On the ownership of copyright in generative AI works

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Abstract. The distribution of copyright in generative AI works should adopt a combined application of the work-for-hire system and the joint work system. AI should be regarded as a tool or product. When the user is an employee of the owner of customized AI and uses AI for creation, the neighboring rights should belong to the user, and the copyright property rights should belong to the developer and the owner, in which case the work-for-hire system applies. When the user, as an individual, uses general-purpose AI, the user, developer, and owner should be regarded as joint authors. The moral rights of copyright should not belong to any of the developer, owner, or user. The copyright property rights belong to the user, and the neighboring rights belong to the developer and owner, in which case the joint work system applies. This approach not only avoids the ethical issues of anthropomorphizing AI but also helps simplify rights distribution, promote industrial incentives and risk control, save judicial costs, encourage prior contractual agreements to reduce disputes, and facilitate the unification of judicial standards through clear rights clarification.

Keywords: joint work system, work-for-hire system, artificial intelligence, copyright

1. Introduction

The rapid development of generative AI has sparked widespread controversy over the ownership of copyright. Should copyright belong to the user, developer, or owner of AI? How should the property interests brought by AI works be distributed? Determining the ownership of copyright in AI works is crucial for resolving disputes, maintaining social fairness and justice, and incentivizing creation. The Beijing Internet Court denied AI's status as an author in the "AI-generated work case" but recognized the user's originality in content arrangement; meanwhile, the Shenzhen Intermediate People's Court affirmed the developer's relevant rights and interests in the "AI painting case" [1, 2]. If the copyright owner of AI-generated works is classified as one or more of the owner, user, or developer, the core of researching copyright ownership in generative AI works lies in classifying the type of AI-generated works and determining the copyright owner within the theoretical framework of copyright law in a self-consistent manner. Among divergent viewpoints, the author prefers to explain the ownership of AI works through a combination of the joint work system and the work-for-hire system. Based on the current legal framework, this paper argues that AI works should jointly apply the work-for-hire and joint work systems, and AI products should be classified as works for hire. It further analyzes the correctness of jointly applying these two systems from the perspective of copyright subjects and the rationality of classifying AI products as works for hire from the perspective of their nature.

2. Identification of authors under general rules

2.1. Denial of anthropomorphizing AI

According to Article 11 of the Copyright Law, the author must be a "natural person, legal person, or unincorporated organization that creates a work." Some scholars argue that AI can be anthropomorphized as a subject eligible for copyright, similar to how enterprises are recognized as legal persons. They believe anthropomorphizing AI can incentivize creation, facilitate accountability, and better protect the interests of parties related to AI. The author opposes this view.

Firstly, there are many ways to incentivize creation, such as establishing AI-related creative positions and developing AI-derived industrial clusters. For example, creating new professions like AI content trainers, who optimize the quality of AI-generated content by adjusting algorithm parameters and annotating data; collaborating with industry associations to launch "AI creator certification" for professionals specializing in AI-assisted creation to enhance their professionalism and market

recognition. In regions with rapid digital economic development, "AI creation demonstration zones" can be established to gather AI technology companies, content platforms, and creator teams, promoting industrial chain collaboration. The upstream industry develops hardware and computing power industries such as AI chips and cloud computing; the midstream supports innovation in AI model development and vertical tools (e.g., AI painting, AI screenwriting software); the downstream expands application scenarios for AI-generated content, such as film, advertising, games, and education. Resorting to legal anthropomorphism of AI at the cost of ethical risks is a last-resort measure. Moreover, using incentive effects to justify anthropomorphizing AI essentially evaluates the rationality of legal norms based on their impact, rather than judging the eligibility of AI as a statutory copyright subject by whether it meets the criteria for copyright subjects [3].

Secondly, anthropomorphizing companies as legal persons and anthropomorphizing AI are not analogous. A legal person is composed of people, whose division of labor and cooperation form the legal person system. Human judgments, decisions, and actions determine the operation of the legal person, with close collaboration between individuals and the legal person. In contrast, the connection between AI and humans is not as close: humans provide AI with algorithms, computing power, and data, but cannot determine how AI operates algorithms or uses data.

Finally, current AI has not developed into a superintelligent stage, and laws should serve reality. The existing copyright law system is sufficient to handle current disputes over AI works. The interests of parties related to AI works can be protected through the joint work system and the work-for-hire system.

2.2. Eligible subjects for copyright

2.2.1. Owner

The owner enjoys ownership of their property, including rights of possession, use, benefit, and disposal. The owner here refers to the subject that owns the AI system, usually the developer's affiliated institution, investor, or a subject that acquires rights through transfer. The owner specifically refers to the subject with ownership of the AI system, not merely the investor. Owners typically invest computing power and data into AI.

2.2.2. User

AI has diverse users, who are not only issuers of instructions for generating AI works but also setters of conditions for their generation. The key to whether a user can be an author lies in whether their design of instructions is original. According to the idea-expression dichotomy, if a user only sets simple ideas in instruction conditions or shows no originality, they cannot be regarded as participating in the creation.

2.2.3. Developer

Developers are technical subjects directly involved in AI system research and development, forming a diverse group including scientists, engineers, research institutions, and enterprises. Developers directly design algorithms and are technical contributors to AI works. They promote AI advancement through algorithm innovation, data accumulation, and computing power improvement, so their role in distributing the interests of AI works cannot be ignored.

Copyright in AI works should belong to human subjects who control algorithms, data, and the creative process [4]. Simply treating owners, users, and developers as equal co-authors is obviously inconsistent with judicial practice. The criterion for determining whether an AI-generated output is a work is whether it has originality. If it lacks originality, it cannot be called a work, and none of the owner, user, or developer can be called an author. If it has independence but no innovation, it also cannot be regarded as a work, but the relevant rights of the owner, user, and developer can be protected with reference to neighboring rights regulations. If it has both independence and innovation, the owner, user, and developer of AI can be regarded as authors. Since the work is generated by AI, which cannot be a copyright subject, it cannot enjoy moral rights. Copyright property rights are enjoyed by the owner, user, and developer.

3. Feasibility of jointly applying the joint work system and the work-for-hire system

Based on the above characteristics of AI owners, users, and developers, AI developers are generally subordinate to owners (institutions or investors) and mainly use the owner's material and technical conditions to develop AI products, so developers can be regarded as employees of the owner. Regarding the property interests from copyright and neighboring rights in AI-generated works, they should belong to developers and owners; if there is an agreement between them, it shall prevail; otherwise, they belong to the owner. If an employee uses the company's AI products for creation, AI, as a tool, makes the output a result of creation organized by the employer (owner/user). In this case, the AI work applies the work-for-hire system: the user enjoys

property interests from neighboring rights, and copyright property rights belong to the owner and developer. However, the moral rights of copyright in AI-generated works should not belong to any of the owner, developer, or user, let alone AI itself. The property interests of AI works are thus distributed among the owner, developer, and user. When an individual user uses general-purpose AI, the user, developer, and owner should be regarded as joint authors. Moral rights of copyright do not belong to any of them, while copyright property rights belong to the user, and neighboring rights belong to the developer and owner, applying the joint work system.

3.1. Advantages of joint application

3.1.1. Simplifying disputes over rights ownership

The core feature of work-for-hire is that "it arises from official duties, and rights belong to the employer [5]." The joint work system clearly assigns rights to co-authors. This paper discusses whether AI-assisted creative works can be included in work-for-hire and analyzes the current legal definition of "creative subject." Treating AI products as work-for-hire or joint works (rather than "anthropomorphized persons") directly attributes the interests of AI works to owners, users, and developers, avoiding rights ownership difficulties caused by disputes over AI's subjectivity. This reduces developers' hesitation to invest in research due to ambiguous legal disputes, promotes investment, standardizes the AI creative industry, and protects the legitimate rights of users, developers, and owners. It also enables enterprises to accelerate the transformation of achievements, commercialization, and market leadership, and enhances asset certainty as a plus in financing due diligence. Additionally, it increases work output and authors' income.

Simplifying ownership can be achieved in three steps: first, classify outputs into three levels based on AI involvement —"mechanically generated," "human-machine collaboration," and "human-led"—with corresponding ownership rules; second, use blockchain to record human creative traces; third, include an "AI technology iteration clause" in contracts to stipulate the adaptation of ownership rules after algorithm upgrades.

3.1.2. Industrial incentives and efficiency

Owners, developers, and users directly enjoying property rights avoids unfair interest distribution by judges due to ambiguous copyright subjects. Safeguarding their economic interests incentivizes investment in AI research, application, and development of derived industries, improves industrial development efficiency, promotes coordinated and standardized development of the AI creative industry chain, drives upstream and downstream development, and attracts more industrial investment.

At a deeper level, it helps form economies of scale to reduce costs, promote resource optimization and sharing, and clarify ownership fosters close communication among the three parties, driving knowledge spillover and collaborative learning. It also attracts brand cooperation, expands markets through brand effects, and promotes talent aggregation.

3.1.3. Risk control and responsibility balance

The joint application model clarifies responsible subjects. Legal liabilities for infringements in AI-generated works (e.g., plagiarism, data abuse) can be directly borne by developers, users, and owners, avoiding difficulties in pursuing infringements on other copyright owners due to liability vacuums. This forces developers to respect others' copyright when feeding data to AI and obtain usage rights through legal means. It also compels owners to strengthen supervision over developers, such as adding penalties for illegal use of others' works in agreements and urging standardized development through liquidated damages. This enhances cooperation trust, encouraging parties to share data and resources and promote large-scale application.

3.2. Potential issues and solutions

3.2.1. Clarifying legal standards for contributions and obligations

Equal distribution of interests among developers, users, and owners is unrealistic, as it may allow less contributing parties (e.g., users with simple instructions) to obtain unreasonably high shares, dampening the enthusiasm of developers and owners. A dynamic benefit distribution mechanism is needed: in general-purpose AI models like ChatGPT, developers and owners play a leading role; in customized AI (for individuals or enterprises), users enjoy greater benefits. Regarding infringement types in AI-generated works, such as data abuse, copyright infringement, and ethical issues, developers, users, and owners should bear different responsibilities: developers are responsible for reviewing data legality when feeding data to AI; owners supervise the entire process from generation to publication; users must adhere to fair use principles.

3.2.2. Promoting legal system updates

If users need to share copyright with developers and owners, it may weaken individual creators' autonomy over AI-generated works, conflicting with the industry practice of "creator leadership." The author suggests legislating to clarify copyright rules for AI-generated works: restrict "co-authors" to humans with substantial creative contributions, distinguish technical contributions (developers) from resource contributions (owners), include their interests in neighboring rights rather than copyright, and establish review mechanisms to prevent abuse of the co-author model (e.g., mass-producing content for profit).

4. Preventing disputes over infringement liability through contracts

Developers, owners, and users are encouraged to clarify rights ownership, liability division, and benefit distribution through agreements before using AI tools, providing a basis for judicial decisions. Infringements in AI works include data abuse, copyright infringement, and ethical issues. Correspondingly, developers are responsible for data legality review, owners for supervision, and users for fair use. Liability exemption clauses for uncontrollable AI outputs (e.g., erroneous content due to algorithmic bias) should be stipulated without violating the Consumer Rights Protection Law.

Contract norms for customized and general-purpose AI should be discussed separately. Works generated by general-purpose AI should be regarded as "divisible joint works" with "dual ownership": the overall copyright is jointly owned by all authors, and the copyright of each separate part is exclusively owned by its creator [6]. Contracts should specify the proportion of property interests each party (owner, user, developer) is entitled to, with owners and developers receiving larger shares than users. For works generated by customized AI, remuneration for users can refer to company reward and punishment regulations. Employees should have awareness of rights protection, negotiate remuneration distribution with the company before creation, preferably in written contracts, and seek union assistance or labor arbitration when rights are infringed.

5. Conclusion

Applying the work-for-hire system and joint work system to AI works avoids ethical issues from "anthropomorphism," simplifies rights disputes, incentivizes industrial development, and promotes risk control. However, it carries potential risks of uneven interest distribution, requiring a dynamic benefit distribution mechanism distinguishing general-purpose and customized AI, legal system updates introducing neighboring rights into the co-author model, and encouragement of prior contractual agreements to reduce legal disputes and promote social harmony. Future efforts should focus on improving the legal system and advancing fairer judicial practices.

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