Protecting Visual Artists from Generative AI: An Interdisciplinary Perspective

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Abstract

Generative AI undeniably poses threats to visual artists' livelihoods. Technical intricacies of the model and challenges in proving market substitution make it difficult for creators to establish strong cases for copyright infringement in the U.S. Defending human authorship and the creative arts will require effective design and use of legal and technical solutions grounded in behaviors, concerns, and needs of those impacted by the model. To do this, this paper calls for interdisciplinary collaboration among social scientists, legal scholars, and technologists.

1. Can the U.S. Copyright Protect Visual Artists from Generative AI?

The U.S. Copyright law aims to "[promote] science and useful arts" (Copyright Alliance) and holds high evidentiary thresholds for infringement, demanding substantial evidence for action to avoid deterring innovation. Courts meticulously assess various abstract factors to determine infringement. These factors include assessing fair use and direct effects of the use upon the market value of the original work (Lemley & Casey, 2020; Leval, 1990). The process of evaluating these factors considers the level of creative expression and substantial similarity of the accused work.

The technical realities of generative AI make it difficult to establish a strong case of copyright infringement against artists (Margoni & Kretschmer, 2022; Grimmelmann, 2017; Somepalli et al., 2022; Sobel, 2017). Data mining is recognized as fair use or fair dealing under copyright law (Authors Guild v. Google). The transformative nature of the models, the limited public display of individual artists' work with the absence of exact reproduction (Yang et al., 2023), and challenges in proving market substitution all lean towards supporting the development and use of generative AI as lawful.

Notably, ongoing copyright infringement disputes, within the U.S. digital visual art realm, are (Joseph Saveri Law Firm., 2023) challenging creators' once-exclusive and only rights over their published digital art [1]. These early-stage lawsuits examine potential violations within the context of generative AI. Losses in these lawsuits will set norms and potentially give more power to technology companies, which have implications for the entire creative industry. For example, Author's Guild v. Google concluded by giving Google the ability to fully digitize books that are either unclaimed or not opted out by the author. Unfortunately, current lawsuits highlight a flawed understanding of how generative AI technology operates, leading to weak framing of arguments in support of artists.

2. In Considering Future Agenda

Unlike other new mediums of creative technologies introduced in the past, generative AI extends to a novel space. It extracts and relies on training data made by people who remain virtually indistinguishable. Visual artists are left to individually navigate and demonstrate how the intricate mechanisms behind generative AI violate their rights.

To protect human authorship and the creative arts in the face of generative AI, we need an interdisciplinary collaboration among social scientists, legal scholars, and technologists. Social scientists can inform and evaluate the design and/or use of both legal and technical tools so that they are grounded in real humans impacted by generative AI. Legal scholars can offer an initial perspective on how to (in)directly address visual artists' concerns by precisely describing and analyzing existing legal infrastructures, including, but not limited to, copyright. Technologists can then develop tools that complement or substitute [2] legal solutions; their tools could facilitate the scaled assessment of legal violations and/or strengthen artists' self-protection mechanisms.

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[1] As of July 1st, 2023, a group of artists has filed a class action lawsuit against Stability AI, DeviantArt, and Midjourney, alleging copyright infringement.

[2] Currently, the burden of proof falls on the artists, requiring them to establish a direct connection between their copyrighted works and the AI-generated output. This can be a complex and resource-intensive process, which may discourage artists from pursuing legal action around copyright.
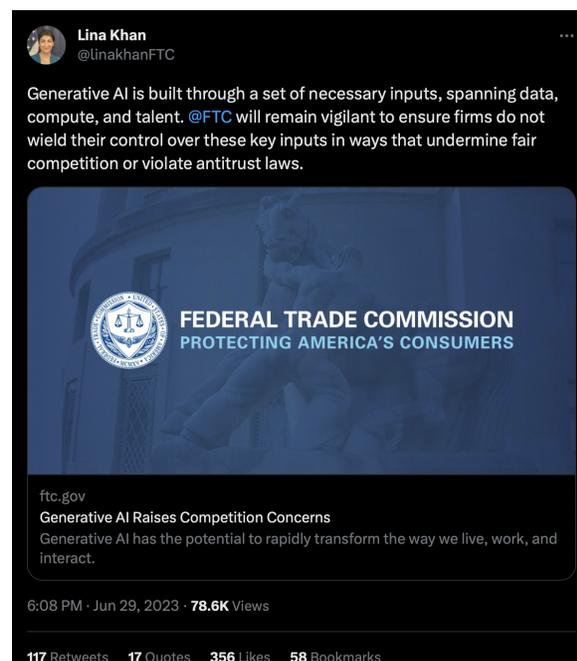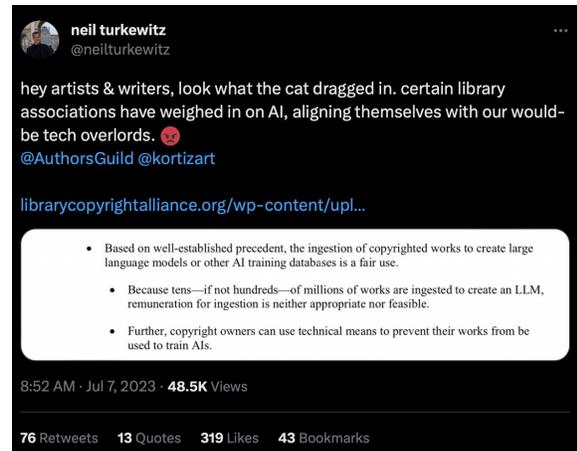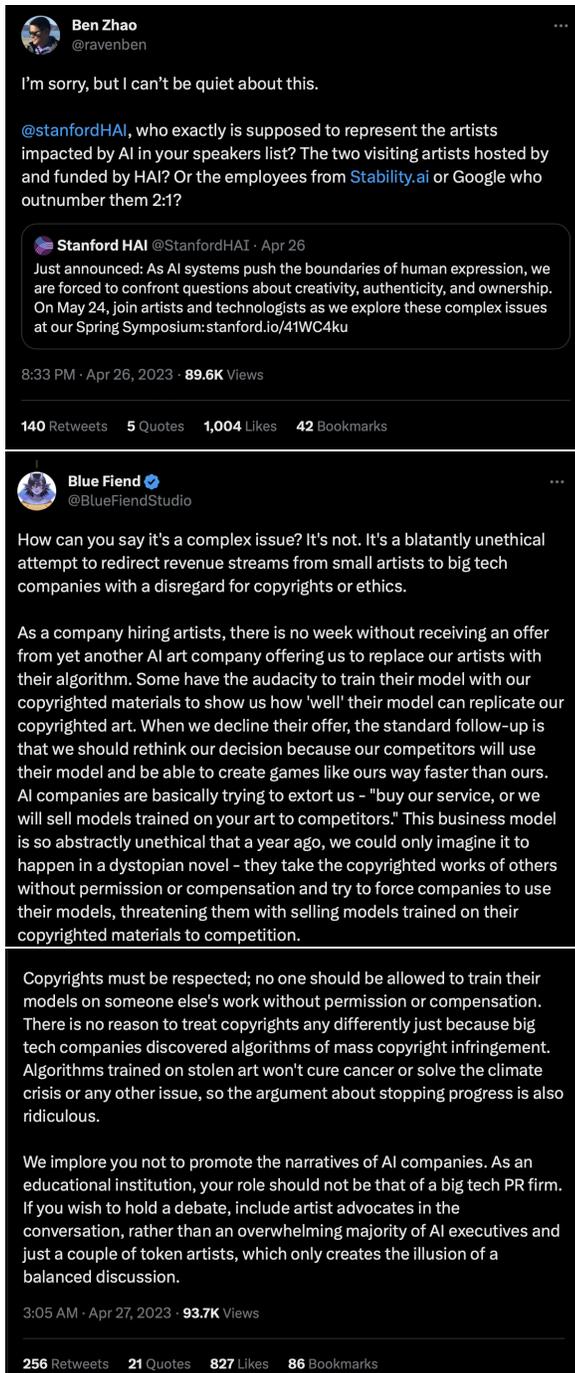
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Ben Zhao @ravenben

I'm sorry, but I can't be quiet about this.

@stanfordHAI, who exactly is supposed to represent the artists impacted by AI in your speakers list? The two visiting artists hosted by and funded by HAI? Or the employees from Stability.ai or Google who outnumber them 2:1?

> Stanford HAI @StanfordHAI · Apr 26
> Just announced: As AI systems push the boundaries of human expression, we are forced to confront questions about creativity, authenticity, and ownership. On May 24, join artists and technologists as we explore these complex issues at our Spring Symposium: stanford.io/41WC4ku

8:33 PM · Apr 26, 2023 · **89.6K** Views

140 Retweets   **5** Quotes   **1,004** Likes   **42** Bookmarks

Blue Fiend ✔ @BlueFiendStudio

How can you say it's a complex issue? It's not. It's a blatantly unethical attempt to redirect revenue streams from small artists to big tech companies with a disregard for copyrights or ethics.

As a company hiring artists, there is no week without receiving an offer from yet another AI art company offering us to replace our artists with their algorithm. Some have the audacity to train their model with our copyrighted materials to show us how 'well' their model can replicate our copyrighted art. When we decline their offer, the standard follow-up is that we should rethink our decision because our competitors will use their model and be able to create games like ours way faster than ours. AI companies are basically trying to extort us - "buy our service, or we will sell models trained on your art to competitors." This business model is so abstractly unethical that a year ago, we could only imagine it to happen in a dystopian novel - they take the copyrighted works of others without permission or compensation and try to force companies to use their models, threatening them with selling models trained on their copyrighted materials to competition.

Copyrights must be respected; no one should be allowed to train their models on someone else's work without permission or compensation. There is no reason to treat copyrights any differently just because big tech companies discovered algorithms of mass copyright infringement. Algorithms trained on stolen art won't cure cancer or solve the climate crisis or any other issue, so the argument about stopping progress is also ridiculous.

We implore you not to promote the narratives of AI companies. As an educational institution, your role should not be that of a big tech PR firm. If you wish to hold a debate, include artist advocates in the conversation, rather than an overwhelming majority of AI executives and just a couple of token artists, which only creates the illusion of a balanced discussion.

3:05 AM · Apr 27, 2023 · **93.7K** Views

256 Retweets   **21** Quotes   **827** Likes   **86** Bookmarks

neil turkewitz @neilturkewitz

hey artists & writers, look what the cat dragged in. certain library associations have weighed in on AI, aligning themselves with our would-be tech overlords. ❌ @AuthorsGuild @kortizart

librarycopyrightalliance.org/wp-content/upl...

> • Based on well-established precedent, the ingestion of copyrighted works to create large language models or other AI training databases is a fair use.
> • Because tens—if not hundreds—of millions of works are ingested to create an LLM, remuneration for ingestion is neither appropriate nor feasible.
> • Further, copyright owners can use technical means to prevent their works from be used to train AIs.

8:52 AM · Jul 7, 2023 · **48.5K** Views

76 Retweets   **13** Quotes   **319** Likes   **43** Bookmarks

Lina Khan @linakhanFTC

Generative AI is built through a set of necessary inputs, spanning data, compute, and talent. @FTC will remain vigilant to ensure firms do not wield their control over these key inputs in ways that undermine fair competition or violate antitrust laws.

FEDERAL TRADE COMMISSION
PROTECTING AMERICA'S CONSUMERS

ftc.gov
Generative AI Raises Competition Concerns
Generative AI has the potential to rapidly transform the way we live, work, and interact.

6:08 PM · Jun 29, 2023 · **78.6K** Views

117 Retweets   **17** Quotes   **356** Likes   **58** Bookmarks

Figure 1. On the left: Tweets voicing concerns about the lack of representation of artists in discussions on the impact and regulation of AI. On the right: Lina Khan, the chair of the U.S. Federal Trade Commission (FTC), suggesting FTC as a possible resource for defending artists in the face of Generative AI

2.1. Social scientists

Considering critical stakeholders on this topic, social scientists can contribute by understanding and amplifying artists' concerns more effectively with robust qualitative and quantitative data. In-depth interviews could highlight the lack of concentrated resources (Figure 1) for artists to steer through the legal and technical intricacies and strategically influence regulatory bodies like the Copyright Office or the FTC (FTC-Technology-Blog, 2023). Large-scale surveys or observational studies on artists' opinions (shared on social media) could eliminate proposals that do not adequately address artists' needs (Figure 1).

Future work should also analyze how average people exploit and interact with the generative AI interface and their implications on shared culture, which the U.S. Copyright law aims to enrich. For example, indiscriminate or unrestricted copying of generative AI outputs could lead to saturation or diminishing quality of the collective creative potential.

Evidence in support of this hypothesis could work favorably for artists as courts weigh the impact of their decisions in ongoing AI copyright cases. Extended work would require an exploration of approaches to empirically and more comprehensively define and measure creativity.

2.2. Legal Scholars

Generative AI may not directly infringe copyright under the current U.S. copyright law[3], but it arguably extracts and exploits artists' previous and future work. As of April 2023, artists have removed 1 billion pieces of artwork from the Stable Diffusion training set using tools like HaveIBeenTrained (Kyle Wiggers, 2023). Flooding the market with cheap or free artwork through generative AI could lead to reduced demand and lower prices for original artwork, impacting the future ability of visual artists to earn a fair income from their creations. What may likely be the inevitable path moving forward, AI-assisted art practices face even more ambiguous protection boundaries than those with 100% human effort (The US Copyright Office, 2023). To establish their ownership, artists will now be required to provide specific evidence of a notable degree of creative impact (which has yet to be defined in legal terms) within various stages of the creative process for these works. In other words, the current legal boundaries of the U.S. Copyright law raise an important question of whether or not artists adapt in the presence of generative AI: does this technology have the potential to significantly, if not completely, strip creators of the financial rewards they deserve for their hard work?

Instead of focusing solely on copyright, legal scholars should consider alternative options in legal infrastructure that could (in)directly support artists. One potential alternative is competition policies. The opt-out option as in the Stable Diffusion model implies monopoly over a vast amount of orphaned work. The AI companies' decisions to provide limited, or no information about their model's training data could be considered unreasonable, unfair, or deceptive and an abuse of their dominant position. As per @BlueFiendStudio's tweet (Figure 1) exposing AI art companies' offers to replace contract artists with their algorithms, practices among firms that restrict opportunities for (independent) creative workers could potentially raise concerns under competition or even labor laws. The U.S. competition policies

aim to promote consumer welfare; some scholars could also explore an increased risk of liability for users building or interacting with interfaces on top of these generative models.

2.3. Technologists

Once we have more clear standards and boundaries for creative practices in this uncharted territory, we need technologists to develop low-cost mechanisms to decrease enforcement and compliance costs. Rapid content creation of generative AI models will scale up the number of taxing conflicts[4] between artists and users/builders of generative AI models. Disputed works will have to be assessed on a case-by-case basis. Technical tools could facilitate scaled evaluation and help stakeholders better navigate legal nuances. For example, new technical tools could make knowledge assessment of substantial similarity more feasible and efficient (Vyas et al., 2023). Recent work explored the possibility of "objectively" evaluating whether Stable Diffusion has copied the styles of digital artists' copyright work[5] (Casper et al., 2023). Translating standards into tangible tools and measures will require careful consideration, given the potential pitfalls of operationalization.

In creative landscapes without strong state-level protection over the economic fruits of their labors, artists will have to adopt scalable self-protection mechanisms. Technologists can build tools that facilitate artists' access to information about AI models and training data. For instance, HaveIBeenTrained already allows artists to opt out of the training data powering AI models. Tools that improve licensing and protective frameworks for artists, such as watermarking (Kirchenbauer et al., 2023), can also minimize inadvertent infringement. Yet, these tools still place the burden on artists; they need to manually search and claim ownership of their works from the past, the present, and the future. Orphaned or imitated works without the knowledge of their owners remain unprotected. More work should consider methods and tools that adequately balance the level of protection and user experience. Social scientists can help shed light on the design processes and cognitive constraints of (non-)technical artists, making sure these technical solutions are grounded in real human behaviors.

Acknowledgements

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[3]Demonstrating copyright infringement including market effect in court cases can be challenging for artists. The court's interpretation of market effect in the U.S. Copyright law has been stringent. In Authors' Guild v. HathiTrust (2014), the court clarified that market effect "only addresses economic harm that comes from a use serving as a substitute. Any economic 'harm' caused by transformative uses does not count because such uses, by definition, do not serve as substitutes for the original work". Moreover, proving which specific images were used to train the AI system is difficult, as the generated art may not exactly resemble any particular training image.

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[4]Authors guild vs Google Books was a decade-long litigation.
[5]Styles, however, are not copyrightable

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