International Journal of Law and Politics Studies
ISSN: 2709-0914
DOI: 10.32996/ijlps
Journal Homepage: www.al-kindipublisher.com/index.php/ijlps

IJLPS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Copyright Governance of User-Generated Content in Generative AI Driven Games

Ting-Chen Hsu
School of Animation and Digital Arts, Communication University of China, Beijing, China
Corresponding Author: Ting-Chen Hsu, **E-mail**: tingchenhsu.ac@gmail.com

| ABSTRACT
As generative AI becomes embedded in user-generated content (UGC) game ecosystems, creative output increasingly arises from human-AI collaboration rather than purely manual construction. This study examines how the game industry's "private legislation" reallocates copyright interests in AI-based UGC products, and whether such reallocations conflict with copyright's incentive-and-balance rationale or become vulnerable in enforceability across jurisdictions. Using a mixed-methods design, the study (i) applies clause-level textual coding to standard-form contracts from eight representative products spanning AI-based UGC games, creation platforms, developer tools, and general tools, and (ii) conducts a comparative analysis of recent U.S. and Chinese judicial approaches to authorship and originality. The results suggest that strict U.S. human-authorship centrism and China's contribution-sensitive reasoning can yield different validity boundaries for identical platform terms. Finally, the study proposes a modular, tiered rights-recognition mechanism grounded in observable "human contribution" supported by auditable logs and metadata, to improve incentive alignment and compliance in AI-based UGC games.

| KEYWORDS
Generative AI, User-Generated Content, Video Games, Copyright Governance, Term Analysis, Comparative Case Analysis

| ARTICLE INFORMATION
ACCEPTED: 10 April 2025 **PUBLISHED:** 16 May 2026 **DOI:** 10.32996/ijlps.2026.8.5.2

1. Introduction

1.1 Background

With the rapid development of the digital entertainment industry, user-generated content (UGC) gameplay has become one of the important components of modern game systems (Liu et al., 2024). This type of gameplay has driven the success of representative products such as Roblox (Kang et al., 2024). In recent years, generative artificial intelligence (AI) technology has seen explosive breakthroughs, leading to its widespread integration into video games and game engines (Alharthi, 2025). For instance, Roblox's "Code Assist" has made game development more accessible and inclusive (Quarneti, 2023). Unity Muse aids users in generating prototypes, code snippets, and even fixing bugs, making game creation faster and more accessible (Unity China Developer Community, 2023). Sketch2Play, as a game content creation system integrated with generative AI, enables users to create playable 3D game content at runtime solely through hand-drawn sketches (Zang et al., 2025). Reverie, a serious game driven by generative AI, allows players to express whatever they want using generative AI technology (Hsu, 2026). This technological integration has given rise to a new creative model combining AI and UGC, where content is no longer solely manually constructed by players. Instead, it is generated jointly by players' input commands, the underlying asset library of the game, and the algorithms of large models, greatly reshaping the production relationship and value distribution structure of game content.

Despite this, under the existing legal framework, the copyright recognition of AI-generated content still faces considerable uncertainty (Wozniak, 2025). For example, in the judicial practice of the United States, the case of "Thaler v. Perlmutter" established human authorship as a prerequisite for copyright protection, explicitly rejecting the copyright protection of works

generated entirely by AI (Thaler v. Perlmutter, 2025). However, this principle has recently faced challenges. In the case of "Li v. Liu", the Beijing Internet Court of China stated that if a user has invested unique intellectual labor through complex prompts in the process of using AI to generate a work, then the work should be deemed to be protected by copyright (Li v. Liu, 2023).

Although the legal community has extensively discussed the copyright ownership and infringement liability of general AI tools, existing research often overlooks the "private legislation" system established by the gaming industry through end-user license agreements, AI function supplementary clauses, and platform policies. These standard clauses often forcibly deprive users of their potential rights based on statutory rules at the contractual level (Thomas, 2023). Furthermore, generative AI relies on its complex algorithms to create content, blurring the boundaries between authorship and originality. Therefore, it becomes particularly important to develop more flexible copyright protection measures for generative AI products to adapt to rapid technological advancements (Hutson, 2024).

In response to the aforementioned phenomenon, this paper aims to reveal how the industry currently establishes copyright allocation rules through standard contracts by combining text encoding analysis based on typical clauses with comparative analysis of Chinese and American judicial precedents. It selects multiple user agreements and AI supplementary clauses from AI-based UGC platforms as analysis samples. Furthermore, it evaluates to what extent these contract allocations may conflict with the current copyright law system and its principles. The main contributions of this paper are as follows: Firstly, it transforms the normative question of "whether platform private contracts deviate from copyright principles" into a testable evaluation criterion and research problem. Secondly, it presents current industry practices and their differences through clause encoding, and uses judicial path differences as a yardstick for testing the legality of clauses. Thirdly, based on this, it proposes a modular rights recognition mechanism based on "human contribution degree" to address the challenge of fair rights allocation under the condition of AI black boxes.

1.2 Evaluation Criteria

The term "conflict with the purpose of copyright law" referred to in this article is not a broad moral criticism, but a normative conclusion with boundaries. To enable this conclusion to be tested by empirical materials, this studyadopts a "two-tier evaluation framework". The first level is the purpose-level tension, which focuses on whether contractual arrangements deviate from the core purpose of the copyright system, thereby leading to the consequence of "formally recognizing creation but substantially weakening rights". The second level is the validity-level vulnerability, which examines whether contractual arrangements may touch the boundaries of legal theory, thus exhibiting unstable characteristics in terms of enforceability and even constituting "legal loopholes".

Under this dual-layer framework, this study measures the concept of "conflict" based on four observable manifestations of conflict: (1) The platform, while nominally recognizing users' rights, essentially hollows out their content rights through a permanent, global, unpaid, and transferable broad license. (2) The platform retains data and commercial profits, yet systematically transfers infringement and compliance risks to users, leading to an imbalance between risk and benefit structures. (3) The platform excludes or restricts statutory rights through standard terms, or violates public policy bottom lines in a "one-size-fits-all" manner, exhibiting vulnerability in legal effectiveness. (4) When utilizing user data to train models, the platform relies solely on default consent or implied authorization, lacks effective exit and compensation mechanisms, undermines incentive fairness, and is prone to disputes.

1.3 Research Questions

Based on the aforementioned framework, this study primarily focuses on the following five research questions: (1) Controlled licensing of terms: Under the nominal "right ownership of users", how do different platforms achieve continuous control over user content through various licensing terms? (2) Infringement risk allocation: How to configure the infringement risk, warranty obligations, and exemption clauses for AI-assisted generated content in terms? (3) Differences in commercial rights: How do different types of platforms restrict or grant users' commercial rights? What is the underlying governance logic? (4) Model training rights setting: How to handle the rights to use user data for model training under different platform terms? (5) Legal Effectiveness: Under the legal frameworks of China and the United States, which contract assignments are more likely to be effective, and which ones are more likely to have effectiveness loopholes or face public policy challenges?

2. Methods

2.1 The Rights Architecture of AI-based UGC Games

Before exploring the ownership of intellectual property rights for user-generated content (UGC) in AI-based systems, it is necessary to clarify the challenges faced by traditional copyright law theory after the intervention of artificial intelligence in the creative process. In traditional copyright law theory, works are defined as expressions of human intellectual achievements, emphasizing that "originality" stems from the personalized choices and arrangements of human authors (Standing Committee of the National People's Congress, 2020). However, in the AI-based UGC ecosystem, the creative object exhibits significant human-computer collaboration characteristics, meaning that the final generated game assets are not solely constructed by players manually, but are jointly determined by players' prompts, the underlying materials of the game, and the generation algorithm of the large model (Zammit et al., 2024). This creative model has triggered disputes over the identification of "authorship" and "the source of originality of works".

Furthermore, according to Lessig's theory of "code is law", in the digital space, architecture and code often replace law as the actual regulators (Lessig, 2007). In the gaming industry, this regulatory power manifests as "private legislation" implemented through end-user license agreements. Developers often leverage their contracting advantages to redefine the boundaries of rights among parties through standard terms, potentially rendering some rights granted by law inoperative at the contractual level. Therefore, based on the principle of "incentivizing creation and balancing interests" in copyright law, this study adopts the dual-layer evaluation framework and four manifestations of conflicts proposed in Section 1.2, transforming normative judgments into testable questions: whether the specific design of platform terms in various aspects weakens the incentive at the purpose layer, and whether it triggers the risk of violating legal boundaries at the effectiveness layer.

2.2 Research Methodology

Addressing the aforementioned complex theoretical and practical issues, this study adopts a "mixed research method" that integrates text coding analysis based on platform terms and comparative analysis based on Chinese and American judicial precedents. The methodological choices are designed to serve the research questions raised in Section 1.3: text coding is used to systematically answer Questions 1 to 4, while comparative analysis of precedents is used to answer Question 5, and also serves as an external yardstick for assessing the effectiveness-level risks and evaluating the legal boundaries of platform terms in different jurisdictions.

Specifically, clause text analysis focuses on revealing the internal structure of platform "private legislation", identifying industry practices and comparing differences in commercial permissions and rights allocation among different platform types. Comparative law and case analysis, on the other hand, focus on judicial authorities' discretionary standards for "originality", "human contribution", "authorship", and "human-computer collaboration", and accordingly assess whether the rights allocation achieved by platforms through standard clauses touches the boundaries of legal theory, resulting in the loss of clause effectiveness and fairness.

2.3 Research Process

This study first collects multiple AI-based UGC games, creative platforms, development tools, and general tools as research samples. The selection criteria for the samples are: (1) The platform provides generative AI capabilities to end users, enabling them to generate, edit, or organize disseminable content within the platform ecosystem. (2) The platform provides publicly accessible and stably accessible standard contract texts, with supplementary clauses related to AI functionality. (3) The platform terms text can basically identify and extract the rule elements corresponding to the five coding dimensions mentioned in this article. (4) The platform possesses a typical governance model or high industry visibility within its category, and can represent the main product forms and terms strategies of current AI-driven UGC.

Based on the aforementioned criteria, this paper ultimately selects eight samples and stratifies them according to platform types. These primarily include AI-based UGC games (Maggie's Garden, AI Dungeon), UGC creation platforms (Roblox), game development tools (Unity Muse, Inworld AI, Rosebud AI, Jet Play), and general-purpose tools (Notion). This stratification design aims to compare the differences in terms and conditions under various AI embedding locations, thereby enhancing the explanatory power for research questions 1 to 4. Subsequently, through manual retrieval, the "User Agreement" and "AI Function Supplementary Terms" of the aforementioned platforms were obtained, forming a database of original terms and

conditions. The sample selection followed the principle of "typicality and comparability", covering different platform types and production mechanisms to ensure explanatory power for the type differences focused on in questions 1 to 4.

Immediately afterwards, this study established a coding manual and identified five core coding dimensions to conduct in-depth decoding of the terms in the aforementioned samples. A two-round review process was adopted to reduce subjectivity. After completing the full coding in the first round, a second round of review coding was conducted two weeks later. The five coding dimensions are: "Ownership of Generated Content", which defines the ownership of generated content; "Scope of Authorization and License", which examines the extent to which users are required to relinquish their creative content usage rights to the platform; "Liability and Risk Attribution", which analyzes the entities bearing infringement risks; "Commercial Rights", which defines whether users possess commercialization rights; and "Model Training Rights", which is specifically designed for the characteristics of generative AI. The introduction of the "Underlying Model Training Rights" dimension aims to specifically investigate whether platforms retain the right to train and optimize their AI models using user data through standard terms. This is also a key innovation point that distinguishes this study from traditional UGC copyright research.

Finally, this study applies the common structures and differential patterns extracted from clause analysis to the adjudication logic of recent typical cases in China and the United States for normative verification. On the one hand, it assesses whether there is a risk of the "nominally attributed user" clause being bypassed under the authorship/originality standards in different legal jurisdictions. On the other hand, it evaluates the legal boundaries of clauses such as platform access to broad licensing, excessive exemption from liability, and retention of training rights in terms of public policy.

The overall process of the research is shown in Figure 1.

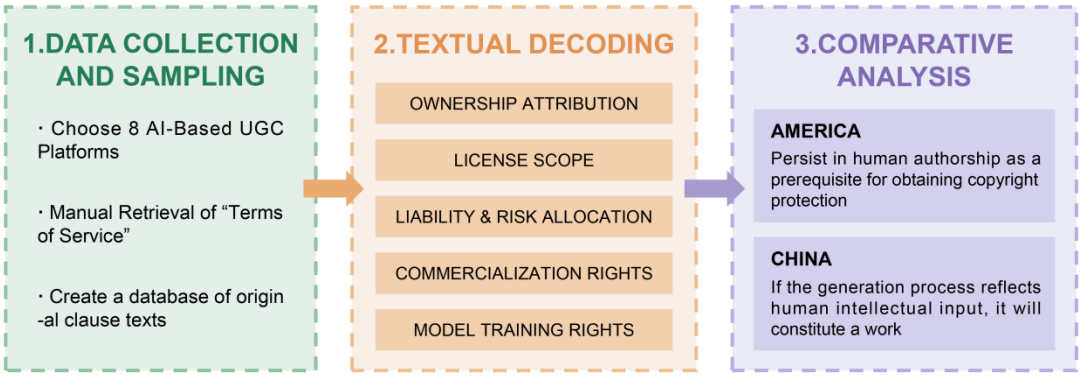

Figure1. Schematic diagram of research process

3. Results

3.1 Textual Analysis of Standard Form Contracts

After selecting eight typical samples for this study, we conducted a focused investigation on the clause design across five dimensions: ownership of rights, scope of licensing, allocation of responsibilities and risks, commercial usage permissions, and training rights of underlying models. The extraction results for each dimension are presented in Table 1. It is worth noting that the labels such as "broad license", "user assumption", and "reserved training rights" in Table 1 are not general impressions. They are obtained through rigorous coding by clause-level analysis units following the rules outlined in the coding manual and then aggregated. To support verification, this study provides the key clause text sources for each platform in Appendix A and presents the coding rules in Appendix B.

Table1. Analysis results of clause coding across various platforms

Sample	Type	Rights Ownership	License Scope	Liability and Risk Attribution	Commercial Rights	Model Training Rights
Unity Muse	Development Tools	Attributed User	Limited	User Assumption	Allowed	Reserved
Inworld AI	Development Tools	Attributed User	Limited	User Assumption	Allowed	Non-Reserved

Rosebud AI (Free)	Development Tools	Attributed Platform	Extensive	User Assumption	Not Allowed	Reserved
Jet Play	Development Tools	Attributed User	Extensive	User Assumption	Allowed	Unclear
Roblox	Creation Platform	Attributed User	Extensive	User Assumption	Allowed	Reserved
Maggie’s Garden	Game	Attributed User	Extensive	User Assumption	Not Allowed	Reserved
AI Dungeon	Game	Attributed User	Extensive	User Assumption	Not Allowed	Reserved
Notion	General Tools	Attributed User	Limited	User Assumption	Not Allowed	Non-Reserved

Through analysis of the coding of samples in Table 1, it is found that the vast majority of platforms stipulate in their terms that the rights to generate content belong to the users. However, platforms often achieve continuous control over user content by requiring users to grant broad usage licenses. Common characteristics of such licenses include: free of charge, global, permanently valid, transferable or sub-licensable, and covering multiple rights and capabilities such as reproduction, modification, dissemination, public display, making derivative works, and commercial exploitation. From the perspective of the first type of conflict mentioned in Section 1.2, this structure, where the rights are nominally owned by the users but in reality obtain broad licensing permissions, significantly dilutes the exclusive rights of users. That is, although users are stated as the rights holders, the platform can reuse their content under almost unrestricted conditions, thereby weakening the creator's exclusive incentives and revenue feedback at the purpose level.

The analysis results in Table 1 reveal that, in terms of responsibility and risk allocation, the samples generally adopt highly stringent exemption clauses and user guarantee clauses. Specifically, users are required to guarantee that their input materials, generated content, and usage behaviors do not infringe on the rights of third parties. This measure significantly increases the compliance burden and infringement risk for users, especially given the high uncertainty of AI-generated content and the difficulty for users to understand the source of training data and generation mechanism. This gives rise to the second type of conflict mentioned in Section 1.2: platforms achieve compliance risk isolation through terms while retaining ecological and data benefits, while users bear the main legal consequences in the absence of information and control capabilities.

Table 1 also reveals that there is a clear differentiation in the types of commercial permissions among the samples. Development tool platforms often explicitly allow users to use generated content for commercial projects or external releases, with the terms and conditions typically stating that users bear the risks, while the platforms are exempt from liability and obtain necessary authorizations to maintain a low-liability structure. Conversely, UGC creation platforms and game products often impose stricter restrictions on commercial permissions, with the governance logic being that the platforms need to maintain content supply within the ecosystem while maintaining structural dominance over content monetization channels through terms and conditions. Based on this, it can be concluded that there are systematic differences between platform forms and the degree of commercial openness, which are related to the platforms' needs for ecosystem control and revenue paths.

Regarding the dimension of training weights in the underlying model, platform terms generally exhibit a stronger desire for control and expansion. Except for a few platforms that explicitly state that they do not use user content for training, most samples retain the right to use user content or interaction data to train, optimize, or improve the underlying model in different ways, often lacking clear and enforceable exit mechanisms and compensation arrangements. From the perspective of the fourth type of conflict presented in Section 1.2, such clauses may undermine creator incentives at the purpose level. High-value content contributed by users is incorporated into the improvement loop of the platform model, but users find it difficult to obtain corresponding revenue feedback and do not have the right to refuse. At the effectiveness level, if the generated content is judicially recognized as a protected work, or if the intellectual contributions of users can be identified, the arrangement where the platform automatically obtains the right to utilize the training data may also face higher pressure for legal scrutiny.

3.2 Analysis Based on Chinese and American Judicial Precedents

In addition to the “private legislation” system in the digital entertainment industry, judicial precedents constitute another dimension for evaluating AI game copyright relationships. Through an examination of recent typical cases in China and the United States, it is found that judicial practice exhibits significant path differences in the identification of “human authorship” and “source of originality”, which directly impacts the effectiveness and legality of the aforementioned platform terms.

The US copyright law system has long adhered to the principle of "human authorship" as a prerequisite for obtaining copyright protection. This principle was further established in the case of Thaler v. Perlmutter (Thaler v. Perlmutter, 2025). In this case, the District Court for the District of Columbia upheld the US Copyright Office's decision to refuse registration, explicitly stating that copyright law only protects intellectual creations based on human creativity, and works generated entirely by artificial intelligence cannot be considered "works" in the sense of copyright law due to the lack of direct human intervention. This leads to two consequences closely related to Question 5 in Section 1.3. Firstly, the stipulation in the platform terms that "rights belong to the user" may pose a risk of failure, as users may be granted legally untenable rights expectations. Secondly, in the absence of workmanship and copyright protection, platforms' acquisition of use and control over content through "broad licensing" and "training utilization" terms can easily result in the de facto absorption of users' creative labor, thereby exacerbating incentive weakening and interest imbalance at the level of purpose.

In comparison, China's judicial practice embodies a more inclusive approach to adjudication. In the case of "Li v. Liu", Copyright Infringement Dispute" (also known as "AI Text-to-Image Case"), the Beijing Internet Court, by meticulously analyzing the generation process of the involved images, established the copyrightability of AI-generated content under specific conditions (Li v. Liu, 2023). The court pointed out that when users employ AI tools, if they invest personalized intellectual labor through designing complex prompts, adjusting parameters, and conducting multiple rounds of iterative modifications, and if this labor reflects the author's aesthetic choices and judgments, then the generated content should be recognized as a work. This judgment logic provides a basis for affirming rights in the human-computer collaboration mode of AI-based UGC games. It implies that in UGC games that rely heavily on players' natural language input, players' natural language input and parameter settings can be regarded as a creative act. At this point, if the platform forcibly deprives users of their rights or obtains broad authorization through standard terms, it will face severe legal challenges, as this constitutes a direct restriction on users' statutory copyright.

A comprehensive comparison of judicial precedents between China and the United States reveals that the core disagreement between the two lies in different evaluation criteria for "human contribution" in the AI generation process (Table 2).

Table2. Comparative analysis of judicial precedents between China and the United States

Comparative Dimension	United States: Thaler v. Perlmutter	China: Li v. Liu
Court of Adjudication	District Court of the District of Columbia	Beijing Internet Court
Core Dispute	Whether AI-generated works are protected by copyright	Whether AI-generated images embody human originality
Judgment Logic	Copyright law protects human creativity, and AI does not possess the status of an author	If the generation process reflects human intellectual input and personalized expression, it constitutes a work
Verdict	Reject the plaintiff's claim and confirm that AI-generated works are not copyrightable	Support the plaintiff's claim and confirm that AI-generated works are protected by copyright under certain conditions.

Through comparative analysis in Table 2, it can be seen that the American path emphasizes authorship thresholds and direct creative control by humans, while the Chinese path emphasizes identifiable intellectual labor and personalized choices. This divergence leads to the potential dilemma that the same clause may have different effectiveness boundaries in different jurisdictions in the AI-based UGC gaming industry.

In the context of Question 5 in Section 1.3, the aforementioned differences primarily imply two points. First, the declaration of "rights belonging to the user" in platform terms may result in the rights being unenforceable under U.S. law due to the lack of

workability; however, under Chinese law, if the user's contribution can be identified, this declaration may be substantiated by the judiciary and in turn restrict the platform's excessive exploitation. Second, arrangements such as "permissive licensing", "comprehensive indemnity", and "implicit reservation of training rights" may manifest more as conflicts at the purpose level under American law, which weakens user creation incentives and absorbs user interests. However, under Chinese law, they may also pose risks at the effectiveness level, namely facing fairness reviews of public policies, which can more easily lead to legal loopholes.

Therefore, the "one-size-fits-all" clause strategy of existing platforms has become difficult to adapt to the increasingly complex judicial environment. To reduce uncertainty in different jurisdictions and alleviate the conflict phenomena referred to in Section 1.2, it is urgent to establish a dynamic rights allocation mechanism that can identify and present "actual human contribution", providing an executable compliance path and a fair foundation for clause design.

4. Discussion

4.1 The Dilemma of Copyright Recognition Paradigm

The empirical research presented in the previous section reveals that there are currently two prevalent copyright governance paths in the industry. One, exemplified by American judicial practices, tends to directly deny the status of human authors due to AI participation, resulting in the relevant works entering the public domain. The other, represented by certain platforms, utilizes standard terms to acquire a significant number of rights that users are otherwise entitled to. A common issue with both paths is that they struggle to accurately address the current state of human-computer collaborative creation. The former may overly deny human contributions, while the latter may, under nominal recognition, circumvent user rights and incentives.

This study posits that the crux of the dilemma lies in the black box nature of the AI generation process and the invisibility of contributions. When efforts such as prompt engineering, multiple rounds of iteration, parameter adjustment, and material integration are difficult to identify and record, both laws and contracts tend to adopt extreme dichotomous judgments. Based on this, copyright determination and clause governance should shift from simply debating whether "AI is a tool" to carefully examining the actual degree of human contribution in the creative process, and providing a presentation mechanism for such contributions that can be recorded and reviewed. This also constitutes the theoretical premise for the modularized copyright confirmation mechanism of "human contribution degree" proposed in this article.

4.2 The Dilemma of Copyright Recognition Paradigm

Based on the dual-layer evaluation framework proposed in Section 1.1, this study categorizes the normative judgments of platform terms into four verifiable conflict phenomena, thereby limiting the conclusion of "whether it is contrary to copyright principles" to a clear scope of application.

For conflict phenomenon 1, when the platform explicitly states that "the content belongs to the user" but simultaneously requires the user to grant a permanent, global, unpaid, and broadly licensable license, the user's exclusive rights are significantly diluted, leading to a decrease in the creator's exclusive incentives and revenue feedback. This structure is not absolutely illegal, but at the level of purpose, it weakens the function of copyright law to incentivize creation through exclusivity, constituting one of the core situations of conflict at the purpose level.

For conflict phenomenon 2, when the platform centralizes the uncertainty risk of AI to users through comprehensive exemption, while retaining ecological control and data benefits, the terms present structural bias in fairness. In certain jurisdictions and contexts, such arrangements may also trigger fairness reviews of standard terms or restrictions in the sense of consumer protection, thereby adding risks at the effectiveness level.

For conflict phenomenon 3, if the user's contribution is judicially determined to meet the threshold of originality and creativity, the platform's clauses that deprive rights or exclude core responsibilities in a one-size-fits-all manner are more likely to be subject to public policy scrutiny.

For conflict phenomenon 4, when platforms incorporate user content and interaction data into the closed-loop model training process, but lack explicit consent, effective opt-out mechanisms, or reasonable compensation, there is a disconnect in incentives between user contributions and platform profits. This undermines the sustainability of creative engagement and, in certain scenarios, contradicts the logic of statutory rights protection.

In summary, the "legitimacy crisis" of platform terms does not necessarily mean that all platform terms are invalid. Instead, it refers to the potential conflict at the purpose level and uncertainty risk at the effectiveness level that platform private regulations may face within the scope defined by the aforementioned conflict phenomena. Therefore, platform governance cannot remain at the level of terms declaration and risk transfer, but needs to shift towards a more transparent and fairer rights allocation scheme to reduce disputes and compliance costs.

4.3 Establishing a Hierarchical Rights Recognition Mechanism

In response to the aforementioned complex phenomena and issues, this study proposes a modular and hierarchical rights recognition mechanism centered around "human contribution degree". This mechanism does not negate the governance needs of platforms, but aims to provide an executable path for the design of rights confirmation and terms for "human-computer collaborative creation", enabling a sustainable balance between incentives, fairness, and innovation.

Firstly, we should abandon the binary classification approach that simply categorizes all AI-generated content as either "uncopyrighted" or "owned entirely by the user". Instead, we should classify content into different contribution levels based on the identifiable contributions of users in prompt engineering, multiple iterations, parameter adjustments, material integration, and expression control. For low-contribution content, emphasis can be placed on public circulation and platform ecosystem usage rules; for high-contribution content, it should be clearly acknowledged that users enjoy full copyright or at least possess stronger control rights, in order to safeguard creative incentives and avoid weakening rights.

Secondly, for user-generated content identified as having high contribution or clear original expression characteristics, if the platform intends to use it for underlying model training and optimization, a reviewable consent mechanism should be established. This mechanism should at least provide a clear opt-out or opt-in path, and explore reasonable compensation or benefit feedback schemes. For low-contribution content, more flexible training utilization rules can be configured under the premise of clear notification and compliant governance.

Thirdly, to ensure the practical implementation of contribution recognition, technologies such as digital watermarking and log recording can be employed to create verifiable metadata records for prompts, parameters, and the iteration process. These records can serve as crucial evidence to prove intellectual input and expression control in dispute resolution. Additionally, they provide a reviewable foundation for platform compliance verification across different jurisdictions, thereby alleviating the dilemma of ownership confirmation and clause disputes caused by the "invisibility of contribution" in the AI era.

5. Conclusions

With the increasingly widespread application of generative AI in the gaming industry, UGC is evolving from "user-generated" to "human-computer co-creation". This study, through the analysis of the terms and conditions of eight typical AI-based UGC games, creation platforms, development tools, and general tools, and combined with a comparative study of recent judicial cases in China and the United States, operationalizes the normative question of "whether platform private contracts are contrary to copyright principles" into testable evaluation criteria and research questions. Based on this, the following conclusions are drawn.

Firstly, most current platforms have structural arrangements where they are nominally owned by users but obtain extensive licensing permissions. These permissions often have highly expansive scope, duration, and geographical coverage, significantly diluting users' exclusive rights in practice. Moreover, platforms generally unilaterally transfer the uncertainty risks generated by AI to users through exemption clauses, forming a typical structure of imbalance between risks and benefits. At the same time, platforms exhibit significant differences in commercial licensing arrangements. Development tools tend to be more open for commercial use, while UGC platforms and game products tend to restrict commercial use through terms and conditions. Training rights clauses generally reflect platforms' strong control tendency towards data and model upgrade loops, with relatively inadequate exit and compensation mechanisms. Finally, due to differences in the judgments of authorship and originality between China and the United States, the same clause arrangement faces different effectiveness boundaries in different jurisdictions, thus amplifying the uncertainty of private regulation.

In summary, the key to addressing the copyright crisis of UGC games in the AI era lies in breaking the monopoly of rights under the technical black box and establishing a symbiotic ecosystem that can both incentivize players to unleash their creativity through human-computer collaboration and ensure that platforms obtain legitimate data materials. The "human contribution degree" modular rights recognition mechanism proposed in this study aims to reconstruct creative incentives and benefit

balance through a visible and evidence-based path of contribution, and provide a more robust compliance and fairness solution for platform terms design under different legal jurisdictions. Future research can further focus on how to utilize blockchain and other technological means to provide credible electronic certificate support for the recognition of this dynamic "human contribution degree", thereby promoting the parallel development of technological ethics and business models in the digital entertainment industry under the protection of the rule of law.

Funding: This research received no external funding.
Conflicts of Interest: The author declare no conflict of interest.
ORCID iD https://orcid.org/0009-0009-7656-2492

References

Alharthi, S. A. (2025). Generative AI in Game Design: Enhancing Creativity or Constraining Innovation?. Journal of Intelligence, 13(6), 60.

Hsu, T. C. (2026). A Generative AI Driven Interactive Narrative Serious Game for Stress Relief and Its Randomized Controlled Pilot Study. SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6471398

Hutson, J. (2024). The Evolving Role of Copyright Law in the Age of AI-Generated Works. Journal of Digital Technologies and Law, 2(4), 886-914.

Kang, Y. J., Lee, U. J., & Lee, S. (2024). Who Makes Popular Content? Information Cues from Content Creators for Users' game Choice: Focusing on User-Created Content Platform "Roblox". Entertainment Computing, 50, 100697.

Lessig, L. (2007). CODE VERSION 2.0. 翔泳社.

Liu, Y., Duan, H., & Cai, W. (2024). User-Generated Content and Editors in Games: A Comprehensive Survey. arXiv preprint arXiv:2412.13743.

Li v. Liu, (2023) Jing 0491 Min Chu No. 11279 (Beijing Internet Court Nov. 27, 2023). https://english.bjinternetcourt.gov.cn/pdf/BeijingInternetCourtCivilJudgment112792023.pdf

Quarneti, F. (2023). Breaking Barriers: Roblox's AI Tools Intend To Make Game Development Accessible To Everyone. Sparknewswire. https://sparknewswire.com/newsfeed/breaking-barriers-robloxs-ai-tools-intend-to-make-game-development-accessible-to-everyone/

Standing Committee of the National People's Congress. (2020, November 11). Copyright Law of the People's Republic of China (amended up to November 11, 2020). WIPO Lex. https://www.wipo.int/wipolex/en/legislation/details/21065

Thaler v. Perlmutter, No. 23-5233 (D.C. Cir. Mar. 18, 2025). https://media.cadc.uscourts.gov/opinions/docs/2025/03/23-5233.pdf

Thomas, A. (2023). Merit and monetisation: A study of video game user-generated content policies. Internet Policy Review, 12(1), 1-28.

Unity Official Developer Community. (2023, October 24). Unity Muse Alpha Feature Preview! A development tool that can generate prototypes, create textures, write code, and fix bugs. https://developer.unity.cn/projects/6535f22eedbc2aaf9348f175?

Wozniak, E. (June 30, 2025). The Intersection of AI and Copyright: Navigating the Legal Landscape of AI-Generated Art. University of Cincinnati Law Review. https://uclawreview.org/2025/06/30/the-intersection-of-ai-and-copyright-navigating-the-legal-landscape-of-ai-generated-art/

Zammit, M., Liapis, A., & Yannakakis, G. N. (2024, August). CrawLLM: theming games with large language models. In 2024 IEEE Conference on Games (CoG) (pp. 1-2). IEEE.

Zang, T., Chen, K., Li, H., & Sun, G. (2025, September). Sketch2Play: Runtime Generation of Playable 3D Game Content from Sketches. In Adjunct Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology (pp. 1-3).