

# ***Research on Copyright Ownership of AI-Assisted Generative Outputs***

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**Abstract:** Traditional literary and artistic creation has long been understood as an activity grounded in human intellectual and creative labor. Under the traditional copyright framework, both the recognition of a work and the determination of derivative rights have generally been premised on human authorship. However, the rapid development of artificial intelligence technology has enabled AI systems to participate extensively in the creative process, thereby challenging existing rules governing copyright ownership. The traditional conceptual structure based on the binary relationship between “author and work” or “subject and object” is increasingly difficult to apply to situations involving multiple participants, such as users, developers, and platform operators. How to respond to technological developments while maintaining the coherence and stability of the copyright system has become an important issue in current legal research. Using China’s first “AI text-to-image” case as a point of departure, this paper reviews existing academic views on copyright ownership and proposes an analytical framework that takes the “degree of creative contribution” as the primary criterion, supplemented by the principle of party autonomy. The paper seeks to provide a reference for the further development of copyright ownership rules in the context of artificial intelligence.

## **1. Introduction**

Traditional copyright law and theory have long centered on human intellectual and creative labor, establishing a mature legal framework for work recognition, ownership attribution and derivative right determination on the fundamental premise of human authorship, which has effectively protected creators’ legitimate rights and standardized the order of cultural and creative industries. However, the rapid iteration and extensive application of artificial intelligence content generation technology, especially emerging AI text-to-image algorithms, have enabled AI systems to deeply participate in and independently complete core creative tasks, producing a large number of original artistic works and fundamentally challenging the traditional copyright system based on the binary “author-work” and “subject-object” relationship. Unlike traditional human-centered creation, the production of AI-generated works involves multiple stakeholders including users, algorithm developers and platform operators, and the existing copyright ownership rules fail to adapt to such multi-participant collaborative creation scenarios, triggering frequent copyright disputes and forming a legal bottleneck for the standardized development of the AI creative industry. Against

this backdrop, balancing technological innovation with the coherence and stability of the copyright system has become a critical issue in current intellectual property legal research. Taking China's first "AI text-to-image" copyright dispute case as the research entry point, this paper systematically reviews existing academic views and judicial criteria concerning AI work copyright ownership, and proposes an improved analytical framework that adopts the "degree of creative contribution" as the primary criterion and the principle of party autonomy as a supplement, aiming to fill the gaps in the current copyright rule system, provide theoretical support and practical references for relevant judicial practices and legislative optimization, and facilitate the sound and standardized development of the AI creative ecology.

## 2. The Emergence of Ownership Issues in AI-Assisted Generative Outputs

### 2.1 Ownership Dispute in China's First "AI Text-to-Image" Case

On November 27, 2023, the Beijing Internet Court rendered its judgment in China's first "AI text-to-image" case, commonly known as the "Spring Breeze Pattern" case. The court upheld the plaintiff's claim to copyright in the AI-generated image Spring Breeze Brings Tenderness, thereby recognizing its eligibility for copyright protection under Chinese law.

The plaintiff used the open-source software Stable Diffusion, inputting prompt words to generate the disputed image, which was subsequently posted on the plaintiff's Xiaohongshu account under the title Spring Breeze Brings Tenderness. The defendant later used the image as an illustration in an article posted on another platform. The defendant claimed to have obtained the image through online search but could not specify its source, explain the presence of watermarks, or confirm whether the plaintiff held rights in it. The defendant asserted that the main content of the article was original poetry and prose and that it was used for non-commercial purposes. The plaintiff filed suit, alleging that the defendant had used the image without permission, removed the Xiaohongshu watermark containing the plaintiff's name, and thereby infringed upon the rights of attribution and communication through information networks.

As Professor Nick Bostrom of the University of Oxford has observed, AI may be the most disruptive and transformative technology in human history [1]. As AI technology becomes increasingly prevalent in creative fields, issues surrounding AI-assisted works have sparked extensive debate within copyright law. The central dispute in this case concerned whether the AI-generated image qualified as a protectable "work" under copyright law. It is worth noting, however, that the defendant did not argue that ownership should belong to the AI developer or the platform. Consequently, the court's recognition of the plaintiff's copyright was rendered in the absence of competing claims from other parties. While the "Spring Breeze" case represents a landmark ruling on the protectability of AI-generated images, it also raises a more complex question: when users, developers, and platforms simultaneously assert rights over the same output, how should ownership be determined?

### 2.2 Primary Challenges in Determining Ownership in AI-Assisted Creation

AI-assisted creation generally involves multiple participants, among whom AI developers responsible for algorithm design and model training, as well as users who input prompts, adjust parameters, and select outputs, are most closely connected to the creative process. Unlike traditional forms of creation, in which authorship is usually clear and identifiable, AI-assisted creation involves overlapping contributions from different parties, thereby complicating the determination of copyright ownership.

First, AI-assisted creation involves multiple potential creative subjects. The creation of an AI

text-to-image work encompasses the user's prompt engineering, parameter adjustment, and result selection, while simultaneously relying on the developer's algorithms and training data. Since both users and developers may claim to have contributed to the final output, identifying a single copyright subject becomes considerably more difficult. AI-generated images therefore reflect the combined influence of human input and machine processing, raising new questions regarding traditional copyright concepts such as "expression" and the idea-expression dichotomy [2].

Second, there is substantial difficulty in evaluating and quantifying the respective contributions of different participants. The boundary between a user's creative input, including prompt design and iterative modification, and the automated generation carried out by the AI system is often difficult to distinguish clearly. There is no uniform standard for determining the degree of user intervention necessary to qualify as an "author." The assessment of the relative contributions made by different participants directly affects the allocation of copyright interests [3].

Third, there are significant differences in ownership rules among AI platforms. Different AI text-to-image platforms adopt divergent policies regarding copyright ownership of generated content. Some platforms claim ownership themselves, others assign it to users, and still others waive rights through open-source licenses. Such divergence in platform policies further contributes to legal uncertainty regarding copyright ownership.

Fourth, existing copyright legislation lacks specific rules governing AI-assisted creations. China's current Copyright Law contains no dedicated provisions addressing ownership of AI-assisted creations, and judicial practice lacks consistent adjudication standards. In the long run, the manner in which intellectual property law responds to these issues is likely to affect both the development of generative AI technologies and the future direction of creative practices.

Against this background, this paper examines the issue of copyright ownership in AI-assisted generative outputs from the perspective of copyright law, with reference to current judicial practice and existing academic discussions.

### **3. Premises and Academic Perspectives on Ownership Allocation of AI-Assisted Generative Outputs**

#### **3.1 Legal Subject Qualification of AI under Copyright Law**

The determination of copyright ownership necessarily presupposes the identification of an appropriate rights-bearing subject. Accordingly, whether artificial intelligence can qualify as a legal subject under copyright law constitutes a threshold issue.

From the perspective of jurisprudence, legal personality refers to the capacity to enjoy rights and assume obligations, and it constitutes one of the foundational concepts of the legal system. It traditionally encompasses natural persons and legal persons. Various theories have been advanced to explain the attribution of legal personality to corporations, including the aggregate theory, the fiction theory, and realist approaches [4]. However, artificial intelligence cannot be readily accommodated within these traditional theories of legal personality. First, AI does not constitute an association or aggregation of natural persons, nor does it possess any collective will or contractual relationship among members; consequently, the aggregate theory cannot be directly applied. Second, although legal personality could theoretically be conferred upon AI through legal fiction, such an arrangement would require clear policy justifications, such as addressing accountability concerns, rather than merely resolving questions of copyright ownership. More importantly, realist approaches generally emphasize that legal personality presupposes a degree of independent existence and autonomous will separate from that of external actors. AI systems function on the basis of human-designed algorithms, training data, and parameter settings, and their outputs ultimately remain dependent upon human instructions rather than independent intention, moral judgment, or responsibility-bearing capacity. As Baron Thurlow famously remarked of corporations, they have

“no soul to be damned, and no body to be kicked”—yet corporations remain aggregates of human beings that can be endowed with personality through legal fiction. By contrast, AI possesses neither an independent collective foundation nor autonomous will, and its outputs can ultimately be traced back to human design and operation, making the attribution of independent legal personality difficult to justify.

From the perspective of legislative purpose, copyright law, like private law more generally, is fundamentally centered on human beings. Social and legal relations are ultimately established on the basis of human subjectivity and human participation. Kantian philosophy holds that “man is an end in himself, not merely a means”—humans possess absolute value by virtue of their rationality, whereas things possess only relative value and may serve only as means to human ends [5]. Such rationality includes not only the capacity for decision-making, but also moral judgment and autonomous value selection [6]. AI outputs, however, do not arise from autonomous consciousness, but from algorithmic processes based on programs and data. Their operation ultimately reflects the objectives and constraints established by human designers. Fundamental principles of private law stipulate that rights subjects and rights objects are not interchangeable [7]. Accordingly, AI may function as a tool serving human purposes, but it cannot itself constitute an independent subject of rights.

Judicial practice has likewise generally declined to recognize AI as possessing independent legal personality. In the US case *Stephen Thaler v. United States Copyright Office*, Thaler sought copyright registration for a visual artwork titled *A Recent Entrance to Paradise* created independently by his AI system DABUS. The Copyright Office rejected the application in 2022, holding that copyright protection requires human authorship. In 2023, federal courts reaffirmed that human authorship remains a fundamental requirement for copyright protection, and in 2026 the US Supreme Court declined to review the case, thereby leaving that conclusion undisturbed. In China, the Hangzhou Internet Court, in the country’s first AI “hallucination” infringement case, explicitly ruled that AI lacks civil subject qualification and cannot form independent expressions of intent. Judicial practice in both China and the United States therefore reaches a broadly similar conclusion: AI does not possess independent legal subject status, and its outputs cannot simply be equated with the expressions of human authors or legal entities.

In summary, whether examined through jurisprudential foundations, legislative purpose, or judicial practice, AI cannot acquire independent legal subject qualification under copyright law. Accordingly, purely AI-generated content, absent a corresponding human legal subject, generally cannot qualify as protected subject matter under copyright law. This conclusion also provides the conceptual premise for further discussion of copyright ownership in human–AI collaborative creation.

### 3.2 Academic Perspectives on Ownership Disputes Concerning AI-Assisted Generative Outputs

Given that AI itself cannot qualify as a copyright subject, the central issue in AI-assisted creation becomes how copyright ownership should be allocated among the human participants involved in the creative process [8]. Existing scholarship has produced differing views on this question.

Some scholars advocate a differentiated approach to ownership allocation. Professor Zheng Yuanmin argues that when multiple parties are involved, copyright ownership may be determined by contract; in the absence of clear agreement, ownership should vest in the party exercising actual control [9]. Other scholars propose allocating rights on the basis of the respective contributions made by human creators and AI systems [10]. When human creators make substantial creative inputs—such as extensive modification, recombination, or innovation based on AI-generated content—most literature holds that the human creator should enjoy copyright. By contrast, where

human participation is limited to initiating the system or making minor adjustments, the question of ownership becomes considerably more controversial. Some scholars argue that such outputs lack sufficient human intellectual contribution to satisfy the requirements of copyright protection, whereas others maintain that even limited human intervention may justify recognizing a form of collaborative achievement deserving legal protection.

Other scholars adopt more categorical positions on the issue. Professor Wang Qian argues that copyright cannot be attributed to robots, as they cannot independently exercise rights and their creations currently depend on human-designed algorithms and big data [11]. Professors Zheng Haiwei and Zhang Weijun contend that users do not hold copyright in the initial images generated in the first round, and that guiding AI to modify images does not constitute the creation of a work of fine art [12].

It is therefore evident that both the copyrightability of AI-assisted outputs and the precise boundaries of ownership remain highly contested issues in contemporary copyright scholarship. Current discussions generally focus on the originality of AI-assisted outputs and the extent of human intellectual contribution, while also considering the respective roles played by human participants and AI systems. On the question of ownership boundaries—whether between humans and AI or across varying degrees of human involvement—views differ considerably. These issues therefore continue to require further theoretical examination and legislative clarification.

## **4. Analytical Framework for Ownership Allocation of AI-Assisted Generative Outputs**

### **4.1 “Degree of Creative Contribution” as the General Principle**

AI-assisted creation generally involves two principal categories of participants: AI model developers and users. Developers contribute indirectly through the design and construction of AI systems, whereas users participate directly in the generation process. Where both parties contribute to the creation process, the issue arises as to how copyright ownership should be allocated between them.

In situations where the generated output primarily reflects the user’s contribution, such as in China’s first AI text-to-image case, the user independently selected prompts and parameters, guided the generation process, and refined the resulting image. The final output therefore embodied the user’s individualized expression. Although the developer provided the underlying technological framework, the specific output would not have emerged without the user’s creative choices and conceptual input. Through the incorporation of personal intention and creative judgment, the user effectively directs and controls the generation process. Accordingly, the generated output substantially reflects the user’s creative intent [13]. Under such circumstances, the developer’s role is primarily supportive rather than dominant, and copyright should therefore belong to the user.

In other situations, however, developers may occupy the dominant creative position. In the case of in-game footage, for example, developers make highly original choices regarding visual art, character design, combat themes, and choreography. Although different players may produce varying gameplay scenes through their operations, these variations occur within the parameters preset by the developers. In such cases, the key creative elements underlying the resulting output originate primarily from the developer’s prior design choices [14]. The developer should therefore be regarded as the principal contributor and corresponding copyright holder.

Copyright ownership of AI-assisted generative outputs should be determined on the basis of the degree of creative contribution made by the relevant participants. The party contributing the predominant creative input during the generation process should generally be recognized as the copyright owner. Traditional copyright theory generally regards originality as deriving from the author’s individual intellectual contribution. This notion traces back to Kant, who emphasized the

inseparable link between a work and the personality of its author [15]. The assessment of creative contribution must therefore be conducted on a case-by-case basis. Neither developers nor users should automatically be presumed to hold copyright solely by virtue of their participation in the process. Instead, ownership should be determined through a detailed examination of the work's formation process and the specific creative activities undertaken by each party.

In practice, however, not all cases involve a clear distinction between the contributions of different participants. There may be circumstances in which the intellectual contributions of developers and users are relatively comparable. In such situations, assigning ownership exclusively to one party may inadequately reflect the interests and contributions of the other party, thereby conflicting with the balancing function of copyright law. Accordingly, ownership issues should be resolved through a careful assessment of the respective intellectual contributions made under the specific circumstances of each case. Although recognizing joint ownership may appear convenient in certain cases, treating it as a default solution is not desirable in the long term. Joint ownership frequently gives rise to practical difficulties in the exercise and enforcement of rights. Moreover, AI development often depends upon significant technological and financial resources and is generally dominated by enterprises possessing considerable legal and commercial advantages. Compared with ordinary users, such entities typically possess stronger bargaining power and greater familiarity with legal and contractual mechanisms. As a result, a broad recognition of joint ownership may place individual users at a relative disadvantage. Accordingly, joint ownership between developers and users should be recognized only where the factual circumstances clearly support such an arrangement.

#### 4.2 “Party Autonomy” as a Supplementary Principle

Although copyright retains important personal attributes, its property-related dimension has become increasingly significant with industrialization and economic development. Creative works today function not only as expressions of individual personality, but also as economic assets capable of generating commercial value. Within a market economy, considerations of efficient resource allocation have contributed to the growing importance of party autonomy in copyright relations. Market mechanisms facilitate the integration of specialized knowledge and promote the allocation of resources toward their most efficient and valuable uses. Respecting contractual arrangements among participants in the creative process may therefore help strengthen incentives for innovation and creation [16].

In the context of AI-generated outputs, the principle of party autonomy is reflected primarily through contractual allocation arrangements. This issue is especially important in situations involving licensed or platform-based use of AI systems. Where developers and users have clearly agreed in advance on the ownership of generated content, such agreements should generally be given effect. Many AI tools exist as software installed on users' computers or mobile devices. For instance, Meitu's AI painting assistant “Andy” can establish ownership terms before users begin creation [17].

Although copyright law belongs to the domain of private law and primarily regulates relations among equal civil subjects, it also serves the broader public objective of promoting cultural development. Respect for party autonomy not only helps coordinate the interests of different participants, but may also contribute to greater overall social welfare. The operation of market mechanisms may further promote the dissemination and circulation of creative works, thereby contributing to both economic development and cultural prosperity.

## 5. Conclusion

Throughout the historical development of copyright law, technological change has repeatedly prompted adjustments and refinements to existing legal rules. The emergence of AI-generated content is likely to constitute another important stage in this continuing process of legal adaptation. Where traditional copyright theories prove insufficient to address challenges brought about by new technologies, reinterpretation and institutional adjustment become necessary in order to respond to evolving social realities.

The issue of ownership in AI-assisted generative outputs concerns not only the allocation of interests among creators, developers, platforms, and other participants, but also the fundamental objectives of copyright law in encouraging creativity and promoting cultural development. This paper has argued from jurisprudential, legislative, and practical perspectives that AI cannot acquire independent legal subject status under copyright law. On this basis, the discussion has focused on the allocation of rights among human participants involved in AI-assisted creation. Through an examination of existing academic perspectives, the paper proposes an analytical framework centered on the “degree of creative contribution,” supplemented by the principle of party autonomy.

“Governing the world begins with putting people first.” Both copyright law and the broader private law system take “human beings” as their core value. At present, the increasing involvement of AI in creative activities reflects an important trend in technological development; nevertheless, AI should still be understood fundamentally as a tool serving human purposes. As society becomes increasingly reliant on AI technologies, greater attention must be paid to ensuring that such technologies develop in ways beneficial to human society. This objective requires closer coordination between legal regulation and technological innovation. Legal institutions should provide appropriate boundaries for technological application, while technological progress may in turn contribute to the more effective implementation of legal rules. Only through continued coordination between technological innovation and legal governance can a balance be maintained between innovation and the public interest, thereby promoting the sustainable development of AI-assisted creative practices and the broader harmony between technological advancement, legal protection, individual interests, and social welfare.

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