The Nature and Copyright Ownership of Artificial Intelligence Creations

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Abstract: With the vigorous development of artificial intelligence technology in our country, AI-generated works have brought tremendous convenience to our daily work. However, while developing and using AI-generated works, disputes have arisen in the academic and judicial fields regarding whether AI-generated works have copyright and how to legally protect them. Currently, the legal issues related to AI-generated works in our country mainly include the recognition of the work attributes of AI-generated works and the attribution of copyright ownership. In response, the author first analyzes the current status of disputes over the attributes of AI-generated works, then delves into the difficulties in recognizing the work attributes and copyright ownership of AI-generated works, and finally proposes three suggestions for the legal protection of AI-generated works: first, to improve legislation and clearly include AI-generated works within the scope of legal protection; second, to clarify the creativity standards for AI-generated works as soon as possible, determining the creativity of AI-generated works from the perspective of external expression of intellectual achievements; and third, to clarify the copyright ownership of AI-generated works, legally protecting the legitimate rights and interests of the users of AI creation systems.

Keywords: Artificial Intelligence; AI-generated Works; Copyright Protection

1. Introduction

Currently, as ChatGPT continues to gain popularity, its application is increasingly permeating various aspects of human life, bringing significant assistance to human work and life. Under human instructions, ChatGPT's capabilities, including article writing, email replying, code programming, and even composing general academic papers, seem to be taken for granted. The issues regarding the nature and ownership rights of works completed by artificial intelligence tools like ChatGPT have sparked controversy in academic circles and judicial practice. The current copyright law in our country does not specify the protection of AI-generated works. However, in judicial practice, similar confusions have been encountered, such as the copyright dispute case between Tencent and Yingke involving an AI-generated work, where courts faced the dilemma of lacking legal basis in similar cases. Therefore, this article attempts to conduct an in-depth study on a series of issues, including whether AI-generated works can obtain copyright status, the attribution of copyright rights and obligations, and how to protect AI-generated works, with the aim of providing targeted solutions.

2. The Dispute over the Attributes of Ai-Generated Works

2.1 Doctrinal Disputes

From the current research status on the attributes of AI-generated works both domestically and internationally, scholars have conducted significant research on the legal issues related to the attributes of AI-generated works, mainly converging on three viewpoints: the "Work Denial Theory," the "Fictitious Personality Theory," and the "Work Theory."

The Work Denial Theory argues that: "We cannot define the content generated by artificial intelligence solely from the perspective of the work, but should consider that the original creator of the work should be a natural person. A work is a direct expression of the author's spirit and consciousness. The originality of a work stems from the author's independent personal creation, which endows the work with the imprint of intelligence. Artificial intelligence, after all, does not fall

within the definition of human; it lacks the human-like free-flying imagination, and therefore, its created content should not be classified under intellectual achievements." [1] Another view holds that "although artificial intelligence possesses automated and intelligent characteristics, its tool nature determines that the works produced by artificial intelligence are outputs of computer software programs, not the direct results of human creation. On the other hand, since artificial intelligence lacks direct innovativeness in the creation process, the works generated by artificial intelligence do not exhibit originality in content."

The Fictitious Personality Theory proposes that artificial intelligence itself can become a legal subject of copyright law. Professor Ryan Abbott [2] introduced the "virtual personality theory". He believes that artificial intelligence software contributes more to the creation of works than humans do, but to satisfy the personality factor of the copyright subject, a fictitious human subject should be designated to replace the AI software as the main creator of the work.

The Work Theory suggests that the positioning of AI-generated works should be determined based on the objective standard of the content of the work, rather than the eligibility of the author's subject. The works generated by artificial intelligence are almost indistinguishable from those created by humans in terms of form and content, clearly meeting the legal standards for the minimum requirement of originality. For example, Yi Jiming [3] proposed the "sweat of the brow" criterion, arguing that we should establish an originality criterion centered on objective standards, rather than devaluing the generated content due to the ambiguity of the creating subject. Xiong Qi [4] We can view the works generated by artificial intelligence as the product of conveying the intentions of the designers through software carriers. Whether these generated contents can be considered works, we can still apply the existing standards of originality for judgment.

2.2 Commentary on Doctrinal Disputes

Examining the "Work Denial Theory" perspective, this viewpoint sees artificial intelligence creation technology as merely a tool for humans, considering it in isolation and one-sidedly arguing that no matter how novel the creation method or how refined the results, it can never achieve independent completion with originality, but is merely mechanical, a cold mechanized operation. In fact, with the rapid development of current artificial intelligence technology, AI creation technology is no longer limited to the initially mechanical obeying of commands and rigid working according to programs. Today's advanced artificial intelligence technologies have acquired functions of perception, recognition, and inference, with some even capable of self-planning and modifying their programs through learning. Some can even self-plan and self-modify their programs through learning, making this viewpoint in fact not compatible with the latest developments in artificial intelligence technology.

Looking at the "Fictitious Personality Theory" perspective, while this viewpoint can to some extent achieve independent protection of the rights and interests of AI creations, its biggest problem lies in the fact that, once the legal status of AI is independently established, it may affect the balance between rights and duties. Although AI is advanced and powerful in participating in actual actions like creating works, its capacity for engaging in and fulfilling legal actions, such as forming and performing civil relations, is still weak. Therefore, AI's dependency on humans remains strong, necessitating existing legal entities to assume responsibility for it. In this scenario, if AI becomes a legal entity, although it cannot be held accountable for its actions, it would still enjoy copyright and protection from infringement, which could lead to a misalignment between the capacity for actions and responsibility.

2.3 The Perspective of this Article - Work Theory

This article argues that for AI-generated works, originality is the key criterion for determining whether they qualify as works with copyright attributes, rather than the independence of their creation. Regarding the legal definition of originality in China, there is no explicit specification; Article 3 of the "Copyright Law Implementation Regulations" merely requires "intellectual activity," suggesting that the standards for originality in China are not overly stringent. Indeed, current AI creation

technology cannot fully independently create without human intervention, but this does not mean it lacks the capacity for intellectual activity and thus fails to meet the standards of originality. In fact, AI-generated works, under the premise of meeting the standards of originality, can be included within the scope of copyright law protection. Generally, when AI engages in creative activities, it may produce three types of outputs: firstly, entirely new works; secondly, works substantially similar to existing works; and lastly, new works that contain elements of the original creations. The first scenario is the ideal target for AI creation, clearly meeting the Copyright Law's requirements for a work's originality. However, in the second scenario, if the work forms substantial similarity in expression, it actually infringes on others' reproduction rights. Due to computational limitations and the scale of datasets, some basic AI might experience "overfitting," leading to substantial similarities in content expression and thus infringing on copyright, causing the work to lose its originality. In the third scenario, AI-generated works might possess a certain degree of originality but still identify elements of other works within them, constituting an adaptation of the original work, potentially infringing on other authors' adaptation rights, thereby also lacking originality. Therefore, the author believes that as long as AI creation technology meets the minimum standards of originality, it can be recognized as a work.

3. The Dilemma of Recognizing the Attributes of AI-generated Works

3.1 The Legislative Vacuum

Currently, the attributes of AI-generated works present a legislative void in our country's legal domain, with the only laws and regulations related to the attributes of AI-generated works being the "Copyright Law" and the "Implementation Regulations of the People's Republic of China on the Copyright Law." For AI-generated works to be protected under the "Copyright Law," they must be considered works in the sense of the "Copyright Law." According to the "Copyright Law," works must meet four conditions: Firstly, the creation must be within the domains of literature, art, and science. Secondly, it must be an intellectual achievement. Thirdly, this intellectual achievement must possess originality. Fourthly, this originality must have a certain form of expression. Hence, works protected by law must simultaneously meet both formal and substantive conditions: formally, they belong to the domains of literature, art, and science that can be expressed in a certain form; substantively, they must be intellectual achievements with a certain level of originality, where both form and substance are indispensable. However, there is some controversy over whether creations by artificial intelligence meet the "originality" defined in the "Copyright Law." For example, some argue that although AI creations, with the development of technology, are becoming increasingly intelligent, they ultimately cannot possess the boundless imagination like humans or achieve intellectual progress, thus their creations do not qualify as original intellectual achievements. Conversely, others believe that the legal attributes of AI creations should be judged based on their expression, i.e., whether the works of AI meet the requirements of originality. As for how to determine originality, current opinions are not unified, mainly divided between subjective and objective originality. Subjective originality places more emphasis on the specificity of the creative process, where the analysis of the specific process can reflect the author's personalized choices. For the objective standard of originality, the main criterion is whether the created work has essential differences from other works. Therefore, under the subjective originality standard, AI creations cannot be recognized as works: because the process of generating AI creations and the initial preparation work are determined by input algorithms according to a set procedure, lacking the premise of subjective selection by artificial intelligence. Meanwhile, the objective standard of originality could more broadly define AI creations as works. Another theory indicates that the determination of originality should be understood from a broad perspective, based on the objective reality of the content of the work. With the current high development of artificial intelligence technology, its works are almost indistinguishable from human-created works, undoubtedly meeting the basic requirements of originality. [5]

From the perspective of China's "Copyright

Law Implementation Regulations," as an administrative regulation of our country, it further optimizes and refines the ambiguous areas of the "Copyright Law." Article 3 of this administrative regulation clearly defines what constitutes "creation," requiring that the act of creation must simultaneously meet the conditions of "intellectual activity" and "direct causal relationship." "Intellectual activity," like the "Copyright Law," explicitly requires originality in the subject and process of creation, while the direct causal relationship demands a direct causation between "intellectual activity" and "creation result." However, examining the essence of current AI creation activities, human intelligence in the AI creation process is mainly reflected in humans using computer algorithms to perform operations on various data, and the creation of works is ultimately achieved through the operation of computer programs, belonging to the result of electronic calculation. This fundamentally differs from the general process of work creation, where natural persons directly create works through intellectual activities, indicating that AI creations do not belong to "direct intellectual achievements," but are "causal relationships" indirectly produced by human intellectual activities with certain connections. Thus, the "Copyright Law Implementation Regulations" also do not explicitly define the work attributes of AI creations.

3.2 Judicial Disputes

Regarding whether AI-generated works possess originality and qualify as protected works under the "Copyright Law," current judicial practice is not entirely unified. Some courts recognize that works created through artificial intelligence technology meet the originality requirements of the "Copyright Law," considering them as works and categorizing them as corporate works, while others do not agree. For example, in 2018, the Beijing Internet Court, in the case of copyright dispute between Feilin Law Firm and Beijing Baidu Netcom Science Technology Co., Ltd., believed that "the analysis report, created by the WicoXianXian database using input keywords combined with algorithms, rules, and templates, could, in some sense, be considered 'created' by the WicoXianXian database. Since the analysis report was not created by a natural person, even if the analysis report 'created' by the WicoXianXian database has originality, it is still not considered a work in the sense of copyright law and therefore cannot be recognized as having an author with the related rights specified by copyright law."

In December 2019, the Nanshan District People's Court in Shenzhen made a judgment in a case involving an AI-generated work, where the court recognized the AI-generated work as a work and considered it a corporate work, "…The involved article was completed under the plaintiff's supervision by the main creative team, including the editorial team, product team, and technical development team, using Dreamwriter software, without mentioning other entities involved in the creation of the involved article. The involved article, a collaborative intellectual creation by multiple teams and individuals under the plaintiff's supervision, reflects the plaintiff's demand and intention to publish stock review articles. The involved article was published on Tencent's online securities channel operated by the plaintiff, with the end of the article stating 'This article was automatically written by Tencent robot Dreamwriter,' where the 'Tencent' signature, combined with its publishing platform, should be understood as the plaintiff, indicating that the plaintiff bears responsibility for the involved article. Therefore, in the absence of contrary evidence, this court recognizes the involved article as a corporate work created under the plaintiff's supervision…"

4. The Dilemma of Determining Copyright Ownership of AI-Generated Works

4.1 The Relevant Entities of AI-generated Works

AI-generated works, in essence, are the crystallization of human intelligence, created by humans using AI creation systems. The development of these AI creation systems requires significant investment in terms of financial and human resources. Therefore, the entities involved in AI-generated works generally include at least three parties: the investors, designers, and users of the AI creation system.

Firstly, there are the designers of the AI creation system. Designers are the ones who first instill relevant will and value into the AI-

generated works, with the direction and path of AI creation largely determined by them. Secondly, there are the investors of the AI creation system. Investors are primarily responsible for funding the development of the AI creation system and bearing the associated risks. Finally, there are the users of the AI creation system. Users play a direct role in controlling and influencing the outcome of the AI's use, with their ideas and concepts also integrated into the final AI-generated works. Due to the multitude of entities involved in AI-generated works, and because the current "Copyright Law" does not explicitly regulate the protection and distribution of rights among designers, investors, and users, there exists legal ambiguity and a vacuum, which can easily lead to disputes over the distribution of rights among the parties. This is not conducive to copyright protection and leads to numerous controversies and difficulties in determining the copyright ownership of AI-generated works in practice.

4.2 The Dilemma of Copyright Ownership for AI-Generated Works

The current views on the determination of copyright ownership for AI-generated works mainly include the following perspectives:

(1) Protecting the interests of AI investors. Hou Nanzhu believes that the AI industry is highly capital, labor, and resource-intensive, with a long investment return period. Investors need to continue high investment and bear the high risk of failure. Without the full investment and risk-taking of investors, designers would not be able to complete the design, and users would naturally not be able to use high-quality AI products. Therefore, the development characteristics of AI-generated works determine the leading position of investors in the AI industry. Hence, according to the principle of consistency of rights and responsibilities and the principle of fairness in law, as well as to promote the development of the AI industry, investors should rightfully obtain the rights and interests of AI-generated works. [6]

(2) Protecting AI users. Scholars like Wu Handong believe that the power to create with AI mainly lies with the "users." When "users" see development opportunities in this field or have expectations for the industry's development, they will more actively participate in the AI field, creating more AI "works" and accelerating the application of AI in society. Moreover, protecting AI users will also raise their copyright awareness, reduce copyright disputes, thereby contributing to a more orderly and rational development of the AI industry. [7]

(3) Protecting AI designers. Xiong Qi believes that AI works, being the product of the designer's will, can still be subject to originality [4]. Although this viewpoint is beneficial for protecting the interests of AI designers, it must be recognized that while designers put effort into creating AI works, they have already received corresponding labor compensation upon selling the software. Therefore, if designers continue to hold subsequent related rights, it would be extremely unfair to both users and purchasers.

(4) Corporate works perspective, which grants copyright to AI-generated works and refers to the provisions of the corporate works system, treating the owners of AI as copyright holders. Xiong Qi believes that the content generated by AI, being a product of the designer's will rather than thoughtless expression, can still meet the standards of originality for work status determination. [4]

5. Suggestions for the Improvement of the Legal Protection System for AI-generated Works

5.1 Improve Legislation to Clearly Include AI-generated Works within the Scope of Legal Protection

As analyzed earlier, constrained by the requirement of the "natural person" for authors in our country's "Copyright Law" and the clear requirement of "originality" for works, fully including AI-generated works within the protection scope of the "Copyright Law" would inevitably lead to a direct expansion of the "Copyright Law" protection scope, causing confusion in judicial practice regarding the determination of the originality standard for works. If AI-generated works were directly included within the scope of civil law protection, it would also provoke disputes over whether AI creations qualify as "objects." Therefore, the best approach is to draw on the experience of formulating the "Regulations on the Protection of Computer Software" in our country, combined with the actual

development of artificial intelligence technology, to develop specific legal regulations for the protection of AI-generated works. The regulations should clearly stipulate that AI-generated works that do not violate public order and morals, do not harm the public interest of society, and possess a certain level of creativity be included in the category of "other intellectual achievements that meet the characteristics of works," thereby granting legal protection to the copyrights of AI-generated works that meet the criteria.

5.2 Clarify the Creativity Standards for AI-Generated Works

Regarding the existing characteristics of AI-generated works, an additional specification of creativity standards for AI-generated works is proposed. The so-called creativity standards differ from the subjective judgment of originality; they are essentially an objective judgment standard. This standard emphasizes the perspective of an average reader, starting from the external expression of intellectual achievements to determine whether a work possesses creativity, without overly considering the qualifications of the creator or the creative process. [8] The advantage of this standard is that it does not require consideration of the subjective judgments of the thoughts and personality spirit contained in the work. Instead, it only considers whether the differences between the AI-generated works and existing works reach a significant or substantial standard. The reason I find the application of creativity standards more reasonable is that AI-generated works are essentially the product of machine learning and fundamentally cannot meet the requirements for thought originality and personality spirit originality demanded by the standards of originality for human works. Therefore, the originality requirement is not feasible or reasonable for AI-generated works. However, the creativity standards, because they do not consider subjective standards and only require an objective judgment on whether there is a substantial difference or a significant disparity between the content created by AI and existing human works or data materials, can determine whether AI-generated works possess creativity.

5.3 Clarify the Copyright Ownership of AI-Generated Works

The author mentioned in the previous text that the ownership of rights regarding artificial intelligence creations involves three main entities: the designers of the AI creation system, the investors, and the users. Both theoretically and practically, these three parties have made certain contributions to the final output of artificial intelligence creations and thus have legal reasons worthy of protection. However, in determining the ownership of copyright for artificial intelligence creations, the author believes that the "exhaustion of rights principle" should be applied to examine the interests of the three parties. The "exhaustion of rights principle" means that once an intellectual property product is sold and enters the market, the rights of the intellectual property rights holder will be "exhausted".

From the perspective of the investors of the AI creation system, the main cost lies in the upfront development expenses. Once the development is successful, investors will recoup their investment costs by selling the AI creation system. Therefore, at this point, the rights of the investors have been realized, and it is not significant to further incentivize them by granting them preferential protection.

Secondly, from the perspective of the designers of the AI creation system, they have invested a considerable amount of effort and intelligence into the program development. However, according to the current "Copyright Law" in China, software works are already protected by the law. Therefore, granting additional copyright to the designers in the distribution of rights for AI creations would undoubtedly result in "double profit" for the designers, which is not reasonable.

Lastly, from the perspective of the users of the AI system, although AI software already possesses certain intelligent characteristics at the current technological level, the creation of AI works still relies on the users of the AI system. Depending on the users' purposes, the output results of the AI software need to be modified and proofread by the users to ultimately achieve perfect AI creations. Therefore, by triggering the AI system to enter the creation state and ultimately producing works with legal significance under the "Copyright Law", users endow themselves with the rights of the authors of AI-generated works. This approach can completely solve the

problem of the ownership of AI-generated works smoothly within the current framework of copyright law and also motivate users to create more good works using AI systems.

6. Conclusion

With the increasing appearance of artificial intelligence creations represented by ChatGpt in our life, the legal protection of artificial intelligence creations also needs to attract our attention. In view of the fact that both the current Copyright Law and the Civil Code have some problems of vague regulations and lack of protection for the legal protection of artificial intelligence creations, the author puts forward the following three suggestions for the legal protection of artificial intelligence creations in China in the future based on the actual situation: First, perfect the legislation and formulate special protection regulations. Formulate a special law and regulation to protect artificial intelligence creations, and bring artificial intelligence creations with certain creativity into the category of"other intellectual achievements that meet the characteristics of works", so as to provide special legal protection based on the copyright of artificial intelligence creations. Second, clarify the creativity standard of artificial intelligence creations. From the perspective of general readers, the creativity of artificial intelligence creations is determined from the perspective of external expression of intellectual achievements, without too much consideration of the qualification and creation process of the creative subject. Third, clarify the ownership of rights and interests of artificial intelligence creations. It is suggested that according to the principle of exhaustion of rights, users of artificial intelligence systems should be given the rights of copyright holders of artificial intelligence generated works, so as to encourage users to create more good works by using artificial intelligence systems.

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