

# The Impact of Generative AI on the Intellectual Property Legal System and Its Challenge to Copyright Law

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**Abstract-** *Generative artificial intelligence (AI) presents new challenges to copyright law. Although the Interim Measures for the Management of Generative AI Services have established legal responsibility for service providers, uncertainties remain regarding copyright infringement risks throughout the AI lifecycle. In particular, the lifecycle stages of generative AI—from model training to optimization—pose potential risks for copyright infringement. This paper explores case studies such as the Andy Warhol Foundation v. Goldsmith decision and considers how "transformative use" may be a more suitable legal standard for AI's interaction with copyrighted works than the traditional "three-step test." A redefined standard of "transformative use" could support AI innovation while ensuring fair compensation to copyright holders.*

**Indexed Terms-** *Generative AI, copyright law, fair use, intellectual property, Goldsmith case, transformative use, AI lifecycle, legal framework, three-step test, model training.*

## I. INTRODUCTION

The recent advancement of generative AI has attracted controversy in the various sectors especially within intellectual property or IP law where the innovative nature of AI questions the bases of copyright law. The use cases of generative AI, machines capable of generating art, literary works, music, and other creative work bring into question legal doctrines governing authorship, ownership, and copyright protection. As the AI technology progresses and gets incorporated into the creative industries, the question of who owns the rights in the content created by AI and whether the content generated by the AI tool can

actually be copyrighted has become very important and relevant.

Another highlight of this discussion can be marked by the case (2023) Jing 0491 Minchu No. 11279 which is the first trial for the copyright of AI art in China. Here the court understood that the content created through AI could hence be defined as a “work” covered under copyright law. As this move addressed the problem of legal uncertainty pertinent to computational creations, it also highlighted the problems that are inherent in copyright law with regard to AI. Nevertheless the ruling has given some legal clarity to creators using AI tools and at the same time has raised new questions about the foundational aspects of copyright, namely authorship and fair use.

In addition, the “Interim Measures for the Management of Generative Artificial Intelligence Services”, adopted to understand and control the AI service providers, makes the matters worse. These measures determine the legal recognition of generative AI service providers but reject the idea of legal personality of AI itself. This particular form of regulation offers only positive aspects as regards the definition of obligations resting with the creators of AI but nevertheless fails to supply satisfactory answers to such questions as what ownership rights of the AI creations should be recognized, or to what extent these creations should be given protection under the copyright law.

As generative AI enters the creative domains to redefine conventional creative practices, an understanding of how it affects the fair use doctrine in the copyright laws also comes into question. The principle of fair use which tries to protect the rights of creators and provide the public access to useful and valuable information and knowledge in the field of art

and culture has the critical problems in the age of AI. Will generative AI change the definition and purpose of fair use, more so in industries such as book, music, or visual arts today experiencing a lot of shifts in the use of AI-generated content? This paper analyses the effects of generative AI in the frame of the existing IP legal mechanisms, particularly concentrating on the challenges that the concept of copyright faces after the introduction of this new technological advancement and how the systems of the fair use modification as a response to the change.

## II. THE COLLISION BETWEEN GENERATIVE AI AND COPYRIGHT LAW

Newer and most recent technological advancement in artificial intelligence, generative AI, has posed major concerns for established laws and more so the copyright law. With the advancement of generative AI, issues regarding generation of content through and through without much human intervention including but not limited to text, music, images and videos, brings tendencies like copyright infringement, questions on authorship and ownership. In this part of the research, it is essential to focus on the following questions: what kind of generative AI exists; which stages of generative AI lifecycle can be distinguished, and are there any risks for copyright connected with the phases of lifecycle of the generative AI.

- The Nature of Generative AI — Is It Possible To Face A Claim For Copyright Infringement?

Unlike the traditional artificial intelligence systems that work by analyzing and resolving data and information, generative AI is aimed to generate completely new outputs. For instance, ChatGPT: This is an AI model derived from the Transformer network structure. The training of this model is done by employing unsupervised learning technique. This makes it an opportunity as well as a threat to intellectual property especially the copyright law due to its ability to write text on its own with reference to massive input data.

- Key Characteristics of Generative AI: Key Characteristics of Generative AI:

- Rich Data Analysis: The generative AI is designed to trawl through large data sets in order to learn about language, its topics and construction. It is this ability to analyze to a larger degree that makes it possible to produce full and contextually meaningful content.
- Convenient Information Retrieval: Due to the usefulness of large-scale data sets, generative AI can offer the user synthesized information and part of it can be fragments of copyrighted material.
- Flexible Human-Computer Interaction: That is why Generative AI communicates with users based on its understanding of the input and the reply to it. This interaction is not only reactive but proactive, there is what you can learn from the past data set in order to make future outputs better.
- Selective Response Generation: While in contrast to scoring systems which are highly prescriptive, generative AI learns how it can decide on how to respond or generate a new output, text or media content.

As handy as these abilities are when it comes to using generative AI for phenomenon such as tasks such as content generation and even research, this is a very real possibility of copyright infringement. The problems that can be associated with such application of the AI include utilization of massive amounts of data, which may contain the copyrighted content, the question arises as to whether the AI's output is a new creation or an unlawful copying of the copyrighted work.

For example, if generative AI produces a text summary of a copyrighted book without permission, it could harm the market value of that book, infringing on the copyright holder's rights. As generative AI continues to evolve, its potential for creating complex and nuanced content only increases, making it harder to determine where original creation ends and infringement begins.

- Future Implications of GPT Models:
- Expanded Model Size: Future iterations of models like GPT may feature larger neural networks,

allowing them to perform more complex generative tasks.

- Ethical Concerns: As AI models become more autonomous, concerns about fairness, bias, and discrimination will intensify, raising additional questions about the ethical use of copyrighted materials during AI training.

The Lifecycle of Generative AI—Stage Risks of Copyright Infringement

Generative AI systems pass through several stages of development and operation, each of which presents unique risks in terms of copyright infringement. By understanding the lifecycle of these AI systems, we can better identify points where infringement risks are most pronounced.

The Lifecycle of Generative AI—Stage Risks of Copyright Infringement

Model Re-Optimization Stage	The AI continues to learn and improve through self-learning based on prior data inputs and generated outputs.	Service providers may not directly control this phase, but they remain liable for ensuring the data used in re-optimization does not infringe on copyright or intellectual property.
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- Model Training Stage:

The training phase also incorporates the process of acquiring and pre-processing large datasets which can be in form of texts, images or any other form of media accessible to the public. More so even when the providers of the data source or license data from other specialized data collectors, there is a real possibility of finding that some of the materials in the database are copyrighted. When introducing these materials, they can be used without perusing the permission of the owner, thus when the AI is training, it goes against the provision of the Copyright Act.

For instance, the AI in ChatGPT is derived from data collected from the internet and they only filtered it and therefore, this data may contain some copyrighted books, articles or artworks. While using these copyrighted materials during training may not be obvious, they may turn out to have legal repercussions in the resulting AI content when its product is very similar to the copyrighted material.

As these hazards are not always well defined another big risk is that they could be transposed in the subsequent phases in the AI’s lifecycle and lead to additional copyright violation.

- Model Operation Stage:

After voicing the AI, the users can communicate with it in the form of typing commands and getting the result in content generation. This stage is another concern of copyright law especially where users seek for summaries, rewrites or adaptations of the copyrighted work. For instance, a person may use ChatGPT to do a quick synopsis of a recently published book, thus effectively competing with the

Lifecycle Stage	Description	Potential Copyright Infringement Risks
Model Training Stage	In this initial phase, service providers feed vast datasets into the AI to train it in generating content.	Use of copyrighted data in training, even if purchased or licensed from collectors, could carry infringement risks if the data isn't appropriately cleared for use.
Model Operation Stage	Users interact with the AI by inputting commands to generate content, such as text summaries or image creation.	Generative AI may produce output based on copyrighted material, risking infringement if the generated content replicates or adapts existing copyrighted works.

author by offering people a substitute for the original book when they don't pay the author for it.

The legal issue that arises at this stage is that although the AI is not directly replicating the content of the piece but is coming up with derivative that are in essence the same as copying from the copyright holder's work thus violating the copyright holder's exclusive rights. This leads to such important questions as defining the liability of AI service providers and the regulation of copyright in relation to such new challenges.

### III. CASE STUDY ON FAIR USE AND GENERATIVE AI

Frankly, as generative AI creates content at an accelerating speed, coupled with the creative domain, the legal framework has yet to effectively fit traditional copyright methods, including fair use. By now, several overseas experiences have begun to problematize this a complicated issue, shed light on the changing legal reality. Another case that is a good example of the continuous controversy over fair use in creative works is *Andy Warhol Foundation for the Visual Arts, Inc. v. Lynn Goldsmith*, which can be considered to affect the debate about generative AI and copyright law discussions indirectly.

The cases included in the present research are the *Goldsmith Case*, which is located in United States of America.

The case of *Andy Warhol Foundation for the Visual Arts, Inc. v. Lynn Goldsmith* decided by the U. S. Supreme Court on May 18, 2023 did make a typical impact as courts are interpreting the fair use in today's context. Specifically in this case the artist Andy Warhol derived his original image from a photograph of the musician Prince by Lynn Goldsmith, specifically an image taken from the *Prince Picturesque* book. First, the Warhol Foundation defended that these prints were created in a contemplative purpose and fits into the fair use criteria established in the Section 107 of the U. S. Copyright Act because the original image has been transformed into new image with different meaning and purpose.

This argument had some merit in a lower court which stated that the transformation of the photograph into a

new type of artistic work address the fair use standard and thus found in favor of the Warhol Foundation. However, the complain gained the attention of the U. S. Court of Appeals for the Second Circuit that overturned the lower court's decision on appeal. Specifically, the appeals court stated the reason was that Warhol's work did not modify the original image to such an extent as to constitute fair use. This led the case to Supreme Court.

The Supreme Court's ruling focused heavily on the first factor of the fair use test: ; whether the use being made of such works was for commercial purposes or for nonprofit educational purposes Furthermore, the court analyzed whether the new work contained anything different from the original work and whether the new work had a different function. Warhol subjected a photograph of Prince to the reproducible processes of silk-screening for commercial licensing purpose therefore he did not create a new purpose that would not be served by the photograph. Therefore the arguably commercial and profit-motive aspect of Warhol's works was against the claim of fair use. The Court stated that prints were a copyright infringement of Goldsmith since the latter failed to meet the standards of offering new ideas or different form of expression.

This paper will explore the *Goldsmith case* and seek to establish the impacts that this case holds and the future it paves for Fair use.

The *Goldsmith case* is relevant in the context of certain more general aspects with regard to fair use rules, and in particular with regard to new channels of media dissemination, such as generative AI. Prior to this decision, there were so many discussions about fair use and the so-called 'transformational use' created under *Campbell v. Acuff-Rose Music, Inc.* Earlier, the Supreme Court has said that works that contain 'new expressions, meanings or messages' can be protected with the help of the fair use. However, as seen in *Goldsmith decision*, the Supreme Court changed the emphasis and made it clear that although transformation it invariably one of the fair use factors, it is not the only factor that determines it.

Note that the Court also stressed that one more criterion for fair use is if the new work may negatively impact the market for the original work. In *Goldsmith*, Warhol's prints were used commercially thus making

them a viable market for the Goldsmith’s photograph hence canceling out the fair use argument. This change in meaning means that in order to qualify for the protection of copyright the new work must perform the same or a competing function in the market as the old work.

This ruling has significant implications for generative AI, which can produce new works based on existing content. AI systems, such as those that generate art, music, or text, often rely on vast amounts of pre-existing creative material. Under the *Goldsmith* ruling, courts may now look beyond whether AI-generated works are transformative and ask whether they serve a similar commercial purpose to the original works they are based on. For example, if an AI-generated image is used in a commercial context in a way that competes with the market for the original work it is based on, it may be less likely to qualify for fair use, regardless of how "new" or "different" the AI-generated content appears.

- Key Factors in the Fair Use Test Post-Goldsmith Ruling

Fair Use Factors	Traditional Application	Post-Goldsmith Interpretation
Purpose and Character of the Use	Focused on transformative nature (new expression, meaning, or message)	Greater emphasis on whether the use is commercial and competes with the original work
Nature of the Copyrighted Work	More protection for creative works than factual ones	Remains largely unchanged
Amount and Substantiality of the Portion Used	Use of small or insubstantial part may favor fair use	Remains a consideration but with less emphasis

		compared to the market impact
Effect on the Market	Examined but often secondary to transformative use	Now a central factor, particularly if new work competes with original in the market

Shall we apply the Goldsmith Ruling to Generative AI The Goldsmith ruling has straight applicability for court cases and how they can address them, especially in the context of FAIR USE. The main problem in the case of AI-generated works is that such works are usually built with reference to parametric sets of already produced creative works. Nevertheless, if, for instance, the generative AI comes up with song lyrics or a script, the given court case shows that its outputs will be deemed more original than Goldsmith, but still rely on the same source, courts will focus more on whether the AI-created work performs the same function in the market for the original works that it copies.

For instance, if an AI system creates artworks that are used in commercial and in a manner that threatens the original artists’ livelihood, this would go against the fair use defense. This is especially the case if by changing the style and format of the work, the AI-generated work may be deemed a commercial use with the potential to affect the marketplace which was the crucial factor in the Goldsmith case where the court found against fair use.

This is quite appropriate at this time especially with the increasing incorporation of artificial intelligence in areas like advertisement, media, and other related sectors where human and Artificial intelligence interventions can hardly be distinguished. The ways in which the legal doctrine of fair use has shifted and is likely to shift will be especially important in regard to how generative AI systems and the contents they produce will be considered by the copyright law in the future.

- Reshaping the Standard for Fair Use with Generative AI

Analysis of the “Three Step Test” and its drawbacks  
The roots of the fair use doctrine can be traced back to the English common law and its main purpose for the several centuries has been to protect the rights of copyright owners as well as the interests of the public, thus promoting the cultural progress and sharing of the accumulated knowledge. Internationally, a set of rules known as the “three-step test” is enshrined in the Berne Convention (Article 9, Section 2) as having the effect of containing a guideline as to when the use of copyrighted material constitute fair use. This test stipulates that:

Actual fair use ‘should be limited to only certain special cases’.

Potentially it should not impede the “ordinary use” of the work to the extent that it distorts a viewer’s perceptions.

It also should not infringe on the rights holder’s legitimate interest in a way that is prejudicial to his/her interest, unreasonably.

Nonetheless, the application of this test to generative AI provides considerable difficulties. First, the fact that most of the generative AI is premised on big data sets means that there is little sense in trying to speak about ‘special cases’ where the AI was used in relation to copyrighted works. Second, looking at how generative AI works, that is mimicking and producing new work from the existing ones, it contradicts the traditional exploitation of creative work. For example, plagiarism-like AI-created content that looks like copyright-protected works can decrease the material’s demand and, therefore, its market value. Last, if creators and rightsholders insist on getting paid each time an AI utilises copyrighted content, the costly outcome will stifle innovation and new industries relying on these technologies.

#### Why There is a Need for a “Transformative Use” Standard

Considering such restrictions it is necessary to give a second thought about the applicability of the ‘three-step test’ in cases involving AI-related uses of

copyrighted work. A more apt concept therefore would be ‘transformative use’. This is a principle that already forms part of the US copyright laws and one that has featured in such cases as the *Andy Warhol Foundation v. Goldsmith* one whereby the extent to which the new work serves a new purpose as well as the character of the use were deemed central to the classification of the new work as either transformative or not. In the case of generative AI, the transformative use standard would assess the extent to which AI recontextualises copyrighted content for a different purpose or purpose with different meaning and value, to that of the original work.

Transformative use offers several advantages in the realm of generative AI: Transformative use offers several advantages in the realm of generative AI:

**Fostering Innovation:** It serves to limit liability for owning AI-descended products by eliminating grievances that may lead to expensive trials thus preventing the economic load of the copyrights from hindering innovation in developing superior AIs.

**Balancing Interests:** It encourages the protection of the intellectual property rights of authors while the broader public gets the chance to enjoy the creativity that is AI biology brings. This balance is important in order to keep the ecosystem the exciting place where content creators can cooperate with technology developers.

However, if the principle of the transformative use is to be applied to generative AI, the Courts and legislators would have to pay attention to inputs and outputs phases of AI processes. For example, data for training the AI could be a fair use because the processing that occurs inside the AI is a form of transformation qualitatively different from a regular human using a copyrighted material. The AI does not merely replicate the work, but it really builds on works while at the same time creating new and unique content. However, if the output of AI is ‘substantially similar’ to the copyrighted work from where it has learned such output then such output may come within the prohibited Zone of fair use as this would be infringing the rights holder exclusive rights to control the creation of derivative works.

## CONCLUSION

The current and emerging use and advancement of the generative AI technology have come with three unique issues into the IP legal structure especially in the area of the copyright law. As this article has indicated, AI created works complicate the fundamental principles of copyright which are authorship, ownership and originality. No human person controls the creation of such works and thus the question arises as to who, if anyone, should be considered to be own such products. Current legal structures which are based on human brilliance cannot cope with present AI-created work.

In addition, the appearance of art created by artificial intelligence complicates the definition of creative works. The advancement of generative AI in its capacity to generate original, creative content in all, literature, art and music stands to erode the basic tenets of copyright law. This gives rise to critical issues in relation to the extent of protection that copyright affords and to other creations than human beings. More importantly, lawmakers and politicians have the question of when and how the current copyright legislation should incorporate the use of AI into the creative economy.

Finally, there is also a question of infringement and especially, the fair use in the case of the generative AI. Due to the characteristic of AI to work with large datasets, mimic previous works and produce new content, there are possibilities of infringement, even where not intended. The problem of the massive and growing amount of AI-generated content suggest that they are rapidly becoming almost impossible to monitor and prevent from violating the copyright. In this regard, the traditional approaches to the management of copyright might quickly get irrelevance leading to the development of new approaches such as the use of Artificial Intelligence in the regulation of copyrights.

These arguments do not only point towards only the conflicts that pertain to copyright law but also to entire IP legal structure. Thus, as technology is ever-moving ahead of the law, continued international cooperation, the development of new legal approaches and interdisciplinary collaboration will remain crucial in

creating the legal framework that would adequately regulate generative AI and, at the same time, encourage creativity while protecting the rights of authors.

Thus, it is found that transformative use of generative AI in number of fields can't be ignored while at the same time proper integration of generative AI in creative process raises several questions pertaining to the protection of intellectual property. Technology and innovation are very essential in the modern world, therefore governmental authorities have a big challenge of balancing on the rights of the human creators and encouraging for the technology growth. Hence, the law has to reflect on the unfolding realities of AI creativity and ways of relating with this technology so as to be effective in the increasing technological advancement era. Only through the deep and systemic IP legal amendment and through the international cooperation, the IP legal system can perform its initial function in the future containing the AI technologies.

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