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# The Evolving Role of Copyright Law in the Age of AI-Generated Works

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## Keywords

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work of art

## Abstract

**Objective**: to identify the prospects and directions of copyright law development associated with the increasing use of generative artificial intelligence.

**Methods**: the study is based on the formal-legal, comparative, historical methods, doctrinal analysis, legal forecasting and modeling.

**Results**: the article states that the emergence of generative artificial intelligence makes one rethink the processes occurring in the field of creative activity and the traditional copyright system, which becomes inadequate to modern realities. The author substantiates the necessity of legal reassessment of copyright and emphasizes the urgent need for updated means of copyright protection. Unlike previous digital tools, which expanded human creativity by improving original works, generative artificial intelligence creates content through complex algorithmic processes, blurring the boundaries of authorship and originality. The research shows limitations of existing intellectual property law, as courts deny copyright in works created by artificial intelligence and insist on the need for "human authorship". Such decisions emphasize the contradiction between existing laws and the reality of co-creation involving artificial intelligence. It is argued that taking into account the creative potential of generative artificial intelligence will facilitate the evolution of copyright law towards hybrid approaches, with artificial intelligence as an integral, albeit secondary, tool. It seems promising to create flexible intellectual property standards that give artists the opportunity to restrict or authorize the use of their works as training data for artificial

intelligence, as well as ensure that authors retain control over their works included in datasets for training artificial intelligence, in case copyright metadata is integrated into digital works, etc.

**Scientific novelty**: based on the analysis of the latest judicial precedents, modern international regulations and evolving institutional practices, the author proposes a balanced adaptive approach to copyright reform to ensure the ethical integration of generative artificial intelligence into the creative ecosystem and to develop flexible copyright protection measures that correspond to the rapid technological progress.

**Practical significance**: the proposed combined approach will allow generative AI tools to become part of the human creative process in the same way that previous generations used digital tools. At the same time, it will contribute to the creation of an environment where the autonomy of authors is respected. This will not only protect the creators of creative content, but also broaden the understanding of creativity as a collaboration with generative artificial intelligence, where artificial intelligence is positioned as a force that complements but not replaces humans in creativity.

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## Content

## Introduction

Artificial intelligence (AI) has disrupted creative industries more quickly than any previous emergent technology, providing tools that enable unprecedented levels of content generation and artistic innovation. For instance, ChatGPT, launched by OpenAI in late 2022, quickly set a record as the fastest-adopted technology in history by reaching one million users in just five days, followed by over 100 million monthly active users by January 2023[1]. From generating music and visual art to drafting written content, generative AI (GAI) technologies like Claude, Stable Diffusion, and Runway have expanded the creative landscape, offering both opportunities and legal challenges. Such technologies work by employing machine learning (ML) models that produce new content based on patterns learned from vast datasets (Feuerriegel et al., 2024; Kretschmer et al., 2024). Unlike more traditional tools like cameras or Photoshop, which require direct human input to capture or edit existing content, GAI models are trained on extensive datasets, often containing text, images, and other media, to learn structures, styles, and elements within these media. As such, the «generative» in AI refers to the ability of the model to create entirely new content by combining learned elements in ways that simulate human creativity, rather than simply modifying existing content (Epstein et al., 2023).

For example, Stable Diffusion and Runway generate images by using neural networks trained on large collections of images, where they learn to reproduce certain visual patterns. Given a textual description or prompt, these models can generate new images that match the prompt's specifications. This process, based on diffusion models or transformers, is able to synthesize new visual or text content that might look like a human-made piece but is derived from algorithmic understanding rather than human-originated design or manipulation (Fig. 1) (Moreno et al., 2023). At the same time, creators can use prompt engineering to achieve creative output that more closely aligns to what is intended. The level of control over these tools is thus variable and dependent upon human input in terms of a textual prompt, image, video, or sound clip to generate a new output.

[1] Gordon, C. (2023, February 2) ChatGPT Is The Fastest Growing App In The History Of Web Applications. Forbes. https://clck.ru/3ELfZi

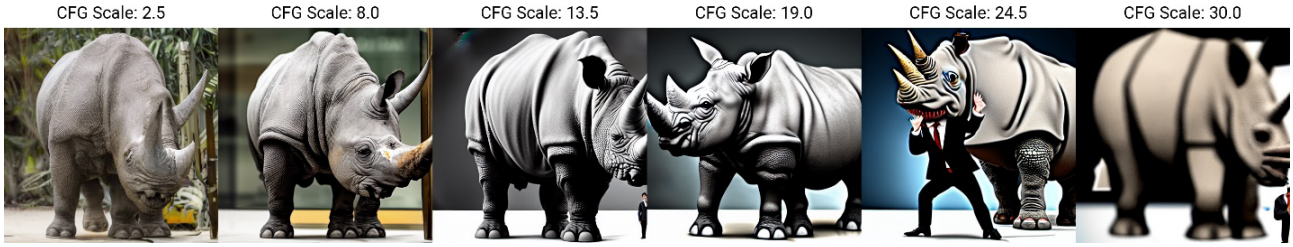


**Figure 1. Rhino XY Plot with Different CFG Scale, Stable Diffusion. December 12, 2022. (CC 0)**

The variability in human involvement in the creative process is what makes GAI stand apart from other creative tools in that it can function without needing a direct creative act from the user, like taking a photo or designing an image from scratch. Tools like cameras and Photoshop have come to be seen as serving as extensions of human creativity; they depend on the direct actions and decisions of a human. A camera captures real-world images, Photoshop enhances or modifies them, and digital imaging tools edit or create elements from scratch based on user input. But even in these examples, there are levels of human involvement in the creative process. For instance, photography involves deciding what to take a photograph of, perhaps even framing and lighting it and selecting a particular lens. At that point, the tool records and assists in converting (as in the case of digital photography) the captured light into a digital file for output. Additional creative input would then be carried out postproduction in software like Photoshop to further alter the image the machine produced. These and other digital imaging tools can slightly alter the photograph, such as changing the lighting, cropping the image, as well as introduce major alterations like removing subjects or creating new ones before final output physically or digitally for distribution and public consumption (Aaland, 2006; Kelby, 2020).

The levels of human involvement in creation are what is highly contested with GAI, as it is seen to autonomously interpret prompts to output new, algorithmically created content, leveraging its learned representations without replicating specific pieces from its training data (Risi & Togelius, 2020). This ability to create entirely new content – often indistinguishable from human-made works—introduces both opportunities and challenges. While it enables rapid content generation across industries, it also raises legal questions about authorship, copyright, and originality, as AI-generated content often lacks the direct, personal authorship traditionally required for copyright protection (Kibirige, 2024). This disruption of conventional copyright frameworks is primarily due to the historical focus of copyright law on human authorship as essential for intellectual property protection (Ploman & Hamilton, 2024). Given this, traditional copyright structures, rooted in principles of originality and intentional creativity, are struggling

to accommodate works produced or heavily influenced by AI systems, which operate through data-driven algorithms rather than conscious creativity.

A recent example illustrating the copyright complexities in AI use comes from August 12, 2024 in Andersen et al. v. Stability AI Ltd., a case where artists accused Stability AI and other GAI companies of infringing on copyrights by training their models with billions of images sourced online without explicit permission. This lawsuit, currently proceeding through the California courts, represents another example of copyright law grappling with how these tools are trained and produce content. Central to the case are questions around whether these datasets, composed of copyrighted images, can be considered infringing works and, if so, how culpability might be assigned to the companies developing and deploying these AI models (No. 23-cv-00201-WHO (N.D. Cal. Aug. 12, 2024). This development highlights the challenging position of current copyright law, which was not designed to handle data-driven processes like AI. As these platforms rely on vast amounts of data to generate creative outputs, the courts must determine whether the process of using copyrighted works to "train" an AI model constitutes infringement, or, as these companies claim "fair use" given how they were sourced and that the models do not output the works exactly. This case, alongside others involving companies like Meta and OpenAI, underscores the pressing need for updated legal frameworks that can balance intellectual property protections with the rapid advancement of technology (Spica, 2024).

While human creations were initially necessary to train these large models, the involvement of human creators in their output is questioned, especially with regard to medium. The primary issue lies in copyright's foundational requirement for originality, which implies a degree of human intention and creative decision-making. Historically, copyright law, as defined under 17 U.S.C. § 102, requires a "human author" for works to be eligible for copyright, a standard that AI-generated content challenges as these creations lack direct human authorship (Abbott & Rothman, 2023). Recent legal cases, such as Allen v. U.S. Copyright Office (2024) (1:24-cv-2665), further illustrate the legal difficulty in assigning authorship and protection to works that are perceived to have minimal human involvement. In this case, Jason Allen, an artist, sought copyright for his AI-assisted artwork, Théâtre D'opéra Spatial (2022) (Fig. 2), which was created using the GAI tool Midjourney. The U.S. Copyright Office rejected the application, citing insufficient human authorship, a core requirement under U.S. copyright law. Allen argued that his extensive use of prompts constituted a creative process, making him the rightful author. However, the Copyright Office maintained that authorship

and copyright protections require direct human creativity rather than merely guiding an algorithm[2].

Figure 2. Jason M. Allen, Théâtre D'opéra Spatial, 2022. Midjourney (CC 0)

This decision aligns with other recent rulings, such as Thaler v. Perlmutter, where the court ruled that “autonomous creations” by AI are ineligible for copyright since they lack human authorship. The dispute began in August 2019 with A Recent Entrance to Paradise (Fig. 3), an image created autonomously, according to artist Stephen Thaler, using the Creativity Machine. Because the artist maintained that the true author of the work was the machine, he was denied copyright, even though he argued that he owned the device[3]. The case illustrates the difficulties in categorizing AI-generated works under traditional copyright frameworks and signals a need for clear guidelines on the level of human involvement required for copyright eligibility, especially as AI continues to play a more prominent role in creative processes. Moreover, a better understanding

2 Brittain, B. (2024, September 26). Artist sues after US rejects copyright for AI-generated image. Reuters. https://clck.ru/3ELfmr

3 Mathur, A. (2023, December 11). Case Review: Thaler v. Perlmutter (2023). Center for Art Law. https://clck.ru/3ELfnX

of the processes used by creatives when creating content with these tools on the part of lawmakers will inevitably lead to a more nuanced understanding of "autonomous creations."

Figure 3. Stephen Thaler, A Recent Entrance to Paradise, 2023. Creativity Machine (CC 0)

Given these ambiguities, this review article explores how copyright law might evolve to better address the complexities of AI-assisted and AI-generated works, with the goal of supporting both human creators and the burgeoning field of AI innovation. Although the technology can autonomously generate creative content, there are nuanced considerations. First, even with the lack of human authorship in processes with minimal prompting, these tools and resultant content necessitates a re-examination of copyright protections, particularly as they relate to ownership, fair use in training datasets, and authorship rights (Jiang et al., 2023). Second, creatives using AI-assisted technologies should be able to copyright their work given record or demonstration of "significant human contributions". Many artists have met these criteria by documenting their process, showing that they used their own works for training their own models, and continue to mold the final appearance of works post-production (Hutson et al., 2023).

Therefore, a revised copyright framework would include flexible standards for AI-assisted works and AI-generated content that acknowledges both the rights of authors and artists to opt out of their works being used for training, which currently exists, as well as those of the creatives using the AI tools for creative output. Such an approach offers a balanced solution that encourages innovation while respecting traditional notions of creativity and authorship. Ultimately, as creative industries increasingly integrate AI, a legal reevaluation of copyright is essential to ensure that this technology supports human creativity without undermining established intellectual property rights. The task ahead is not only to accommodate the role of AI within copyright law but also to develop protections that respect the distinct contributions of human creators within AI-driven processes. Balancing innovation with intellectual property protections may pave the way for a fair and sustainable future in which AI serves as a tool for human expression rather than as a replacement for it.

## 1. Copyright Protection for AI-Generated Works

### 1.1. Human Authorship Requirement

The foundation of copyright law in the United States is human authorship, as specified under 17 U.S.C. § 102. This legal standard requires that works are the result of human creativity, a criterion applied consistently across digital and analog mediums. The legal framework is built on the premise that copyright incentivizes human creators, who possess the originality and personal input necessary to claim ownership. Recent cases such as Allen v. U.S. Copyright Office illustrate the complexity of applying this standard to AI-generated content, where courts have ruled that works created solely by AI lack the human element required for copyright (Kasap, 2021; Bridy, 2016). This requirement reflects the essential "human touch" in copyright, mandating that creative works contain elements of independent, original input, a notion that has remained central to U.S. copyright law despite advancements in technology.

### 1.2. The Role of Foundational Cases in Establishing Human Input

Landmark cases such as Bridgeman Art Library v. Corel Corp. and Meshwerks, Inc. v. Toyota Motor Sales, U.S.A., Inc. have further reinforced that copyright protection requires human input, particularly in the digital domain. These cases highlighted that digital reproductions or works without substantial human intervention lack originality and are ineligible for copyright. In Bridgeman v. Corel, the court ruled that photographic reproductions of public domain artworks were mere mechanical copies, with insufficient

creative input to warrant copyright protection (Kasap, 2021). This ruling underscores that digital reproductions or AI outputs are not automatically granted copyright unless there is meaningful human creativity involved. These precedents emphasize the need for tangible human input, a standard that AI-generated works challenge due to their reliance on machine learning algorithms that operate with limited human oversight (Burylo, 2022).

Another critical case is Meshwerks v. Toyota, 528 F.3d 1258 (10th Cir. 2008), which involved the creation of digital wireframe models of Toyota vehicles. Meshwerks, a digital design company, created these models for Toyota's marketing materials, but Toyota used them beyond the scope of their agreement, leading to a copyright dispute. The court ruled that Meshwerks' digital wireframe models were not eligible for copyright protection because they were faithful representations of Toyota's cars without any additional creative input or originality. The Meshwerks decision is significant for digital media artists and those using AI tools, as it highlights that mere technical skill in using software to replicate existing objects or works does not meet the standard for copyright protection. Like the earlier Bridgeman case, Meshwerks shows that originality in digital works must come from the creative choices of the human, not the operation of the tool alone.

### 1.3. Originality and Fixation in Visual Artworks

Visual artworks eligible for copyright protection must meet two criteria: originality and fixation. Originality requires the work to be independently created with minimal creativity, while fixation mandates that it be captured in a tangible medium, as specified by 17 U.S.C. § 102(a). Originality was clarified in cases like Feist Publications, Inc. v. Rural Telephone Service Co., where the U.S. Supreme Court ruled that only a minimal degree of creativity is needed, but mere mechanical processes do not fulfill this requirement (Yu, 2017). This dual requirement for originality and fixation presents challenges for AI-generated works, as the creative role of the human operator is often limited to inputting prompts rather than actively shaping the final output. As a result, purely AI-generated works without sufficient human creative input do not meet these legal thresholds, a standard currently upheld in U.S. copyright law (Hedrick, 2018).

While AI systems are capable of generating visual works, those works must still be fixed in a tangible medium, as required by 17 U.S.C. § 102(a). This fixation may occur in digital formats, such as a file stored on a computer, or in physical formats, such as a printed image. However, fixation alone does not satisfy the requirements for copyright protection; there must be demonstrable human creativity involved in the work's creation. In instances where human and AI collaboration occurs, copyright law may recognize

the human as the sole author, provided the human's input significantly shapes the creative outcome. For example, if a human artist uses AI to generate preliminary designs and then substantially modifies or curates the results, the final work may be considered a product of human authorship, as the artist exercises creative control over the AI-generated content. The Compendium states that if a human "selected or arranged the elements in a sufficiently creative way," the resulting work may be copyrightable (Compendium, § 906.1).

### 1.4. AI-Assisted Works and Human Creativity

Under U.S. copyright law, AI-assisted works that involve substantial human input may qualify for copyright protection. Copyright law permits protection for human-authored portions of a work, which might include prompt design, selection, and post-processing, while excluding purely machine-generated content. Foundational cases, like Feist Publications, Inc. v. Rural Telephone Service Co., have established that copyright requires a minimal level of creativity, such as arranging factual data in an original way, thus underscoring the necessity of human choice in establishing copyrightable originality (Kasap, 2021). In this regard, human involvement is pivotal: for instance, applying a Photoshop filter alone lacks originality for copyright, but creative decisions about composition, tone, or visual message may cross the threshold into copyrightable material (Burylo, 2022).

The principle of human creativity as a determinant in copyright has also been supported in cases like Mannion v. Coors Brewing Co., which emphasized that copyright requires distinctive creative choices that reflect an author's personal expression. In AI-assisted work, these human decisions could include not only initial prompt design but also subsequent choices about refining or altering generated content, as outlined in recent U.S. Copyright Office guidelines (Horzyk, 2023). These guidelines suggest that, while copyright may apply to AI-assisted works, it will not cover parts that were generated without human-led creative decisions.

Human input continues to serve as the critical factor in copyright eligibility, especially in works generated with AI assistance. The Copyright Office has clarified that AI outputs can be protected if they involve significant human contribution, such as stylistic or structural decisions that shape the final output. Without such human guidance, however, the content is unlikely to meet copyright's originality requirement, as emphasized in the Zarya of the Dawn decision, where AI-generated images were deemed unprotectable without human creativity embedded in the process (Iaia, 2022). Human input can manifest in various forms throughout an AI-aided creative process, from curating datasets to defining prompts and refining outputs. This nuanced distinction between using AI as a mere tool and exercising creative control is critical in determining copyright protection for AI-assisted works (Dimitrova, 2023).

## 2. Use of Copyrighted Material in AI Training

### 2.1. Training Data and Copyright Infringement Concerns

GAI models rely on extensive datasets, often incidentally incorporating copyrighted works as part of the training process, to produce high-quality outputs. The practice has raised significant legal questions, as the use of such copyrighted materials may constitute infringement. In the case of Andersen v. Stability AI, artists filed suit, alleging that their work was incorporated into training datasets without permission, thus infringing upon their copyrights. This and similar cases highlight the potential for unauthorized use of copyrighted materials in AI training and have led to calls for clearer legal standards to govern how these systems use copyrighted content (Sobel, 2021).

The widespread adoption of these models has made the legality of using copyrighted material in training datasets a central issue. Legal experts argue that the lack of transparency around the sources used in training could lead to inadvertent violations of copyright, as copyrighted material is often scraped from the internet without explicit authorization. This has prompted both creators and legislators to advocate for frameworks that protect intellectual property without stifling AI innovation (Lucchi, 2023).

In the United States, some argue that the “fair use doctrine” could provide a legal basis for using copyrighted works in training under limited conditions. Fair use generally permits limited use of copyrighted material without permission, particularly when the use is transformative or serves a public benefit. However, critics contend that use of copyrighted datasets is not inherently transformative since the models often replicate stylistic elements from these works rather than creating original content. Courts have yet to fully address whether fair use applies to training datasets, leaving developers to face uncertainty regarding potential liability (Torrance & Tomlinson, 2023). In response to these challenges, some developers have begun entering into licensing agreements with rights holders to avoid infringement claims. Licensing provides a pathway to lawfully use copyrighted materials for AI training, ensuring that creators are compensated and their rights are respected. The approach reflects a broader trend toward regulated use of copyrighted data, with the goal of establishing clearer standards for the industry while protecting the interests of original creators (Samuelson, 2023).

## 2.2. Derivative Works and AI-Generated Content

Under 17 U.S.C. § 101, a derivative work is one that is based on or transforms existing works into a new creation. In the context of AI, this concept is highly relevant, especially when AI-generated content closely resembles the original training data. When a human artist makes significant modifications to an AI-generated output, such as adding new elements or altering its style, the resulting work may qualify as a derivative under copyright law. This status would grant the modified work copyright protection, contingent on the originality introduced by human intervention (Gervais, 2022).

The notion of derivative works emphasizes the importance of human creativity in copyright law. If an AI system generates a piece based on copyrighted material and a human creatively adapts or transforms this output, the final product may attain copyright protection for the human-authored elements. This distinction is key for AI users seeking copyright for modified AI outputs, as it requires the human to make substantial, original contributions beyond the AI's initial generation (Henderson et al., 2023).

For copyright protection to apply to an AI-assisted derivative work, the human contribution must meet the originality standard. This threshold, as defined in Feist Publications, Inc. v. Rural Telephone Service Co., demands a minimal degree of creativity, sufficient to distinguish the work from mere reproduction. In AI contexts, this could mean selecting unique outputs, modifying them to convey distinct messages, or incorporating personal style elements. This threshold underscores that originality is a fundamental requirement for copyright, ensuring that only works with human input are eligible (Wagh et al., 2023).

## 2.3. International Approaches and Text and Data Mining Exceptions

In Europe, the text and data mining exception under the EU Directive on Copyright in the Digital Single Market offers a distinct approach, allowing copyrighted materials to be used in AI training for research and non-commercial purposes, provided certain conditions are met. This exception enables AI developers to use copyrighted materials without infringing, as long as rights holders have not explicitly opted out. This approach contrasts with the U.S. reliance on fair use and highlights how international copyright standards can vary widely, creating challenges for AI systems that operate across borders (Sobel, 2021).

Ongoing litigation, such as in the Andersen v. Stability AI case, has the potential to reshape copyright law as it applies to AI. A decision requiring developers to obtain explicit licenses for training data could impose substantial financial and logistical burdens on AI companies, potentially slowing the field's growth. Conversely, rulings favoring fair use for AI training data could diminish the protections afforded to copyrighted works, raising concerns among creators about lost revenue and unlicensed usage. The outcomes of these cases will likely influence legislative efforts to refine copyright law in relation to AI and generative models (McCann, 2021). The debate over AI's use of copyrighted data brings into focus the tension between protecting creators' rights and fostering technological innovation. Legal scholars argue that copyright law should evolve to accommodate the unique needs of AI without compromising the intellectual property rights of original creators. Proposals include establishing clearer standards for derivative works, creating specific AI licensing frameworks, and revisiting fair use to ensure it addresses the challenges posed by AI-driven content generation (Elkin-Koren et al., 2023).

## 3. Challenges and Policy Developments

### 3.1. Litigation and Legal Precedents

Active litigation surrounding the use of copyrighted material by models illustrates the rising legal challenges in GAI and copyright law. For instance, class-action lawsuits such as Andersen v. Stability AI have brought attention to the unlicensed use of copyrighted materials in training datasets, where plaintiffs allege that AI companies exploited artist work without permission. These cases could set important precedents, as they involve large datasets often scraped from the internet, raising questions about ownership and licensing requirements for training purposes. As courts examine these issues, the rulings could shape future guidelines on permissible training practices in terms of copyright (Samuelson, 2023).

Legal precedent plays a significant role in setting standards for how AI may engage with copyrighted content. Court decisions in cases like Allen v. U.S. Copyright Office and Bridgeman v. Corel emphasize the necessity of human authorship for copyright eligibility, framing this requirement as essential in AI-generated works. These cases demonstrate that, without substantive human input, copyright protections cannot be extended to AI-created content. This legal approach reinforces the originality requirement in copyright law and highlights the limitations of protecting works that emerge solely from automated processes (James, 2024).

The outcomes of these lawsuits are already influencing legislative discussions on the need for transparency in model training and data usage. For example, transparency measures are being proposed to require developers to disclose data sources used in training, which would enhance accountability and provide creators with greater control over their works. Some lawmakers suggest that clearer guidelines are needed to protect both creator rights and support innovation, highlighting the delicate balance policymakers must strike to address these complex issues (Mensah, 2023).

Further, the emphasis of the courts on human creativity as essential for copyright has encouraged proposals to create specific regulations for AI-generated works that involve minimal human input. These proposals aim to distinguish between fully AI-generated content and AI-assisted works where human decisions significantly shape the output. If adopted, such guidelines would provide clearer boundaries, helping creators, AI developers, and copyright authorities navigate copyright claims more effectively. As legal decisions continue to accumulate, they serve as a basis for creating more definitive copyright policies around AI's role in creative processes (Atilla, 2024).

### 3.2. International Policy Approaches

The approach to AI and copyright varies widely across jurisdictions, reflecting different legal traditions and attitudes toward intellectual property. The European Union has adopted a text and data mining exception in its Copyright Directive, permitting the use of copyrighted content for AI training in specific, mainly non-commercial, contexts. This approach contrasts with that of the United States, where fair use provides the primary legal avenue for developers to access copyrighted materials, albeit with ongoing debates about its adequacy. These differences highlight the complexities of establishing a unified global framework for AI and copyright (Kretschmer et al., 2024). Moreover, United Kingdom copyright law has not embraced the U.S. model of fair use and instead follows a fair dealing approach, which limits the scope of copyright exceptions. Recent discussions in the U.K. have suggested a potential shift toward a more flexible system that could accommodate AI innovations, similar to the EU's text and data mining provisions. Such an adaptation would align the U.K. more closely with EU policies, offering a balanced framework that allows limited AI access to copyrighted content under regulated circumstances (Ploman & Hamilton, 2024).

For creators, international disparities in copyright policy present significant challenges in protecting rights across different jurisdictions. As these systems operate globally, the lack of consistent copyright standards creates uncertainties, with works potentially being protected in one country but vulnerable to unlicensed use in another. Creators

face the task of navigating these cross-border legal discrepancies, often relying on local licensing strategies or technology-based solutions like blockchain to monitor the use of their works internationally (Mia et al., 2023). Blockchain technology is one solution that has been proposed to facilitate international copyright protection for digital content. By creating immutable records of ownership and licensing terms, blockchain could provide creators with a means of tracking their works across borders. While this technology holds promise, it requires substantial legal adjustments to become viable on a large scale, as copyright policies in many jurisdictions do not yet support blockchain-based protections (Bonnet & Teuteberg, 2023).

Moving forward, policymakers face the challenge of balancing copyright protections with the need for innovation in AI and digital content. The discussions in regions like the EU, U.S., and U.K. highlight the need for policy frameworks that can adapt to evolving technologies while respecting creators' rights. As applications continue to expand, policy developments must address issues such as transparency, fair compensation, and international cooperation to establish effective copyright protections in a digital age. These ongoing policy discussions and legislative updates signal an incremental approach to copyright reform, one that aims to establish adaptable protections that keep pace with rapid technological advancements.

## 4. Towards a Revised Copyright Framework for Generative AI

### 4.1. Creating Flexible IP Standards

With the rapid integration of AI in creative fields, the need for flexible intellectual property (IP) standards has become increasingly evident. Creative Commons (CC) licensing is a flexible copyright framework that allows creators to grant permission to others to use, share, and build upon their work while retaining some rights. Originally developed to encourage the open sharing of knowledge and creativity, CC licenses offer a range of options for creators who want to maintain control over how their works are used without the need for traditional copyright restrictions. CC licenses range from the most permissive, which allows users to freely distribute and modify the work, to more restrictive options, which limit usage, distribution, and adaptation (Longpre et al., 2023).

The key feature of CC licensing is its adaptability; it allows creators to customize the level of protection and freedom associated with their works. The licenses typically include several core components:

1. Attribution (BY): This requires users to credit the creator when sharing or using the work.

2. Non-Commercial (NC): This restricts the work's use to non-commercial purposes only, protecting the creator's right to monetize their work in other contexts.

3. No Derivatives (ND): This prohibits users from modifying the work, ensuring that it remains in its original form.

4. Share Alike (SA): This allows users to distribute adaptations of the work under the same license terms as the original, encouraging a similar level of openness for any derivative works.

These modular options provide creators with a clear way to communicate how their work can be used, reducing legal ambiguity. Each CC license option is straightforward and legally binding, and the licenses are globally recognized, making them effective across borders.

In the context of AI, a Creative Commons-style licensing model for training data could introduce an «opt-in» or «opt-out» feature that allows creators to specify whether their work can be used to train models. This proposed framework could help address copyright issues by establishing clear permissions for datasets. For instance, a creator could apply a "Non-Commercial" restriction to prevent their work from being used for profit-generating AI applications or require "Attribution" to maintain recognition for their contribution. By providing AI developers with unambiguous permissions through this standardized system, CC-style licensing could help mitigate risks of unauthorized use, ensuring that the rights of creators are respected in an AI-driven environment.

Another potential solution to the copyright issues facing creatives is the use of metadata. Metadata, often described as «data about data,» consists of descriptive information embedded within digital files to convey details about their content, ownership, and usage rights. Metadata typically includes fields such as the creator's name, date of creation, copyright status, licensing terms, and permissible uses, making it a powerful tool for copyright management (Majumdar et al., 2023). This embedded information travels with the digital work across various platforms, providing a persistent record that can inform users—and even automated systems – about the work's legal and usage status.

In digital rights management (DRM) and content distribution, metadata plays an essential role in making copyright and licensing terms transparent and enforceable. By embedding copyright data directly in files, creators and rights holders can establish the boundaries of usage without relying solely on external copyright notices. For example, when someone opens or attempts to modify a digitally protected work, metadata can serve as a built-in reference to the terms under which the content can be used or modified. This system of rights metadata is already widely applied in industries like publishing and photography, where tracking rights across multiple formats, platforms, and users is critical (Pellegrini, 2023).

In the context of AI, embedding rights metadata could serve as a powerful tool for regulating the use of copyrighted content within training datasets. Since AI models often learn from vast datasets that include text, images, or audio, metadata can function as a safeguard, informing the AI system of specific limitations. For instance, metadata within an image file could include a restriction against commercial use, signaling to AI developers or end-users that the content cannot be monetized without additional permissions. If standardized across datasets, this rights metadata could be integrated into AI training workflows, where algorithms could detect metadata fields and filter out restricted content, reducing the risk of unauthorized use.

Applying metadata to AI would ideally involve a standardized metadata schema designed for content used in AI systems. Such a schema could include fields specifically for AI usage, such as «Permitted for AI Training» or «Not for Derivative AI Works,» enabling creators to specify whether and how their work may contribute to AI-generated content. This would provide transparency and accountability in AI data curation, allowing creators to choose how their works contribute to AI training while preserving the integrity of copyright laws. Furthermore, metadata could support traceability in AI outputs, where systems could flag content generated from datasets with specific usage rights, ensuring that any derivative works respect the original terms. This approach would be beneficial in legal contexts, as it enables compliance with copyright standards while supporting a responsible AI development model that acknowledges and respects intellectual property rights.

### 4.2. Reimagining Authorship in AI Co-Creation

The Zarya of the Dawn (2022) (Fig. 5) case offers a critical illustration of the evolving stance of copyright law on AI-generated content and the importance of human input in determining copyright eligibility. This AI-assisted graphic novel, created by Kris Kashtanova, initially faced rejection by the U.S. Copyright Office, which argued that the images generated through MidJourney lacked sufficient human creativity to qualify for copyright. However, copyright protection was granted for the human-authored narrative and the comic's overall structure, highlighting the distinction between purely AI-generated components and human-crafted elements. The Copyright Office emphasized that copyright law, as per 17 U.S.C. § 102, requires original authorship, which AI alone cannot fulfill. This decision demonstrates the Office's commitment to preserving human creativity as central to copyright, underscoring that meaningful human input is essential for legal recognition (Klukosky & Kohel, 2024).


Figure 5. Kris Kashtanova, Zarya of the Dawn Cover, Comic Book, 2022. (CC 0).

Given the current state of copyright and that GAI tools, like MidJourney and DALL-E, provide unprecedented capabilities for producing artwork, the fact that human-guided prompts and creative direction are required for the creation of copyrightable work should be foregrounded. These tools operate by synthesizing outputs based on vast datasets and algorithmic patterns, which means that, legally, they function as extensions of human intention rather than independent creators. This approach aligns with past legal precedents, such as Feist Publications and Meshwerks, which established that originality stems from human creative effort, not mechanical reproduction. Consequently, the level of human involvement in guiding the output is crucial to determining the copyright eligibility of AI-assisted works (Militsyna, 2023).

Therefore, establishing copyright for AI-generated works hinges on various types of human input that demonstrate originality and creative decision-making, essential components in copyright law (Table 1). The design of prompts, for example, is a critical and foundational element of human involvement in the creation of AI-generated art. Through detailed instructions that specify style, composition, and thematic focus, the human creator provides a conceptual framework that the AI tool then executes. This process aligns with the principles illustrated in Mannion v. Coors Brewing Co., where the court recognized that creative choices, such as lighting and framing, imbue photographs with the originality necessary for copyright. Similarly, a thoughtfully crafted prompt reflects the unique creative vision of the human user, positioning the output for copyright eligibility by showcasing the human's contribution to the artistic process (Burylo, 2022).

| Type of Human Input | Description | Legal Parallel |
|---|---|---|
| Creative Prompt Design | Human input in designing detailed prompts (e.g., artistic style, composition, theme) provides the conceptual framework for AI outputs, reflecting human creativity and intention. | Mannion v. Coors Brewing Co.: The court recognized that creative choices like lighting and framing can imbue works with originality. |
| Selection and Curation of Outputs | Selecting specific AI-generated outputs from multiple options involves subjective choice, aligning with the creator's artistic vision, akin to a photographer's decision in choosing final shots. | Garcia v. Google, Inc.: Emphasized control over the final work as essential for authorship. |
| Post-Processing and Refinement | Enhancing or modifying AI-generated images by adjusting colors, altering compositions, or adding elements introduces a unique creative layer, transforming the output into a derivative work that reflects human creativity. | Meshwerks, Inc. v. Toyota Motor Sales, U.S.A., Inc.: Found that substantial alterations can imbue reproductions with originality. |
| Conceptual Framework and Artistic Intent | The overarching artistic vision and themes (e.g., social commentary, aesthetics) introduced by the human creator shape the essence of the final work, signifying originality. | Feist Publications, Inc. v. Rural Telephone Service Co.: Reinforced the originality requirement, emphasizing creativity and intent. |
| Human Authorship Threshold | The extent of human involvement, including textual and narrative elements, determines copyright eligibility, as shown in cases where AI-generated content alone was deemed insufficient. | Zarya of the Dawn decision by the U.S. Copyright Office: Granted copyright for human-authored narrative but not AI-generated images lacking human intervention. |
| Derivative Work Creation | Transforming AI outputs through creative adjustments aligns with the principles of originality, as copyright protection can extend to derivative works if human contributions are substantial. | 17 U.S.C. § 101: Defines derivative works as those that transform or build upon preexisting materials through creative additions. |

The process of selecting and curating outputs from multiple AI-generated options is another key indicator of human authorship. Much like photographers who sift through numerous shots to find those that best align with their artistic intent, the act of choosing specific AI outputs from a set of generated possibilities adds an additional layer of creative discretion. This curatorial decision-making is integral to shaping the final work and represents the creator's unique artistic vision, further substantiating a claim for copyright. By selecting one version over another, the creator exercises subjective judgment, aligning the work with a particular vision and highlighting the indispensable role of human choice (Wan & Lu, 2021).

Moreover, post-processing and refinement contribute significantly to establishing copyright eligibility. When creators modify AI-generated images by enhancing elements, adjusting color schemes, or altering compositions, they introduce new creative dimensions that elevate the work beyond a simple automated output. This form of human intervention parallels the precedent set in Meshwerks, where the court noted that substantial alterations could imbue digital reproductions with originality. In the context of AI,

extensive post-processing transforms the generated content into a derivative work that bears the imprint of human creativity, justifying copyright protection and emphasizing the human's essential role in the creative transformation (Geiger, 2024).

Beyond these technical inputs, the overarching conceptual framework and artistic intent that guide the use of AI tools are fundamental to establishing authorship. Whether AI tools are employed to explore complex social themes, convey specific messages, or embody particular aesthetic philosophies, it is the human creator's vision that ultimately shapes the work's essence. This concept aligns closely with the insights from Mannion, where the court recognized the photographer's creative decisions as key to the work's copyrightability. In AI-generated art, the human's intent and philosophical direction help align the work with the originality requirement in copyright law, reinforcing the idea that AI is a tool serving the human creator's broader artistic purpose (Kasap, 2021).

Each of these types of human input reflects a spectrum of creative involvement that distinguishes AI-assisted works from mere algorithmic outputs. From the specificity of prompts to selective curation, extensive post-processing, and thematic direction, these elements underscore that meaningful human creativity remains central to copyright claims in the age of AI. As AI technology becomes more sophisticated, the consistent need for substantial human input will continue to be the cornerstone of copyright eligibility, maintaining a balance between technological innovation and the recognition of human authorship.

These diverse types of human input suggest that AI should be understood as a tool extending, rather than replacing, human creativity. As the Compendium of U.S. Copyright Office Practices indicates, human intervention must be significant to meet the originality standard required by copyright law. This principle reinforces the Copyright Office's stance in Zarya of the Dawn and aligns with 17 U.S.C. § 102, which stresses human authorship. The future of copyright in AI contexts will likely continue emphasizing whether the human's input is creatively substantial enough to meet the threshold of originality (Fenwick & Jurcys, 2023).

For artists using AI tools, certain best practices can strengthen copyright claims. First, detailed prompt design that showcases originality and creativity can establish human authorship. Second, curating and selecting outputs from AI-generated options reflects artistic judgment, further supporting copyright eligibility. Third, engaging in significant post-processing transforms the AI's output into a derivative work, emphasizing human contribution. Lastly, ensuring a coherent conceptual framework guided by the artist's intent further reinforces copyright eligibility, establishing that the AI is simply a sophisticated tool rather than an independent creator. With these considerations,

a potential revision to copyright frameworks could establish a new category recognizing AI-assisted works as co-creations. By defining AI as a contributory tool, rather than an autonomous creator, copyright law could adapt to acknowledge both the artist's and the AI's role. This approach respects human creativity while allowing room for AI's capabilities, ensuring that copyright law remains relevant in an increasingly AI-integrated creative landscape.

## Conclusion

As the presence of AI across creative domains expands, a new legal framework is needed to balance innovation with the protection of human authorship. Current copyright structures, largely designed around traditional concepts of human creativity, face challenges in addressing AI-generated works. A revised legal framework could potentially accommodate the unique capabilities of AI while upholding core principles of copyright, emphasizing that human creativity remains essential for authorship. Proposals suggest an adaptive model of copyright that allows AI to support human creativity without granting AI itself copyright protection (Geiger, 2024). In shaping this framework, policymakers must navigate the delicate balance between fostering technological innovation and ensuring creators retain control over their intellectual property. As AI systems become increasingly autonomous, the need for transparency, ethical standards, and rights protections will grow. A balanced approach could involve creating a legal category for human-AI collaborative works, acknowledging AI as a tool while protecting the human's central role in creative direction.

For future human-AI collaborations, evolving AI capabilities suggest a gradual shift in the amount and type of human input required to achieve copyright protection. AI technology may continue to automate aspects of creative production, yet the legal framework will likely emphasize human contribution as fundamental to originality. Recognizing AI as a co-creator under strict guidelines may help define a new model of authorship where AI assists but does not replace human innovation. Practical implications for copyright law involve reinforcing the human element in creative processes. AI may generate complex outputs, but copyright eligibility should rely on demonstrable human input. Adopting criteria for meaningful human input, such as creative prompts or post-processing, may serve as a foundation for determining authorship and protecting artists' rights in an AI-integrated world.

This evolving legal landscape also carries ethical implications. Embracing AI as a creative tool promotes a model of sustainable co-creation, wherein AI extends human creativity rather than competes with it. By embedding transparency and fairness

into copyright policies, lawmakers can protect individual rights while encouraging responsible AI use in creative fields. Ultimately, balancing protection and innovation in the AI era requires both flexibility and consistency in legal standards. Copyright law must evolve to reflect the transformative potential of AI while reinforcing the human-centered principles at its core. Through legal reforms, the creative industry can benefit from AI advancements without undermining the foundational role of human authorship.

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# Эволюция роли авторского права в эпоху произведений, созданных искусственным интеллектом

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## Ключевые слова

авторское право,
генеративный,
искусственный интеллект,
защита авторских прав,
искусственный интеллект,
право,
право интеллектуальной собственности,
произведение,
промпт-инжиниринг,
технологии машинного обучения,
цифровые технологии

## Аннотация

**Цель**: выявить перспективы и направления развития авторского права, сопряженного с расширяющимся использованием генеративного искусственного интеллекта.

**Методы**: исследование базируется на применении формально-юридического, компаративного, исторического методов, доктринального анализа, юридического прогнозирования и моделирования.

**Результаты**: в статье отмечено, что появление генеративного искусственного интеллекта заставляет переосмыслить процессы, происходящие в области творческой деятельности, и традиционную систему авторского права, которая становится неадекватной современным реалиям. Обосновывается необходимость юридической переоценки авторского права. Подчеркивается острая необходимость в обновленных средствах защиты авторских прав. В отличие от прежних цифровых инструментов, которые расширяли творческие возможности человека посредством улучшения его авторских произведений, генеративный искусственный интеллект создает контент с помощью сложных алгоритмических процессов, размывая границы авторства и оригинальности. Показана ограниченность существующего законодательства об интеллектуальной собственности, поскольку суды отказывают в авторских правах на произведения, созданные искусственным интеллектом, и настаивают на необходимости «авторства человека». Такие решения подчеркивают противоречие между существующими законами и реальностью совместного творчества с участием искусственного интеллекта. Утверждается, что учет творческого потенциала генеративного искусственного интеллекта будет способствовать эволюционированию авторского права в сторону комбинированных подходов, когда искусственный интеллект выступает в качестве неотъемлемого, хотя и второстепенного, инструмента. Перспективным видится создание гибких стандартов интеллектуальной собственности, которые предоставляют творческим работникам возможность ограничить или разрешить

использование своих работ в качестве обучающих данных для искусственного интеллекта, а также обеспечивают авторам сохранение контроля над своими работами, включенными в базы данных для обучения искусственного интеллекта, в случае если метаданные о наличии авторских прав интегрированы в цифровые произведения, и др.

**Научная новизна**: на основе анализа новейших судебных прецедентов, современного опыта международного регулирования и развивающейся институциональной практики предлагается сбалансированный адаптивный подход к реформированию авторского права, обеспечивающий этическую интеграцию генеративного искусственного интеллекта в творческую экосистему и направленный на выработку гибких мер защиты авторского права, соответствующих быстрому прогрессу технологий.

**Практическая значимость**: предложенный комбинированный подход позволит инструментам генеративного искусственного интеллекта стать частью творческого процесса человека подобно тому, как предыдущие поколения использовали цифровые инструменты. Одновременно это будет способствовать созданию среды, где соблюдается автономия авторов. Таким образом будет не только обеспечена защита создателей творческого контента, но и расширено понимание творчества как процесса, совместного с генеративным искусственным интеллектом, где искусственный интеллект позиционируется как сила, дополняющая человека в творческом процессе, а не заменяющая его.

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