

Copyright Judicial Protection of Generative AI-Generated Content from a Human-Machine Collaboration Perspective

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Abstract

The large-scale application of generative artificial intelligence (AI) has profoundly reshaped the production methods of digital content. Human-machine collaborative creation has become the new normal in the content industry. However, the existing copyright system, with its rules centered on natural person creation, faces systemic applicability challenges in AIGC scenarios. This paper takes human-machine collaboration as its analytical perspective, focusing on four core issues in the judicial protection of AIGC copyright: the determination of copyrightability, the rules of attribution of rights, the division of infringement liability, and the definition of platform due diligence obligations. Through empirical analysis and theoretical deconstruction of typical domestic and international judicial cases, it reveals the consensus and rule gaps in current judicial practice. The study finds that China's judicial practice has initially formed a standard for determining copyrightability based on "substantial human intellectual input + original expression," but significant differences remain in the criteria for judging originality, the rules of attribution of rights, and the boundaries of platform liability. This paper proposes that a "typological" determination standard centered on human creative contribution should be established, a hierarchical system of rules of attribution of rights and a dynamic system of platform due diligence obligations should be constructed, and a case guidance system should be used to promote the unification of judicial standards, so as to achieve a dynamic balance between technological innovation and copyright protection.

Keywords

Generative Artificial Intelligence; Human-Machine Collaboration; Copyright; Judicial Protection; Copyrightability.

1. Problem Statement: The Systemic Impact of Human-Machine Collaboration on Traditional Copyright Law

Generative artificial intelligence has transformed "human-machine collaborative creation" from a theoretical concept into an industrial reality. From AI-generated text to AI-generated videos, from intelligent writing to multimodal content generation, the scale of AIGC output and application scenarios continue to expand. Ordinary internet users can participate in content creation by inputting prompts, forming a new trend of overlapping "user-created content" and "AI-generated content." However, a significant tension has arisen between the accelerating pace of technological iteration and the gradual evolution of legal systems.

Traditional copyright law has built a rigorous system of rules based on the logical starting point of "creation by natural persons." The "idea-expression dichotomy" limits copyright protection to original forms of expression, while the "originality" standard presupposes the intellectual creative activity of human authors. In human-machine collaborative scenarios, this foundational system faces fundamental challenges: the process of AI generating specific expressions involves complex mathematical calculations, which are largely beyond user control;

abstract prompts cannot, in fact, "create specific expressive results"; and the causal relationship between human intellectual input and algorithmic output becomes ambiguous and difficult to quantify. When the creative subject evolves from a "single human author" to a composite of "human + AI," core issues of copyright law, such as the determination of work attributes, rules of ownership, and allocation of liability for infringement, face unprecedented challenges.^[1]

At the legislative level, China has not yet established unified provisions for the copyright protection of AIGC (AI Collective Content), and the current Copyright Law does not anticipate the technological scenarios of human-machine collaborative creation. In judicial practice, courts in Beijing, Guangzhou, Hangzhou, and other places have made several landmark judgments on issues such as the copyrightability of AIGC and platform liability for infringement, but the reasoning and standards for adjudication are not yet consistent. This judicial status quo of "case-by-case discretion and gradual rule-making" reflects both the judiciary's cautious attitude towards technological change and the practical dilemma of insufficient supply of unified adjudication rules.

This paper uses human-machine collaboration as the analytical framework and empirical analysis of judicial cases as the core method to systematically sort out the core disputes and adjudication logic of AIGC copyright judicial protection, and attempts to provide theoretical support and practical guidance for unifying adjudication standards and improving judicial rules.

2. Judicial Determination of AIGC Copyrightability: From "Author-Centric" to "Contribution-Centric"

2.1. The Dilemma of Human-Machine Collaboration in Traditional Original Standards

Copyrightability is the logical starting point for copyright protection. The current Copyright Law's definition of "work" implicitly presupposes a "human author"-a work must be "an intellectual creation with originality in the literary, artistic, and scientific fields that can be expressed in a certain form," and the semantic scope of "intellectual creation" usually refers to human intellectual activity. In the AIGC (Artificial Intelligence Generated Content) context, this presupposition faces a double challenge.

The first challenge is the erosion of the subject's legal status. Artificial intelligence lacks subjective will and legal personality. Although its generated content has an expressive form, it does not substantially meet the normative requirements of "originality" and "responsibility." The originality of AIGC stems from the combined effect of human intellectual input and algorithmic generation capabilities, rather than the independent creation of a single subject. This makes it difficult to maintain the traditional binary correspondence between "author and work."

The second challenge is decentralizing the creative process. In human-computer collaborative creation, human contributions may manifest in multiple forms, such as prompt design, parameter adjustment, and result selection and modification, while AI's contribution is expressed as algorithmic generation based on training data. These two contributions are intertwined and difficult to clearly separate. As some scholars have pointed out, a single round of prompt input by the user is insufficient to create originality in a work, and multiple rounds of prompt input also fail to achieve originality.

2.2. Judicial Practice: Exploration of Adjudication and Consensus Formation

Faced with the aforementioned dilemmas, my country's judicial practice has gradually formed preliminary rules of adjudication through a series of landmark cases.

The Beijing Internet Court's first case concerning AI-generated text and images established the basic direction for determining the copyrightability of AI-generated content. The court held that

the images in question reflected human originality and intellectual input-the user participated in the creative process by designing prompts, adjusting parameters, and selecting the generated result; AI was merely considered a creative tool. The core of this judgment is that AI is positioned as a "tool" rather than an "author," shifting the focus of examination from "who is the author" to "whether there was substantial human intellectual input." This case established the core judgment standard of "substantial intellectual input from a natural person + original expression," negating the copyrightability of purely algorithm-generated content.

The Jiangsu Zhangjiagang AI-Generated Content Works Attribute Case (2025) further enriched this judicial logic. This case clarified the core position of "substantial human intellectual input" in determining the copyrightability of AIGC, filling a judicial gap in the determination of the attributes of text-based graphic works. At the same time, the case also exposed a rule gap: the lack of quantitative standards for determining "substantial intellectual input" and inconsistent judicial criteria-what level of human input is sufficient to support the determination of originality remains an unresolved practical problem.

These cases reveal a preliminary consensus in judicial practice: upholding the core principle of natural person authors and using substantial human intellectual input as the core standard for determining copyrightability. However, disagreements remain within this consensus. Some scholars argue that rigidly classifying AIGC as works would inevitably lead to conflicts in rule application and undermine the system of moral rights and the "copyright/neighborhood rights" dichotomy within copyright law. Therefore, resolving the copyrightability issue of AIGC should perhaps not be limited to a binary judgment of "whether it is a work or not," but should seek a more inclusive institutional arrangement.

2.3. Theoretical Response: From "Absolute Control" to "Substantial Contribution"

The academic community has developed multiple theoretical approaches to the criteria for determining the copyrightability of AIGC. The "absolute control theory" requires humans to have precise predictive ability over the generated results, but this standard is seriously out of touch with real-world technological conditions; the "substantial control theory" argues that originality can be recognized as long as humans have substantial control over the creative process; and the "minimum creative power theory" emphasizes that the requirements for a work can be met as long as humans have invested a minimum amount of creativity.

This article argues that, from a human-machine collaboration perspective, the determination of the copyrightability of AIGC should shift from an "author-centric" to a "contribution-centric" approach. The core issue is not "who is the author," but rather "whether the human creative contribution is sufficient to support the determination of originality." Based on this, a three-step determination standard can be constructed: First, examine whether there is intellectual input from a human subject; second, assess whether there is a causal relationship between this intellectual input and the final generated content; third, determine whether this intellectual input meets the minimum threshold of "originality" required by the Copyright Law. This standard upholds the essential attribute of copyright law as "human intellectual creation" while providing an operational framework for case-by-case adjudication in AIGC scenarios.

3. Ownership of AIGC in the Human-Machine Collaboration Model: From "Single Ownership" to "Hierarchical Configuration"

3.1. Competition and Cooperation among Subjects and Intertwined Interests in the Attribution of Rights

The generation process of AIGC involves multiple stakeholders: users (inputting prompts and adjusting parameters), developers (designing training algorithms and building models),

platforms (providing services and operating systems), and the original rights holders who may be included in the training data. The interests of these stakeholders converge here, and the attribution of rights faces a dual dilemma: "excessive bias harms innovation or creative rights, while lack of protection leads to the tragedy of the commons."

In academia regarding the ownership of AIGC rights: user ownership, developer ownership, hierarchical rights allocation, and public domain theory. Xiong Qi points out that as a product created according to the will of the AI software designer, the results of AIGC can still be determined by the originality standard, and the ownership of rights should draw on the provisions of the legal works system, treating the owner of the AI as the copyright holder. [2][5] Intellectual Property, 2017(3).] However, this view, which treats the AI owner as an "author," still faces fundamental legal challenges regarding whether a non-natural person can be an author.

3.2. Lessons and Limitations from Overseas Experiences

Different jurisdictions have adopted different approaches to the attribution of AIGC rights. Section 9, paragraph 3 of the UK's Copyright, Designs and Patents Act (CDPA) explicitly states that the author of a computer-generated work is "the person who made the necessary arrangements for the creation of the work." This rule grants rights to a human subject who has substantial arrangements for the creative process, and shortens the copyright term to 50 years from the date of creation. While the UK's legislation attempts to provide a "human-centered" institutional model for the attribution of AIGC rights, its "necessary arrangements" standard also faces the problem of ambiguous interpretation.

The United States has consistently maintained the position that "the author must be a natural person." The U.S. Copyright Office explicitly states that works entirely generated by AI-lacking meaningful human creative input-are ineligible for copyright registration. In the "monkey selfie case," the U.S. court explicitly declared that "only natural persons can be authors under copyright law," a principle that has been extended to AI-generated content scenarios [Application Research Content]. The U.S. Copyright Office also points out that using AI assistance in the creative process or incorporating AI-generated content into larger works created by humans does not disqualify them from obtaining copyright protection.

3.3. Judicial Construction of Rules for the Attribution of Hierarchical Rights

This article argues that the core challenge in attributing AIGC rights lies not in "who to choose," but in "how to differentiate configurations based on different human-machine collaboration modes." A single attribution rule cannot cover the diverse creative scenarios of AIGC; therefore, a "layered" attribution rule should be established.

Level 1: Human-Computer Collaborative Creation with Substantial Intellectual Input. When users exert substantial intellectual control over the final content through carefully designed prompts, multiple rounds of parameter adjustments, and repeated filtering and modification of the generated results, the user should be recognized as the copyright holder, and the AI is merely a creative tool. The criteria for this level can refer to the aforementioned "three-step" originality assessment framework.

The second layer: Limited participation in auxiliary tool usage. When users only input simple prompts and do not substantially intervene in the generation process, their intellectual input is insufficient to support copyright ownership. In this case, drawing on Liu Wenjie's proposal, we can provide property rights protection for AIGC through the neighboring rights system. Granting this property right to users who issue instructions to artificial intelligence, prompting it to generate output content, is more appropriate-AIGC can be seen as the user's labor output. Whether it's conceiving, adjusting prompts and parameters, or issuing instructions, AIGC is the output result of the user-driven AI system. The neighboring rights system will also bring

spillover effects such as incentivizing user use and industrial development, promoting the differentiated supply of cultural products, and enhancing the protection of the interests of human authors.

The third level: Purely algorithmically generated AIGC. When AIGC is entirely generated autonomously by an AI system without any substantial human intellectual input, it should not be granted copyright protection, and the related output should belong to the public domain. This position is consistent with that of the U.S. Copyright Office.

4. Judicial Determination of AIGC Copyright Infringement: From "Safe Harbor" to "Dynamic Duty of Care"

4.1. The Special Characteristics of Infringement During the Generation Stage

AIGC copyright infringement exhibits characteristics distinct from traditional infringement during the generation stage. Traditional copyright infringement primarily focuses on direct dissemination, while AIGC infringement involves two stages: model training (input) and content generation (output). Infringement during the generation stage mainly involves reproduction and adaptation rights, but generally does not involve the right of dissemination via information networks. When the ultimate source of the generated content is a generative artificial intelligence service provider, the traditional analytical framework for direct and indirect infringement is difficult to apply to the analysis of the liable party.

The Guangzhou Internet Court's "Xin Chuang Hua v. a Technology Company" case (2024) is the world's first effective judgment in a case of copyright infringement related to generative AI services. The court found that the defendant infringed upon the plaintiff's reproduction and adaptation rights to the work in question during the provision of generative AI services. The core value of this case lies in its first direct judicial response to the issue of copyright infringement determination at the AIGC generation stage, providing an important judicial reference for subsequent similar cases.

4.2. Dilemmas in Determining Platform Responsibility

The Hangzhou Internet Court's "Ultraman" AI copyright infringement case (2024-2025) further extended the focus of AIGC copyright infringement from the "generation end" to the "platform end." In this case, the plaintiff was the intellectual property rights holder of the Ultraman series, and the defendant's AI platform supported users uploading images for training and generated images substantially similar to the Ultraman image. The Hangzhou Internet Court found the defendant guilty of contributory infringement, ordering it to cease infringement and compensate for economic losses and reasonable expenses of 30,000 yuan.

This case reveals a triple dilemma in determining the platform's liability.

First, there is the dilemma of defining the platform's legal status. The defendant argued that it falls under the "safe harbor" rule and should only bear the obligation of "notice and takedown." However, the court pointed out that the platform, by modifying open-source models for specific scenarios and profiting from them, has gone beyond a purely technically neutral role and should bear a duty of care commensurate with its commercial interests. Xiong Qi pointed out that generative AI platforms differ from traditional information storage spaces and search link services in terms of content sources, generation processes, and usage methods, but analogous application is still necessary in determining copyright infringement liability.

Second, the dilemma of the application boundaries of the principle of technological neutrality. Platforms often invoke the principle of technological neutrality to claim exemption from liability, but judicial practice emphasizes that its application must be considered in the context of specific situations. When a platform significantly enhances the controllability of the infringement outcome through technological means, the defense of neutrality will be strictly

limited. This means that platforms cannot evade their reasonable obligations to prevent infringement by citing "algorithmic black boxes" or "technological neutrality."

Third, there is the dilemma of dynamically defining the duty of care. To what extent should platforms bear the duty of care? This question lacks a clear answer under the current legal framework. Yao Zhiwei proposes that a liability attribution model centered on the "duty of care" should be constructed. This model can clarify the responsible party, provide stable expectations, and thus benefit the compliance and risk control of service providers, achieving a proper balance between rights protection and technological development.^[3]

4.3. Construction of a Dynamic Duty of Care System

This article argues that the definition of a platform's duty of care should be matched with the platform's technical capabilities, business model, and risk control capabilities, establishing a "dynamic" rather than a "one-size-fits-all" standard for recognition.

Compliance requirements in their service agreements and establish an early warning mechanism for infringement risks related to prompts and generated content. Xiong Qi suggests that when a stable recurrence occurs between specific prompts and infringing content, modifying relevant model parameters should be included as a necessary measure.^[6]

Obligations during the process: Platforms should establish an effective mechanism for handling infringement complaints and take measures to block obviously infringing content. In the "Ultraman case," the court, by requiring the platform to delete models that reflected the originality of the work, implicitly applied a strict interpretation of the "transformative use" standard—if the generated content is substantially similar to the original work, it is difficult to claim fair use.

Post-infringement obligations: Building upon the "notification-necessary measures" framework, platforms should add a content labeling obligation for portions of infringing content in compliant notifications that involve the works of others. Furthermore, platforms cannot waive their reasonable duty of care by citing "algorithm neutrality" and must bear infringement prevention responsibility commensurate with their technological capabilities.

5. Comparison of Overseas Experiences and Localization Adaptation

5.1. Comparison of Regulatory Approaches in the Three Legal Jurisdictions

Compliance obligations for generative AI platforms through the Artificial Intelligence Act (which officially came into effect on August 1, 2024). This act requires providers of general-purpose AI models to develop policies that respect EU copyright law, including exit mechanisms in text and data mining exceptions, and to publish summaries of their training data. The EU's regulatory approach focuses on the "input end"-preventing infringement risks by regulating the compliant use of training data. This "source governance" approach has significant implications for China.

The United States adheres to the "human author" principle, explicitly refusing to provide copyright protection for purely AI-generated content through its copyright office's registration guidelines and a series of case law. The 2025 report, "Copyright and Artificial Intelligence Part II: Copyrightability," released by the U.S. Copyright Office, further confirmed this position, concluding that there are currently no sufficient reasons to amend existing laws to provide additional protection for AI-generated content. While the U.S. position is the most cautious, its "substantial human input" standard resonates with Chinese judicial practice.

The UK provides a unique legal path for protecting computer-generated works through the CDPA, granting rights to "those who make the necessary arrangements for creation." However, the UK government also acknowledges that these protective provisions may apply to generative AI scenarios, and the relevant rules are under review. The UK's legislative attempt is the most

radical, but the applicability of the "necessary arrangements" standard in AIGC scenarios remains to be tested.

5.2. Path Selection for Localization Adaptation

Foreign experiences offer diverse references for the judicial protection of AIGC copyrights in China, but simple transplantation may lead to incompatibility. Localization should follow these principles.

First, we must uphold the common bottom line of "human creative input." Although there are differences in specific rules among China, the US, the UK, and the EU, they all take "human creative contribution" as a prerequisite for copyright protection. This common standard should become the institutional cornerstone of judicial protection of AIGC copyright in China.

Second, we should draw on the EU's "tiered governance" approach. In their article "Copyright Infringement Liability and Tiered Governance of Generative Artificial Intelligence Platforms," published in the second issue of **Digital Rule of Law** in 2025, Feng Xiaoqing and Guo Chang proposed a tiered governance framework based on the Hangzhou Ultraman case. ^[4]This approach aligns closely with the "typological" criteria advocated in this paper-matching differentiated legal regulatory schemes to different technological scenarios and levels of human involvement.

Third, it incorporates the rational core of the UK's "necessary arrangements" standard. Although defining "necessary arrangements" is difficult in the context of AIGC, its core logic of "granting rights to human subjects who have made substantial contributions to the creative process" is universally applicable.

6. Conclusion and Recommendations

This article takes human-machine collaboration as the analytical perspective, systematically examines the four core issues in the judicial protection of AIGC copyright, and draws the following main conclusions.

First, the determination of the copyrightability of AIGC should shift from an "author-centric" to a "contribution-centric" approach. Judicial practice has established a core standard of "substantial human intellectual input + original expression," but the criteria for determining "substantial" are not yet uniform. A three-step standard should be established to categorize AIGC based on the degree of human intellectual input.

Second, the ownership of AIGC rights should adopt a "tiered configuration" model. A single ownership rule cannot adapt to diverse human-machine collaboration scenarios. Based on the degree of human intellectual input, AIGC should be divided into three categories: "human-machine collaborative creation with substantial intellectual input," "assisted tool use with limited participation," and "purely algorithm-generated," corresponding to copyright protection, related rights protection, and the public domain, respectively.

Third, the definition of a platform's duty of care should adhere to the principle of "dynamic matching." Platforms vary in their technical capabilities, business models, and risk control capabilities; a "one-size-fits-all" standard is neither realistic nor fair. A dynamic duty of care system should be established covering the entire process-before, during, and after the event-to achieve a dynamic match between the platform's obligations and its technical capabilities.

Fourth, the standardization of adjudication should rely on a case guidance system. Landmark cases in AIGC copyright disputes should be included in the scope of guiding cases, a database of similar cases should be established, and the case retrieval mechanism should be improved to promote the uniformity of adjudication approaches and the formation of stable expectations.

The technological evolution of generative artificial intelligence continues to accelerate, and the model of human-machine collaborative creation will continue to be enriched and deepened. As

a " law that responds early " to technological change, the copyright system needs to maintain sufficient institutional flexibility while adhering to core principles. This article proposes a three-pronged judicial protection framework of "typological identification," "layered configuration," and "dynamic matching," aiming to provide an operational institutional path for achieving this goal. Only by finding a dynamic balance between technological innovation and rights protection can the ultimate goals of copyright law-"incentivizing creation" and "promoting dissemination"-be truly achieved.

References

- [1] Liu, W. J. (2026, April 21). The establishment of neighboring rights for AI-generated content is justified. *Procuratorial Daily*, p. 03.
- [2] Xiong, Q. (2017). Copyright determination of AI-generated content. *Intellectual Property*, (3).
- [3] Yao, Z. W. (2024). The identification and prevention of copyright infringement of AI-generated products: Taking the world's first judgment on infringement of generative AI services as the center. *Local Legislation Research*, (3).
- [4] Feng, X. Q., & Guo, C. (2025). Copyright infringement liability and hierarchical governance of generative artificial intelligence platforms - Reflections based on the Hangzhou Ultraman case. *Digital Rule of Law*, (2).
- [5] Xiong, Q. (2025). Copyright infringement liability of generative artificial intelligence platforms. *Global Legal Review*, (2).
- [6] Hangzhou Internet Court. (2025, February). Judgment in the first case in China involving a generative artificial intelligence platform infringing on the right to disseminate information online (Ultraman case).