

Pressing "Generate" Is Not Enough to Claim Ownership of What Your AI Tool Creates

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ABSTRACT

This paper explores the copyright protection issues surrounding AI-Generated Content (AIGC). With the rapid development of AIGC technology, intense debates have been sparked over its legal recognition and copyright protection. By analyzing the four key elements of copyright protection—authorship, originality, fixation, and the idea/expression dichotomy—this paper concludes that AIGC should not be eligible for copyright protection. Firstly, the "black-box" nature of AI models makes it difficult for human creators to predict and control the specific outcomes generated by AI. Even carefully crafted prompts cannot ensure deterministic outputs. This undermines the causal link between human creators and the final work, making it hard to regard AI-generated works as direct products of human creation. Secondly, the prompts input by users typically convey only the themes or concepts for creation, while the actual "expression" of the work, such as the generated images, is produced by the AI. Since this "expression" is not directly created by the user, it should not be protected by copyright law. Moreover, even if AIGC meets the criteria for copyright protection, granting it such protection is both unnecessary and impractical, and could have negative impacts on human creators. This paper suggests that licensing agreements and royalty systems, rather than traditional copyright mechanisms, should be used to protect the interests of creators. In the future, the legal community and various industries need to work together to establish clearer and more effective protection mechanisms to ensure the healthy development of AI technology and balance the legitimate interests of rights holders.

KEYWORDS

AI-generated content (AIGC); Copyright protection; Human authorship; Idea/expression dichotomy; Creative control

1 Introduction

Imagine a world where a machine can turn your wildest imagination into a breathtaking piece of art in just seconds. This is no longer science fiction; it is the reality of AI-generated content (hereinafter referred to as AIGC). AIGC is content created by artificial intelligence systems, often based on inputs provided by humans. In this paper, the primary focus is on the text-to-image generation scenario. Platforms like Midjourney and DALL-E have revolutionized the way art is created and perceived, enabling the generation of stunning images with just a few keystrokes. It has not only transformed the creative landscape but also sparked a contentious debate over the legal recognition and copyright protection of AIGC.

At the heart of this debate lie some pivotal questions: Can AI-generated works truly be considered the product of human authorship? Should these works be eligible for copyright protection?

One of the most intriguing and impactful cases that highlights these challenges is the controversy surrounding *Zarya of the Dawn*. All the elements of a standard comic book were present in this 18-page story: characters, dialogue, and an abundance of pictures. However, what set it apart was that all of these elements were generated using Midjourney, a text-to-image AI generator. This graphic novel initially made history when the U.S. Copyright Office granted it a copyright registration in September 2022, seemingly acknowledging the role of AI in creative processes. However, just a few months later, the office partially rescinded this registration. The pictures were not protected because the images were determined to be "not the product of human authorship" but rather the outcome of text prompts that produced erratic outputs based on the AI's training data.

The official stance of the aforementioned case is also the position of this paper, namely that AI-generated content (AIGC) should not be eligible for copyright protection. This conclusion is reached after a thorough examination of the key elements required for copyright protection and the broader implications of extending such protection to AIGC, with a primary focus on the role of human-provided prompts as the main interaction between AI and users.

Part two provides an overview of the copyright framework and its application to AIGC, focusing on the four key elements required for copyright protection: (1) work of authorship, (2) originality, (3) fixation, and (4) idea/expression dichotomy. While originality and fixation are relatively straightforward and typically satisfied, the analysis will concentrate on the more complex elements of work of authorship and idea/expression dichotomy. Next, part three explores the requirement for human creators to have decisive control over the creation process, which is a fundamental condition for a work to be recognized as a "work of authorship". Part four analyzes whether human input in the form of text prompts can be considered a direct creative contribution to the expression of the output or merely represent ideas. Finally, part five considers the necessity and feasibility of granting copyright protection to AI-generated works, weighing the potential benefits against the practical challenges and negative consequences.

2 Analysis of the current copyright law framework

The copyright framework does not clearly protect works created by AI, thus requiring specific analysis under the current framework of copyright law. The Copyright Act of 1976 serves as the legal authority in the United States that delineates the framework for copyrighting. The Act stipulates that “[c]opyright protection subsists . . . in **original works of authorship fixed in any tangible medium of expression**, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device (emphasis added).” It is clear that to determine whether images generated by AI through prompts can be copyrighted, these four key elements required for copyright protection need to be analyzed: (1) work of authorship, (2) originality, (3) fixation, and (4) idea/expression dichotomy.

2.1 Originality

The Feist case established that originality is a low standard, requiring only independent creation and a “modicum” of creativity. The requisite creativity for copyright protection need not be substantial; even a modest amount suffices. Building on this, even if users only provide the most basic instructions and the AI is responsible for the majority of the creation, it can still meet the low creativity threshold set by the *Feist* standard.

2.2 Fixation

The fixation requirement is straightforward in the context of AI-generated images. According to the Copyright Act, a work must be fixed in a tangible medium of expression. Since AI-generated images are typically saved in digital formats that can be perceived, reproduced, or communicated, they meet the fixation requirement.

In summary, originality and fixation are easily met in AI-generated content. However, the complex issues of “work of authorship” and “idea/expression dichotomy” require further analysis to determine copyright eligibility. These elements will be the focus of the subsequent discussion.

3 AIGC is not a work of human authorship

In the realm of copyright law, the concept of “work of authorship” has long been predicated on the fundamental requirement of human authorship, emphasizing that human creators must be the legally significant causative agents behind the fixation of a work. Humans often lack sufficient control over the creative process of AI-generated works, which undermines the necessary causal connection required for copyright protection. It further critiques the notion of AI as merely a creative tool, highlighting the distinct autonomy and influence of AI in shaping the final output. Consequently, it becomes dubious whether such a situation can be classified as a “work of authorship” eligible for copyright protection.

3.1 One of copyright’s fundamental requirements is human authorship

Human authorship has always been central to U.S. copyright law. Both the constitutional basis and the specific provisions of the copyright law, as well as the practices of the courts, all emphasize the importance of human authorship.

The Constitution bases copyright on the premise that exclusive rights will incentivize individuals to create. The Copyright Act of 1909 explicitly required that a “person” secure copyright for “his work”. This understanding carried forward into the current 1976 Copyright Act. The term “author” in the Copyright Act, while not explicitly defined, suggests that Congress intended to refer to “a human author.” A copyright’s duration, for instance, is “the life of the author and fifty years after the author’s death.” This phrase suggests that an author is a mortal being—human rather than an artificial construct. The stance of no copyright for works without human authorship appears to have been held by the Register of Copyrights since 1965, and has since gained widespread recognition. Numerous commentators and scholars assert that the condition of a “human author” is inherently suggested.

Courts have consistently denied copyright protection for works or components of works not created by people, with several instances explicitly rejecting such claims on the basis that copyright exclusively safeguards human-authored works. Therefore, works created by non-humans are generally not protected by copyright law. Next, the examination focuses on whether there is an unbroken chain of causation between the human contribution to the work and the fixed image.

3.2 Lack of causation between human’s contribution and the generated image

Courts should deem their contribution insufficient to satisfy the copyrightable causation if users have insufficient

control over the creation process.

This article argues that humans lack control over the creative process or have insufficient control. *First*, due to the black-box nature of the artificial intelligence model, even careful prompts do not produce certain outcomes, and users lack creative control over the results. *Second*, the human contribution is merely the input prompt, as users do not participate in the development of the artificial intelligence model. Based on these two reasons, the author believes that generative artificial intelligence is different from traditional creative tools. Given that the generated outcomes are predominantly determined by the AI itself, the causal connection between the user's input and the final results is significantly weakened. Consequently, it becomes dubious whether such a situation can be classified as a "work of authorship" eligible for copyright protection.

3.2.1 Lack of predictability and creative control

The Copyright Office has stated that "the process is not controlled by the user, as it is impossible to anticipate what Midjourney may generate in advance." The unpredictability makes it impossible for users to accurately predict and control the output of AI models. Therefore, there is a lack of causal relationship between human contribution and the final generated image.

AI technologies inherently have limitations in predicting their behavior. This is partly because AI models are highly complex and large-scale digital models, and partly because modern neural network models are based on non-linear processing and probabilistic reasoning, which are intrinsic characteristics of the technology. AI models are often described as having a "black box" nature, as they operate in an elusive manner and are characterized as "unconscious performance". Therefore, neither users nor even developers can accurately predict what outcomes AI models will produce for any given input.

Next, the interaction between users and AI can be examined to further illustrate how this unpredictability affects control over the creative process. Most generative AI models start from a random seed. This means that no matter how carefully crafted the prompt is, it will not produce a deterministic outcome. The simplest interaction scenario is that users input a prompt and then wait for the output. If users are not satisfied with the content, they input a new prompt. Each round of AI output is randomly generated based on the prompt of that round, rather than building on the selection of the previous output. Although users may input prompts countless times, each time they are simply waiting for the output from the AI black box, unable to foresee the specific content of the AI's output. In other words, the process of representing generative AI is dominated by randomness, uncertainty, and contingency. The information in the prompt may "affect" the created image, but the prompt wording does not determine a certain outcome.

In conclusion, the creation process of AI-generated content lacks predictability and user control.

3.2.2 Lack of participation and knowledge in AI model development

The causal link between the user's conception and the AI-generated result is inherently weak, and the user's inability to contribute to the model's development further weakens this connection.

The user's contribution in the text-to-image generation process is minimal and primarily limited to inputting prompts and editing the final image using tools like Photoshop. The generated content does not come directly from the user's input. Instead, it is the outcome of a sophisticated procedure involving the analysis and synthesis of several fragments from diverse source materials. These source texts are broken down into small fragments and then processed through complex algorithms to ultimately generate new content. Moreover, AI models frequently demonstrate uniformity in style, tone, or thematic components across several outputs, mirroring their foundational training data and learning inclinations. This further restricts users' control over the creative process when using AI tools. Users cannot know precisely which techniques were used to train the model or what data was used during training. Of course, other existing creative tools may not allow users to participate in the development of the tool or fully understand its attributes either. However, at least with traditional tools, users' knowledge and experience enable them to predict the outcomes of using the tool to some extent. These traditional tools establish a direct causal link between the user's conception and external expression, and thus it can be said that the process is controlled by the tool user.

To illustrate this with a simple example, imagine an artist who wants to create a painting but does not use a brush directly. Instead, the artist employs a highly indirect method: the artist rides an elephant, paints its feet with colors, and then lets the elephant walk on a canvas to leave footprints as the artwork. The artist can only decide the color of the paint on the elephant's feet or when to start or stop the elephant's movement. The control over the final artwork is extremely limited. The elephant's walking speed, direction, and gait are beyond the artist's complete control.

Similarly, users input prompts into AI models, such as "a unicorn in the forest", which is akin to the artist painting the elephant's feet. The AI model generates content (such as images) based on these prompts, similar to the elephant walking on the canvas and leaving footprints. Users typically do not know how the AI model was trained or what data it

used. They cannot intervene in how the model processes these prompts or generates the final results. Just as the artist cannot guide the elephant to move at an ideal speed and direction, nor predict what the final painting will look like, users in the AI creation process are more like bystanders rather than true creators. Users merely provide input, and their control and understanding of the creation process are both very limited.

To sum up, the unpredictability of AI-generated outcomes, coupled with the minimal user contribution limited to input prompts, makes it impossible for users to accurately predict and control the output of AI models. Since the generated results are heavily dependent on the generative AI, this severs the causal link between the user and the generated outcomes. As a result, this situation is unlikely to constitute a “work of authorship” protected by copyright.

3.3 AI is more than just a creative tool.

Based on the above analysis, the “AI as a Creative Tool” theory advocated by some scholars is clearly untenable. The theory overlooks the independence and autonomy of AI in the creative process, conflating it with traditional creative tools, which is a fundamental misunderstanding.

Traditional creative tools, such as paper and pen, word processing software (Microsoft Word and WPS), or graphic design software (Photoshop), merely serve as aids for creators to express their intentions. They do not independently determine the expressive elements of a work but faithfully reproduce the creator’s input. For example, if a writer inputs text into Microsoft Word, the software will record it exactly as written, without altering the writer’s choice of words or sentence structure. Similarly, if a photographer takes a photo of the same scene using different brands of cameras or smartphones, with identical shooting parameters, the content of the photos will be essentially the same. However, AI operates differently. The content generated by AI is determined by its algorithms and training data. Even with the same input prompt, AI can produce different works. This demonstrates that AI is not merely a tool that executes human instructions but is a creative entity in its own right.

Take the example of different students creating paintings based on the same instructions. An art teacher gives 30 students detailed, specific, and creative painting instructions. These instructions can influence the content of the students’ paintings, but the 30 paintings completed by the students are clearly not the teacher’s creation, as each student’s work reflects their own creativity and style. Similarly, the content generated by AI reflects its algorithms and training data, not the intentions of the human user. Therefore, it is unreasonable to regard AI as a mere “creative tool”, as AI’s output is not entirely controlled by humans but is determined by AI’s own algorithms and training data.

In summary, owing to the substantial influence of the generative AI on the results, the direct causal relationship between the user and the generated content is effectively undermined. Therefore, it is improbable that this scenario would qualify as a “work of authorship” within the scope of copyright protection.

4 The input prompts are considered ideas, rather than expressions

Having established that human creators lack decisive control over the creation process, thereby failing to meet the “work of authorship” requirement, attention now turns to another key element: the role of the human contributions (input prompts). Copyright law does not protect abstract ideas. While the prompts, despite their specificity (over 600 times), may seem detailed, they are still considered “ideas” relative to the final generated image. The image content outputted by the AI system appears to be an “expression” of a work, but this expression does not originate from the user; it comes from the random output of the AI system. Users contribute only “thoughts” through the prompts, but not to the “expression” of the generated image. Since the “expression” of the image is contributed by the AI, not the user, it should not be protected by copyright law.

4.1 Copyright does not protect abstract ideas

Copyright law offers broad protection for creative works, but it has important limitations. Section 102(b) of the Copyright Act specifies that not all creative matters are the proper subject matter for copyright protection. Ideas, systems, facts, discoveries, or concepts cannot be copyrighted. This is known as the idea/expression dichotomy, which aims to leave authors some freedom to express themselves creatively. In other words, an expression of an idea may be protected by copyright, but the idea itself cannot. For instance, an individual may compose a book or design a representation of a blue elephant and assert ownership of the latter, but they are unable to assert ownership of the fundamental concept of blue elephants.

If the results contributed by someone do not constitute an expression in the sense of copyright law, it means that he has not engaged in a creative act in the sense of copyright law. Therefore, the final results of artificial intelligence creation naturally cannot be endowed with copyright.

4.2 Compared to the generated images, human contributions (input prompts) are abstract ideas

The expression of a work is actually conceived and executed by a machine, not by humans. Human contributions are merely ideas.

Text prompts may act as operational directives or parameters instead of creative expressions, serving primarily as instruments or inputs to direct AI systems. When users employ generative AI for drawing, the text prompts inputted in a single round may potentially constitute a literary work (expression), but in most cases, they merely outline or define very abstract content in the output graphics of AI.

The image content outputted by the AI system clearly appears to be an “expression” of a work. However, this expression does not originate from the user but from the random output of the AI system. Because users did not contribute to the substance of the expression, the court held that they should not be recognized as the author. Moreover, since the marginal cost for the AI system to output such “expressions” is almost negligible, the majority opinion in academic holds that copyright law is not necessary to protect such “expressions”.

Furthermore, the act of users inputting prompts into a well-trained AI model is akin to ordering a cake of a specific flavor. This analogy indicates that it is the AI, rather than the user, that is making the cake. Even though it is similar to commissioning a creation, the generated images cannot be granted copyright because AI is not human and cannot be a commissioned creator. In *Community for Creative Non-Violence v. Reid*, the Supreme Court emphasised that simply commissioning the sculpture and offering comprehensive proposals and directives were seen as inadequate, as these contributions represent unprotected concepts.

To conclude, users merely provide “ideas” via prompts, yet they do not contribute to the “expression” of the generated image. Given that the “expression” of the image originates from the AI rather than the user, it should not be subject to copyright protection.

5 The necessity and feasibility of granting copyright to AI-generated works

Alternatively, even if one were to argue that some AI-generated works meet the four key elements required for copyright protection, significant concerns arise when considering both the necessity and feasibility of granting them such protection. On one hand, AI technology has already been propelled forward by a vast number of users, and its innovation and application would continue to thrive even without copyright protection. On the other hand, granting copyright to AI-generated works could lead to a series of negative consequences and would be difficult to effectively implement in practice.

5.1 Granting copyright to AI-generated works is not necessary

The development and application of AI technology have already been propelled by a vast number of users, and its innovation and application would continue to thrive even without copyright protection.

Firstly, AI technology is primarily driven by market demand. For example, AI’s use in creative industries, like generating art and text, has shown strong commercial potential. This market demand is a powerful incentive, and developers will continue to invest in AI research and application regardless of copyright protection.

Additionally, the incentive mechanism of copyright law is not applicable to AI-generated content. The core goal of copyright law is to promote innovation by incentivizing creators, which is mainly based on utilitarianism. This theory posits that granting a creative individual copyright over certain works enables them to recover expenses and generate profit from their artistic endeavours, thereby providing motivation for the creation of new expressions. However, AI systems themselves do not need copyright protection to obtain economic returns because their development and operation mainly rely on technological capabilities and market demand. Moreover, the output of AI requires little human labor or creative intent, and there may be reluctance to grant human authors copyright over AI-generated output.

Lastly, in addition to copyright protection, the development of AI technology is also driven by other forms of incentive mechanisms, such as patent protection and market reputation. For example, developers hope to win market share and user recognition by providing high-quality AI services.

5.2 Granting copyright to AI-generated works would have a series of negative consequences

Granting copyright to AI-generated content could have multifaceted negative impacts on human creators.

First, the massive output of AI-generated works could squeeze the market for human creators and undermine their creative motivation and economic benefits. A notable feature of AI is its ability to generate a vast number of works at a low cost and in a short period. For example, Philip Parker has used AI technology to generate millions of books and poems. This large-scale creative capacity far exceeds the speed and quantity of human creators’ output. If these AI-

generated works are granted copyright protection, they would gain the same legal status as works created by humans. This could lead to a market flooded with AI-generated works. As a result, human creators' works might be marginalized, making it difficult for them to gain sufficient exposure and economic returns, thereby weakening their motivation to continue creating.

Second, copyright protection for AI-generated works could lead to legal chaos. AI may use a large number of copyrighted works during its learning process and AI-generated content often includes expressions similar to those in the training data. For example, if AI learns a large number of images of "sunsets" during training, the sunsets it generates may include similar colors and compositions as those in the training data. Works generated by inputting prompts may constitute "copying" or "adaptation" in the sense of copyright law. Copyright law usually has some exceptions that allow the use of these works under certain conditions without constituting infringement. However, currently, the law has not yet clearly defined which works AI can legally use in the training process and under what conditions the use of these works would not constitute infringement. In addition to the uncertainty of the scope of exceptions for infringement, there is currently a lack of a compensation system for rights holders for the use of works in AI training. This means that even if AI developers use copyrighted works in the training process, rights holders may not receive reasonable economic compensation. This lack of compensation could lead to rights holders being antagonistic towards the development of AI technology, and creators might give up creating due to concerns about infringement risks, thereby shrinking the ranks of creators.

5.3 Granting copyright to AI-generated works currently lacks feasibility

Should the decision be made in the future to extend copyright protection to AI-generated works, it will be exceedingly challenging to quantify and delineate the requisite degree of human intervention for eligibility.

In the process of generating AI content, the degree of human involvement can vary greatly. Distinguishing between works in which human creators have exerted minimal effort and those in which they have invested significant effort would be an extremely challenging task. In some cases, humans may simply input a prompt, with the AI completing the majority of the work, while in others, humans may provide extensive guidance, modifications, and refinements to the AI-generated content. How can one determine a creator's "sufficient" participation—based on time, effort, or creative contribution? There are currently no clear standards or benchmarks to guide such judgments.

In the lack of explicit criteria or benchmarks for evaluating originality, adjudicators must depend solely on subjective evaluations and contextual factors to provide rulings. For instance, they might take into account the creator's specific contributions during the creative process, their creative intent, and the overall value of the work. The lack of clear guidelines and precedents means that this reliance on subjective assessment can lead to instability and unpredictability in the legal framework. Different judges may reach different decisions in similar cases, which not only causes confusion for creators and legal practitioners but also poses a threat to the stability of the entire copyright legal system.

In summary, granting copyright to AI-generated content is not only unnecessary but also likely to bring about a series of negative consequences and is highly impractical to implement effectively.

6 Conclusion

Despite calls for greater protection of AI-generated content, the U.S. Copyright Office, following an examination of substantial public input, including more than 10,000 comments from creators, legal professionals, and technological firms—has concluded that existing copyright laws are sufficient to address these issues. This paper argues that under the current copyright framework, AI-generated works do not meet the criteria for copyright protection, and it is neither necessary nor feasible to grant copyright to AI-generated works. The human contribution to AI-generated works is difficult to quantify, and as AI-generated content proliferates, case-by-case determinations of which works should be protected by copyright would create a significant burden.

However, this does not imply that the use of AI-generated works should be ignored or overlooked. On the contrary, the implementation of licensing agreements and royalty systems is already sufficient to guarantee that creators obtain just remuneration for their AI creations and the copyrighted materials used in AI training, without resorting to traditional copyright protection mechanisms. Through licensing agreements, creators can explicitly authorize others to use their AI-generated works and stipulate the scope, duration, and conditions of use. Moreover, when AI-generated content is utilized, users can pay a certain fee (royalties) to the creators via the royalty system. By employing digital watermarking, blockchain, and other technologies, AI-generated works can be marked and tracked, thereby effectively preventing infringement.

While licensing agreements and payment schemes may offer certain safeguards for creators, the protection of AI-generated works still faces many challenges. In the future, it is hoped that clearer and more effective protection

mechanisms will be established. This will require not only the active participation of the legal community but also the concerted efforts of all industries to ensure the healthy development of AI technology and the balance of rights holders' legitimate interests.

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