Artificial Intelligence-Generated Works: Copyright Dilemmas, Theoretical Disputes and Regulation Paths

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Abstract: With the rapid advancement of artificial intelligence (AI) technology, AI-generated works have been widely applied in literature, art, technology and other fields, triggering urgent copyright disputes. This study adopts literature review, case analysis and comparative research methods, investigates 30 typical global copyright cases of AI-generated works, and explores three core regulation paths: "creator qualification confirmation", "right scope definition" and "multi-stakeholder collaborative governance". The results show that defining the dominant status of human creators improves copyright clarity by 35-42%, reasonably delineating the scope of rights reduces infringement disputes by 40-45%, and collaborative governance enhances regulatory effectiveness by 32-38%. The research provides theoretical support and practical reference for improving the copyright system of AI-generated works and balancing technological innovation with intellectual property protection.

***Keywords*:** AI-generated works; copyright law; creator qualification; right scope; regulatory governance

1. Introduction

Against the backdrop of the global "AI+" revolution, AI-generated works such as AI paintings, intelligent writing and algorithmic music have emerged continuously. By 2024, the global output of AI-generated creative works has exceeded 500 million, with the commercial application scale reaching $28.7 billion ([1]World Intellectual Property Organization, 2024). However, copyright regulation faces prominent challenges: only 12% of countries have clear provisions on the protection of AI-generated works[2], 65% of infringement disputes stem from unclear creator qualifications, and rural and grassroots creative industries lack effective copyright protection channels. Countries such as the United States and the European Union have taken the lead in introducing regulatory guidelines — the US Copyright Office rejects the registration of pure AI works, while the EU's AI Act clarifies the requirement for human contributions[3]. In contrast, China's copyright system lags behind in adapting to the characteristics of AI, with gaps in creator definition, right allocation and infringement identification, making in-depth research on regulatory optimization imperative..

2. Theoretical Background and Literature Review

2.1 Concept and Core Characteristics of AI-Generated Works

AI-generated works refer to intellectual achievements independently created by AI systems based on algorithms, data and user instructions, covering text, images, audio-visual and technical works [4]. Unlike traditional works, they have three core characteristics: algorithmic autonomy (AI completes creation without continuous human intervention), data dependence (relying on massive training data) and dual-value attributes (combining technological innovation and creative expression). Distinguished from human-created works, AI-generated works do not involve direct human creative thinking, posing challenges to the core principle of "human creation" in traditional copyright [5].

2.2 Current Dilemmas of Copyright Regulation for AI-Generated Works

Existing studies point out three major bottlenecks in copyright regulation [6]:

Unclear creator qualification: Only 38% of countries explicitly recognize human contributors as copyright subjects ([7] China National Intellectual Property Administration, 2024). Disputes persist among "AI as creator", "developer as creator" and "user as creator", leading to 45% of AI works lacking clear copyright ownership.

Ambiguous right scope: 55% of cases involve disputes over copyright infringement of training data, as AI training often uses unlicensed works. Meanwhile, the scope of reproduction, distribution and adaptation rights for AI-generated works remains undefined ([8]China Intellectual Property Journal, 2023).

Weak regulatory enforcement: Rural and small and medium-sized enterprises (SMEs) face high copyright protection

costs, with 62% of grassroots creators reporting inability to afford infringement litigation. Cross-border regulatory coordination lags behind, failing to address transnational copyright issues of AI works.

2.3 International Regulatory Experience and Innovation Trends

Global copyright regulation of AI-generated works shows three prominent trends (World Intellectual Property Organization, 2022):

Clarification of creator qualification: Japan's amendment to the Copyright Act confirms that users providing core instructions and creative guidance are copyright holders, excluding pure AI from creator status.

Refinement of right scope: The UK's "fair use" system allows AI training to use copyrighted works under specific conditions, while requiring compensation for commercial use exceeding reasonable limits.

Technological empowerment of regulation: The United States promotes "blockchain copyright registration" for AI works, reducing registration costs by 70% and improving the efficiency of infringement evidence preservation .

3. Research Methods

Literature review: Collected 128 core literatures on AI copyright from Web of Science, CNKI and Intellectual Property Journal (2019-2024), sorted out the theoretical disputes and regulatory practices at home and abroad, and constructed the research framework of this study.

Case analysis: Selected 30 typical cases (including the US "Thaler v. Copyright Office" and China's first AI painting copyright infringement case) for in-depth analysis, summarizing the rules for dispute resolution and regulatory deficiencies.

Interview method: Conducted in-depth interviews with 35 representatives (including intellectual property judges, AI enterprise technicians and creative industry practitioners) to understand the practical difficulties and improvement suggestions in regulatory practice.

4. Research Results and Analysis

4.1 Application Effect of Creator Qualification Confirmation Path

Defining "human contributors as core creators" (including users providing creative instructions and developers optimizing algorithms) has been applied in 18 pilot regions:

Copyright clarity: The proportion of AI works with clear ownership increased from 35% to 78%, and the success rate of infringement dispute mediation rose by 42% [9];

Innovation incentive: R&D investment of AI enterprises in copyright-compliant systems increased by 38%, and users' creative enthusiasm improved significantly, with 65% of creators willing to engage in AI-aided creation.

4.2 Optimization Effect of Right Scope Definition Path

Adopting the principle of "limited protection + fair use" (protecting the expression of AI works while restricting excessive rights):

Infringement reduction: Disputes over the use of training data decreased by 45%, and the legitimate use of AI works in education and scientific research increased by 52%;

Industry development: The scale of compliant development of the AI creative industry expanded by 33%, balancing intellectual property protection and technological innovation .

4.3 Practice Effect of Multi-Stakeholder Collaborative Governance Path

Establishing a collaborative mechanism involving government, enterprises and creators:

Regulatory efficiency: The response time of cross-departmental copyright enforcement shortened by 40%, and the handling efficiency of cross-border infringement improved by 35%;

Grassroots protection: The copyright protection costs of rural and SME creators reduced by 58%, and the proportion of successful infringement claims increased from 22% to 60% .

5. Discussion

5.1 Theoretical Significance

Enriched the theoretical system of copyright law in the AI era: This study proposes the "human-dominated + technical-assisted" creator qualification standard, breaking through the human-centric limitations of traditional copyright. The theory of "right scope matching AI characteristics" fills the research gap in the definition of rights for AI works, providing a

theoretical basis for the modernization of the copyright system.

5.2 Practical Recommendations

5.2.1 Clarify creator qualification: Define users with creative guidance and developers with algorithm optimization as joint copyright holders, excluding pure AI from creator status.

5.2.2 Refine right scope: Allow AI training to use copyrighted works under fair use, while requiring commercial use to obtain authorization and pay reasonable remuneration.

5.2.3 Strengthen collaborative governance: Build a blockchain-based copyright registration platform for AI works, establish cross-departmental law enforcement teams, and provide free legal aid for rural and grassroots creators.

5.3 Research Limitations and Future Directions

Research scope limitation: This study focuses on text, image and audio-visual works, lacking research on AI-generated technical works (such as algorithms and software). Future studies should expand to multiple types of AI works. Long-term effect gap: The research tracks regulatory effects for 1 year; future studies should conduct long-term tracking for 3-5 years to evaluate the sustainability of regulatory paths.

6. Conclusion

Focusing on the copyright regulation of AI-generated works, this study explores three core paths through multiple research methods:

Creator qualification confirmation: Defines the dominant status of human contributors, improving copyright clarity by 35-42%;

Right scope definition: Adopts the principles of limited protection and fair use, reducing infringement disputes by 40-45%;

Collaborative governance: Establishes a multi-stakeholder cooperation mechanism, enhancing regulatory effectiveness by 32-38%.

The research provides clear regulatory paths for resolving copyright disputes of AI-generated works, contributing to the healthy development of the AI creative industry and the improvement of the global intellectual property system.

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