms in the prompt and conditioned by the image and text data of the prior model generated in response to the prompt,<sup>153</sup> and in the case of Stable Diffusion, the target of the process is defined by the descriptive terms in the prompt and conditioned by the guided diffusion process and the cross-attention of the denoising process.<sup>154</sup> The starting point of the diffusion and denoising process is not the selection of an individual image to diffuse and denoise. Rather, in DALL-E 2, the system starts with a random image embedding (vectors in the latent space) in conjunction with the prompt text that is used to create the prior model from which random noise images are produced for denoising.<sup>155</sup> Stable Diffusion starts by selecting a latent seed from the latent space of numeric image/text data and using the seed to generate random latent image representations that are then conditioned by the prompt to guide the

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<sup>150</sup> Catherine Dee & Hamish Ogilvy, *Visual search: how does an image finder search engine work?*, ALGOLIA (Feb. 22, 2022), <https://www.algolia.com/blog/product/picture-search-how-does-an-image-finder-search-engine-work/>

<sup>151</sup> See examples of prompts at Damir Yalalov, *Best 100+ Stable Diffusion Prompts: The Most Beautiful AI Text-to-Image Prompts*, METAVERSE POST (Oct. 25, 2022, 6:31 am), <https://mpost.io/best-100-stable-diffusion-prompts-the-most-beautiful-ai-text-to-image-prompts/>.

<sup>152</sup> See Vaclav Kosar, *OpenAI's DALL-E 2 and DALL-E 1 Explained*, vaclavkosar.com (Apr. 22, 2022), <https://vaclavkosar.com/ml/openai-dall-e-2-and-dall-e-1>; Salim Oyindola, *DALL-E: Inside the Artificial Intelligence program that creates images from textual descriptions*, Paperspace (Jul. 2022), <https://blog.paperspace.com/dall-e-image-generator/>.

<sup>153</sup> *Id.*

<sup>154</sup> See Sergios Karagiannakos & Nikolas Adaloglou, *How diffusion models work: the math from scratch*, AI Summer (Sep. 29, 2022), <https://theaisummer.com/diffusion-models/>; Mario Namtao Shianti Larcher, *Paper Explained — High-Resolution Image Synthesis with Latent Diffusion Models*, Towards Data Science (Mar. 30, 2023), <https://towardsdatascience.com/paper-explained-high-resolution-image-synthesis-with-latent-diffusion-models-f372f7636d42>; Andrew, *How does Stable Diffusion work?*, Stable Diffusion Art (Mar. 29, 2023), <https://stable-diffusion-art.com/how-stable-diffusion-work>.

<sup>155</sup> Mehul Gupta, *How does DALL-E, the text-to-image generator work?*, DATA SCIENCE IN YOUR POCKET (Feb. 2, 2023), <https://medium.com/how-does-dall-e-the-text-to-image-generator-work-c2d9f4a0f26c>; *Generative Ai Art Tools Explained: Dall-E 2 and Stable Diffusion Comparison*, PERZONALIZATION (Jan. 15, 2023), <https://www.perzonalization.com/blog/generative-ai-art-tools-explained/>.

objective (the final images) of the generation process.<sup>156</sup> This model uses the embedded image and text classifiers from its CLIP-curated training data to generate the random latent image representations which are first multiplied for diversity and then diffused by addition of Gaussian noise and conditioned by guided diffusion and cross-attention in the denoising process.<sup>157</sup>

The process of diffusion always and necessarily renders the subject random latent image representations into unrecognizable messes of Gaussian noise, so it matters very little what any random latent image might have looked like to begin with. The important step comes when these initial random representations are completely obscured (by noise), and then the representations are conditioned in the process of denoising to produce variations of actual images that are not bound to any particular CLIP classified image but still show fidelity to the semantics and style of certain classes and descriptions of embedded images of the training set that are called for by the end-user's text prompt.<sup>158</sup> The Stable Diffusion process is similar to DALL-E 2 in that it learned lessons from the semantics and styles of the CLIP curated LAION-5B dataset, and the decoding process calculates the required number of steps to eliminate "noise" in generated images by varying and deleting the non-essential details of these images to produce one or more final images with minimal loss in visual content values (e.g., photorealism) and text caption similarity.<sup>159</sup> In other words, the entire process for both of these visual generative AI systems is to use the information it has learned about what pictures of certain classes and descriptions look like, and what various combinations of classes and descriptions should look like, so that the systems can render one or more new, visually pleasing images that are faithful to the requirements and descriptions expressed in the text prompt.<sup>160</sup>

As noted above, this process is not a search for a preexisting image that matches the text prompt captions. In contrast, an image generating AI such as DALL-E 2 or Stable Diffusion is expressly designed *not* to use any one preexisting image in the CLIP training set because each image encoded and embedded in the CLIP-curated training must be stochastically decoded (denoised) to generate a new image which maintains the salient features of the targeted image

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<sup>156</sup> See Suraj Patil, Pedro Cuenca, et al., *Stable Diffusion with Diffusers*, HUGGING FACE (Aug. 22, 2022), [https://huggingface.co/blog/stable\\_diffusion](https://huggingface.co/blog/stable_diffusion).

<sup>157</sup> *Id.*

<sup>158</sup> The process described here can take the form of unCLIP that inverts the images produced from a CLIP set, see Aditya Ramesh, Prafulla Dhariwal, et al., *Hierarchical Text-Conditional Image Generation with CLIP Latents*, OpenAI (Apr. 13, 2022), <https://cdn.openai.com/papers/dall-e-2.pdf>; or GLIDE. See Alex Nichol, Prafulla Dhariwal, et al., *GLIDE: Towards Photorealistic Image Generation and Editing with Text-Guided Diffusion Models*, Int'l Conf. on Machine Learning, Cornell Univ. arXiv (Mar. 8, 2022), <https://arxiv.org/pdf/2112.10741.pdf>.

<sup>159</sup> See Ryan O'Connor, *How DALL-E 2 Actually Works*, AssemblyAI (Apr. 19, 2022), <https://www.assemblyai.com/blog/how-dall-e-2-actually-works/>.

<sup>160</sup> OpenAI's DALL-E 2 process is not the only method for drawing on a set of image-text classifications for image generation. See, e.g., Vaclav Kosar, *Multimodal Image-text Classification*, Software and Machine Learning (Nov. 30, 2022), <https://vaclavkosar.com/ml/Multimodal-Image-Text-Classification>.



and text data given its embedding.<sup>161</sup> OpenAI has developed an additional process known as GLIDE (Guided Language-to-Image Diffusion for Generation and Editing), in which the DALL-E 2 AI uses newly deconstructed images to guide the composition of new images that will embody all of the text relationships presented by the prompt.<sup>162</sup> Both systems require construction and deconstruction of data from source images to produce a final set of results; neither system selects and duplicates an image from the training set.

The process of image generation used by DALL-E 2 and other AIs must be noted because copyright infringement vs. fair use claims will depend on a theory that the original work of the complaining artist or creator was copied by the AI and its image generation mechanism. But the very design of the AI is not to copy any preexisting image but merely to learn from the data of millions of preexisting images what desirable images embodying certain prompt terms should look like so that when it gets a new assignment it can create desirable images that embody the new prompt.

### **Conclusions**

When addressing all of the questions discussed in these comments, the Office should consider that the tool that aggrieved and disappointed artists are complaining about has been in existence for several decades. It is called the web browser with its image search engine. If a person truly wants to create a copy of a preexisting work, nothing is easier than searching for it on the internet and right-clicking on it when you find it. If a person wants to create an infringing derivative work, then a second step can readily be taken, and the technology for it also has been around for several decades. It called the use of image editing software such as Adobe PhotoShop® or the myriad of other photo editing and painting products. If a collage of derivative works is your caper, you can accomplish this with Microsoft Word and its “Picture Format” tab in conjunction with the snipping tool that shipped with your computer’s operating system.

All of this is to say that artists are not complaining because now their artworks can be copied and before they couldn’t be. They are complaining because technology now enables amateur, untrained, unprofessional, and extremely average persons to compete with professional artists by producing beautiful, complex, painterly artistic works that emulate the genre and style of artists by using a tool that runs on simple textual instructions. Visual generative AI systems have democratized artistic creation to a level never before seen in human history. This power has caused the explosion in 2022 and 2023 in the adoption and use of contemporary generative AI devices such as DALL-E 2, Stable Diffusion, and Midjourney.

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<sup>161</sup> O'Connor, *supra* note 159; Ramesh, Dhariwal, *Hierarchical*, *supra* note 158.

<sup>162</sup> See O'Connor, *supra* note 159; Ramesh, Dhariwal, *Hierarchical*, *supra* note 158.

It is valid for present artists to feel a certain degree of existential pressure which is expressed in the phrase, “the robots are coming for our jobs.”<sup>163</sup> And in truth, there are some jobs in the visual arts that could be supplemented or in some cases replaced by a robustly trained AI run by a savvy human designer—illustrators, interior designers, advertisers, storyboard artists—or practically any artist or creator whose job it is to produce images in response to a request or directive.<sup>164</sup> The AI is not going to replace all humans involved in the visual and graphic arts, but if there were dozens of persons in a design studio or arts organization whose jobs consisted of interpreting, designing, and rendering in visual media the ideas and directives of others, those person’s jobs could theoretically be replaced by one person running a robustly trained generative AI.

Pinning the blame for the elements of copyright infringement on the right parties is essential to an informed and intelligent discussion of whether there should be liability or fair use for AI generated work. The table below attempts to sort out the potential for liability and possibility of fair use of each of the players in the generative AI process.

<b>Infringement Element</b>	<b>Creators of the AI Training Set</b>	<b>Creators of the visual generative AI system</b>	<b>End-users of the visual generative AI system</b>
Act of Copying	The creators of the training dataset and foundation model do not copy any of the images on the internet whose data was scraped to create the dataset. No image files are downloaded, copied, or stored.	Generative AI systems do not copy any of the images on the internet whose data was scraped to create the AI’s training data and foundation model. The act of generation by the diffusion process does not involve selecting preexisting images from the training set to copy them.	When using the generative AI tool, end-users have no access to the actual image files whose data was used in the AI training data and foundation. But if the law turns a blind eye to this technicality and allows the concept of “access” to be stretched, the end-user still does not create a copy of a preexisting work without going to great lengths in prompt engineering.

<sup>163</sup> E.g., Paul Krugman, *Does ChatGPT Mean Robots Are Coming For the Skilled Jobs?*, N.Y. Times, Dec. 6, 2022, <https://www.nytimes.com/2022/12/06/opinion/chatgpt-ai-skilled-jobs-automation.html>; Kevin Roose, *A.I.-Generated Art Is Already Transforming Creative Work*, N.Y. TIMES, Oct. 21, 2022, <https://www.nytimes.com/2022/10/21/technology/ai-generated-art-jobs-dall-e-2.html>.

<sup>164</sup> See Roose, *supra* note 163 [previous note].

<b>Infringement Element</b>	<b>Creators of the AI Training Set</b>	<b>Creators of the visual generative AI system</b>	<b>End-users of the visual generative AI system</b>
Generation of a work that copies a substantial and material portion of copyrightable parts of the first work	The creators of the training dataset do not generate images.	The diffusion process does not generate work that incorporates all or part of preexisting works.	An end-user could engage in significant prompt engineering to cause the AI tool to generate a new work that appears to incorporate all or part of the copyrightable elements of a prior work.
Potential fair use of the copied portions of the first work	To the extent that the activity is (incorrectly) found to be copying, the creation of an AI training dataset or foundation model would most likely be protected by a transformative fair use defense because of the nonexpressive nature of the copying to enable a copy-reliant technology.	The outputs of a generative AI are not preprogrammed or predetermined; the creators of the AI do not see, review, or approve the outputs; they have no control over end-user's actions and do not receive financial benefit from the outputs; the AI systems have substantial non-infringing uses.	End-users who work to produce substantially similar and allegedly infringing works will also determine the function and purpose for the new work; they will determine if the work will be used for education, research, comment or criticism, or another fair use purpose.

The sober truth is that visual generative AI systems are not magic at all, but a set of complex algorithms trained on a dataset of information on what images of a certain kind and classification should look like, that work with nonexpressive numeric renderings of image data, rather than copying and editing real digital image files, and that use a complex reiterative diffusion process to work through a sequence of renderings conditioned on the terms and design requirements communicated by the end-user, until the system produces a final image that is accepted and adopted by the end-user. To the extent that the end-user decides to use the generative AI to duplicate a preexisting work and works through the difficulties of getting the generative AI system to do what it is designed *not* to do—namely duplicate a preexisting image—then the end-user might force the AI system to create an infringing copy or derivative

work, after which the end-user's function and purpose for his copy or derivative work will be compared to the function and purpose of the infringed work for evaluation of fair use.