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Research on the Identification and Copyright Ownership of Generative Artificial Intelligence Works

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Abstract. This article focuses on copyright issues involved in generative AI works, taking the application scenarios of ChatGPT as the main example. After a long discussion, generative artificial intelligence has been accepted by the mainstream of society as a tool for human creation of works, and judicial judgments have also adopted the view that it should objectively judge whether the content it generates constitutes a work. In the face of these problems, the current copyright system faces many difficulties that cannot be perfectly solved, and the legislation and judicial practice of various countries are also very different. This article takes ChatGPT-generated content as an example, based on the provisions and practice of Chinese copyright law, and refers to European and American legal systems and typical cases, and deeply analyzes the legal attributes and rights of generative AI works.

Keywords: generative artificial intelligence, work recognition, Copyright ownership, ChatGPT

1. Introduction

In recent years, generative artificial intelligence (AIGC) technology has advanced by leaps and bounds, automatically generating a large amount of image, text, music and other content, showing surprising efficiency in journalism, writing, code creation, art, design and other fields. However, while AIGC technology brings convenience, it also brings unprecedented challenges to the traditional copyright legal framework. Although the issue of copyright ownership and copyright ownership of AI-generated content has a long history, the landmark ChatGPT has brought new thinking and discussion to these two issues. Moreover, the current ChatGPT language model has been upgraded from GPT-3.5 evolved to GPT-4, which will provide multimodal models for content generation, such as videos and music [1]. It is not difficult to imagine that AIGC will be used on a large scale in various fields in the future, but the development of technology is often accompanied by problems. The copyright controversy has become prominent, and ChatGPT has stimulated discussions on information, data, and intellectual property issues due to its advantages in algorithms, data and other fields, and the famous linguist Noam Chomsky regards ChatGPT as high-tech copy [2]. With the continuous expansion of generative AI application fields such as ChatGPT, the collision between the existing copyright system and the generative AI industry chain will only become more intense. In the face of the problem of AIGC work identification and copyright ownership, the existing copyright rules are difficult to adapt to the technical characteristics of

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"machine generation + massive data training", resulting in the problems of "how to judge copyrightability" and "who owns the copyright" have not been effectively solved, to promote the generative artificial intelligence industry to go further.

2. Identification of generative AI works

2.1. Can AI-generated content be identified as a "work" in the sense of traditional copyright law

In accordance with Article 3 of China's Copyright Law, a work is an intellectual achievement that is original in the realm of literature, art, and science and can be expressed in a certain way. It can be foreseen that if an intellectual achievement is to be recognized as a work, the core is that it is original in form and can be perceived by people. Therefore, it is still controversial whether content is still an "intellectual achievement" when it is automatically generated by an artificial intelligence system without direct human participation. From the perspective of formal elements, the text content generated by ChatGPT is not much different from that of human-written works, and can be fixed in written form and perceived by people, thus meeting the formal requirements of the work. The key is whether the element of originality is established, especially whether it reflects the creative contribution of people. The author believes that generative AI has special tool properties. In its report, the National Committee on the Application of New Technologies in Copyright Works compared computers with cameras, printers and other creative tools, and it was believed that the authors of photos were those who used cameras, and the authors of computers "created works" were those who used computers [3]. The so-called "creative works" of computers refer to works created on computers using information technology and displayed on display screens, or in other copies [4]. Computer programs are passive tools for assisting creation [3]. The notice issued by the U.S. Copyright Office also does not deny that content generated by human authors using computers or other equipment as auxiliary tools constitutes a work [5]. On the other hand, humans not only provide running rules for generative AI to produce corresponding results [6], instead, it also incorporate human subjective opinions into the training of the RLHF model. Generative AI is the latest application of computer technology in the field of generative content, and its powerful algorithm system makes up for the shortcomings of human information in terms of information. As a language model, ChatGPT's main purpose is to help humans generate the content they need. Therefore, generative AI is a facility for humans to create works.

2.2. Exceptions to copyright protection for generative AI works

AI-generated content is often admitted from copyright law, but not all AI-generated content is a work that meets the requirements of copyright law. Exceptions to copyright law mainly include simple factual information, calendars, common tables, and formulas, which cannot be protected by copyright law. One of the important adjustments of the third revision of China's Copyright Law is to change the original clause of "current affairs news" to "simple factual news", which is not a simple replacement at the text level, but stems from the ambiguity dilemma of the concept of "current affairs news" in practice. Before the amendment, there had been an expanded interpretation of "current affairs news" in some judicial cases, and although some content was marked as "current affairs news", it actually contained the original processing of reporters and editors, which essentially constituted written works and should be included in the scope of copyright protection. This amendment also echoes international copyright rules. The Berne Convention clearly states that "the

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protection provided by this Convention shall not be adapted for daily news or social news of a purely press nature". At the same time, the Berne Convention Guide also emphasizes the importance of "forms of expression", and it could be protected as literary works if the news reporter demonstrates "sufficient intellectual effort" through a unique narrative structure, language style or commentary perspective when presenting facts. In addition to mere factual information, "unique expression" is also an important exception to copyright protection for generative AI works. It should be clear that "unique expression" does not belong to the category of "idea", but the core reason why it is excluded from the scope of protection is that if copyright protection is granted to only one expression, then all creators in this field must obtain the authorization of the previous author before they can create, which will undoubtedly greatly restrict the creation of works, inhibit creative vitality, and violate the legislative purpose of copyright protection. The competitive chess score formed by AlphaGo is a typical example.

3. Copyright ownership of generative AI works

3.1. Can AI become the author of a work

According to traditional copyright law, the "author" is the creator of the work, and it is often a natural person; In exceptional cases, the law also recognizes legal persons or other organizations as drafters. U.S. Supreme Court decision in 1903 in Bleistein v. Donaldson Lithographing Co., legal persons and other organizations were also given judicial recognition as authors [7]. However, artificial intelligence itself is not a natural or legal person, and does not have the qualifications and ability to express its intentions, so it is difficult to establish AI as an author under the current legal framework. In Burrow-Giles Lithographic Co. v. Sarony, the U.S. court proposed the "if not" rule [8]. That is, in the process of generative AI creation, without human participation, it is impossible for generative AI itself to automatically and independently generate works. The U.S. court clearly pointed out that "the author under copyright law can only be a human", and no matter how intelligent a machine is, it is impossible to obtain the legal status of the author. In the "monkey selfie" case, for instance, the U.S. court rejected the claim that animals can obtain copyright for photos taken independently, emphasizing that non-human creations are not protected by copyright law. The Chinese judiciary has a similar attitude as well: in the case of Film v. Baidu, the court clearly stated that the creation of natural persons is a necessary condition for a work, and intelligent software itself cannot be the author of the generated work.

3.2. AI user as author possibility

In most AI application scenarios, users input keywords or instructions to trigger content generation. So, can users become authors of works? The key is whether the user has engaged in substantial intellectual contributions. For works that can be generated by simple instructions from users, they do not contribute substantive artistic skills or labor, nor do they make necessary arrangements for the final production of the product, so they cannot be regarded as authors within the meaning of copyright law [9]. The U.S. Copyright Office also stated in its guidance that copyright will not be recognized if the traditional authorship elements of a work are done by machines and humans do not exercise "ultimate creative control" over the machine-generated material. There is also a view that although the works generated by generative artificial intelligence contain the subjective color of users, they are only one of the many possible results generated based on algorithm models, which does not conform to the creation of traditional copyright law. The author believes that generative AI

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is always just a tool for human creation, so for works generated by ChatGPT, if users only give simple instructions to generative AI, users should not be regarded as authors. However, if the user provides specific writing ideas or constantly adjusts the AI output to make the work have its strong subjective color, the user can be recognized as the actual author and enjoy copyright.

3.3. Discussion on the status of program creators

According to traditional theory, developers or platforms provide tools and algorithm support when users use AI to generate content, but do not directly participate in the creative expression of specific content, so they are generally not considered authors. However, in some special cases, developers have a significant influence on the output content; should they be given some author rights? Some scholars in the United States have compared the theory of "hired works" to advocate that AI works are regarded as job works produced by developers and are copyrighted by them. However, the U.S. federal court rejected this extended interpretation, emphasizing that machines cannot be treated as employees, and AI-generated materials do not fall under the legal category of "job works". Although the exclusive rights granted by copyright law are not based on the commercialization of the work [10], however, copyright not only guarantees the author's rights to his work, but also allows investors to profit from the commercialization of the work as a direct economic motivation to stimulate investment. Traditional works generally do not require a large amount of capital investment. However, funding is an essential part of ChatGPT. TrendForce, a US market research agency, pointed out in a report on March 1, 2023 that the GPT-3.5 large model processing 180 billion parameters requires as many as 20,000 GPU chips. The number of GPU chips required for the commercialization of GPT large models in the future will even exceed 30,000. This is a high investment for generative AI operators and carries certain risks. Therefore, while ensuring that users of creative works enjoy copyright law protection, policies should also be introduced to protect investment and encourage high-quality creation. Copyright law itself is a balanced design [11]. Especially in the development needs of the Internet, the balancing role of copyright law cannot be ignored [12]. The equilibrium of interests in the copyright ownership of generative AI works lies in the balance between the interests of investors, users, program creators and other natural persons. Although humans dominate the generation of generative AI works, generative AI, as an important tool, provides algorithmic data that requires a large amount of capital investment, so the balance of interests should be appropriately tilted towards investors. In addition, some scholars have proposed that human-machine collaborative creation can be regarded as a new type of "cooperative work". Collaborative works usually refer to works created by two or more authors and whose creative results are inseparable. One of the core criteria for determining whether a collaborative work constitutes is whether each creator has the intention to create a collaborative work [13]. The designer who sells the procedure certainly intends the user to execute the program for creative purposes, and the user who executes the program obviously is also eager to create through the program designed by the designer [7]. Therefore, in the absence of other special circumstances, it should be determined that there is a creative agreement between the user and the creator of the program. At the same time, if the other constituent elements of the cooperative work are met, it may constitute a collaborative work, and the copyright is shared by the program creator and the user. Under this model, the "creative contribution principle" or "investment contribution principle" can be selected according to the specific situation to determine the final copyright owner: either the person who actually participates in the creation and has the ability to do so (natural person, author or organization) enjoys the rights, or the subject who provides financial and technical investment and bears the risk.

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4. Conclusion

The emergence of ChatGPT has opened the prelude to the transition from weak artificial intelligence to strong artificial intelligence, and the reshaping of the traditional creative ecology by generative AI is constantly challenging the scientific and rational nature of existing copyright rules. Practice has proved that the rules for the use of works and some of the ownership views under the traditional copyright framework are difficult to fully adapt to the application needs of generative AI at this stage. But at the same time, we also need to be soberly aware that the current generative AI still relies on modern statistical logic to operate, and has not yet developed to the stage of super artificial intelligence with independent consciousness, and its core role is still an auxiliary tool for human creation.

Human creation has always been the origin and core of the copyright system, and this fundamental logic should not be forgotten even in the era when AI can simulate human creation. At the same time, we will face up to the new reality of human-machine collaboration, clarify the legal status of AI-assisted creation, add special work type clauses, improve the rights attribution mechanism, establish exceptions and authorization systems for training data, and promote collaborative governance with relevant laws to build a comprehensive legal framework for the standardized application of generative AI. At the judicial level, courts also need to gradually build adjudication standards through typical cases, seek a balance between the interests of all parties, and accumulate practical experience for legislative exploration.

Of course, the pace of the era of super artificial intelligence is approaching. If AI truly has an autonomous consciousness in the future and forms a completely independent perception and processing ability from humans, it may pose a new challenge to existing legislative rules. As long as we keep pace with the times with an open and pragmatic attitude, respond to new problems with a prudent and inclusive attitude, and steadily promote rule innovation on the basis of clearly defining the attributes of AI tools at this stage, we can prepare for the succession of copyright rules in future technology iterations. It not only protects the creative passion and legitimate rights and interests of human beings, but also promotes the healthy development of artificial intelligence technology, and finally continues to write a new chapter in protecting cultural innovation and promoting knowledge dissemination.

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