

Research on the Copyright Protection Mechanism of Creative Works Generated by Artificial Intelligence

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Abstract: *With the continuous development and use of artificial intelligence (AI) systems, copyright issues related to AI have received international attention. Videos, texts, audios, and videos autonomously produced by AI systems have become an important part of global products and business areas. With the gradual increase in the use of creations by AI, their intellectual property-related issues have become a focal point in theoretical and practical discussions. The protection of intellectual property rights for AI-generated content has foreseeable and necessary research implications.*

Keywords: *Artificial Intelligence, Creations, Copyright*

1. Introduction

1.1. Protection of Copyright and Judicial Protection of AI Creations in China

The current "Copyright Law" in China stipulates in Article 3 that: "The works referred to in this Law are intellectual achievements in the fields of literature, art, and science that are original and can be expressed in a certain form". That is, the legal concept of a work has the following conditions: (1) it is original; (2) it is expressed in a tangible form. In 2020, the Supreme People's Court issued a judicial interpretation document, "Opinions on Strengthening the Protection of Copyrights and Related Rights", to define the types of artistic works and evaluation criteria according to copyright law, promoting the standardized and healthy development of new industries. In 2021, the Standing Committee of the National People's Congress mentioned in its legislative work plan the need to strengthen the protection and management of related rights and interests in high-tech research such as the new generation of AI and big data analysis. The Supreme People's Court issued a report on the situation of intellectual property trials in people's courts, started from the fact recognition issues and related legal application difficulties in new types of AI cases in judicial practice, and studied whether AI creations could form artistic works, proposing the establishment of related copyright judicial protection systems and rules. Although there is no legislation specifically addressing AI creations, the Chinese judiciary has already taken steps to study AI creations. In 2019, the Beijing Internet People's Court announced the first ruling in the country on an automatic output patent for computer software. In that case, the Beijing Internet Court believed that works protected by copyright should be created by natural persons. Therefore, although the output of computer software intelligence has originality, it is not protected. In another case decided on December 24, 2019, the Nanshan District Court in Shenzhen recognized the copyright of the output results automatically generated by computer software, believing that the review generated by intelligent writing software meets the formal requirements of written works and can be granted copyright [1].

1.2. Protection of Copyright and Judicial Protection of AI Creations Abroad

1.2.1. Protection of AI Creations in the Anglo-American Legal System

Certain countries within the Anglo-American legal system seem to have foreseen the impact of AI on copyright law and people's production and life. The United Kingdom, another leader in AI innovation, is one of the few countries that provide copyright protection for works generated solely by computers. The "Copyright, Designs, and Patents Act" was enacted in 1988, which has specific provisions for computer-generated works. The UK is one of the few countries that protect works generated by computers without human authors. The protection period is 50 years from the completion of the work [2]. In addition to original literary, dramatic, musical, and artistic works, copyrights also

protect broadcasts, films, sound recordings, and published versions. For example, the protection of sound recordings only applies to specific recordings of songs and lasts for 70 years from the creation. If the works produced by AI belong to one of these categories, entrepreneurial rights apply. Therefore, for instance, if AI generates a song, the producer of the recording of the song has the sound recording rights. The UK also protects database investments. Database rights protect the contents of the database, which last for 15 years. The database does not have to be original to qualify for database rights.

The long-standing position of the US Copyright Office is that copyright protection does not apply to works created by non-humans, including machines. Therefore, the products of generative AI models cannot receive copyright protection. Like most other machine learning models, they work by recognizing and replicating patterns in data. Legally, these AI systems, including image generators, AI music generators, and chatbots such as ChatGPT and LaMDA, cannot be considered as authors of the materials they generate. Their works are just the epitome of human works, most of which are scraped from the internet and are protected by copyright in some way. Rob Heverly, an associate professor at Albany Law School who specializes in the intersection of technology and law, said [3] that the US Copyright Office's position of excluding machines from authors might cause trouble for this lawsuit and many others. How to coordinate the tricky details of rapidly developing AI industry with US copyright law? It's a problem that creatives, companies, courts, and the US government are trying to solve.

1.2.2. Protection of AI Creations in the Civil Law System

Japan is the first country in the continental law system to formally include AI creations in the protection scope. In the 2014 judicial interpretation of the "Patent Law", content related to AI creations was added, allowing AI creations to be included in the scope of intellectual property protection, but the issues of subject qualification and right attribution were not specified. In 2016, Japan's Intellectual Property Strategy Headquarters issued the "Intellectual Property Promotion Plan 2016" [4], envisioning legislative protection for AI creations, and actively soliciting suggestions from legal experts and practitioners, hoping to promote the establishment and amendment of Japan's new generation computer patent protection law. As for the content generated by the next generation of AI, the Japanese government did not explicitly stipulate it in the copyright law, trying to limit commercial activities that use AI production content without permission through the establishment of a product registration system similar to the Chinese trademark law and unfair competition laws. However, the adjustments to Japan's unfair competition law are not precise and powerful enough. Although China can also temporarily protect the rights related to AI creations by referring to Japan's method of countering unfair competition, this is not a long-term solution.

2. Research on the Neighboring Rights Protection of AI Artworks

2.1. Academic Debate on the Protection Modes of AI Works

Based on the current investigation and theoretical research on AI-generated works, as well as the actual situation of domestic legislation and relevant legislative recommendations in China, the legislative protection modes for AI-generated works mainly include property rights protection mode and copyright protection mode. The property rights protection mode mainly aims to protect tangible objects, but it is difficult to apply to intangible goods such as writings. The copyright protection mode mainly includes the following: firstly, the work protection method, which protects AI-generated works through intellectual property regulations in copyright law, generating concepts like "legal entity works", "professional works", "orphan works", "film works", etc. The theories of "legal entity works" and "professional works" are essentially the research results under the protection of employment mode. The writing of AI can be considered as an activity carried out under the leadership of AI owners to express their intentions. AI and its owners can both be regarded as authors, enjoying corresponding rights. Due to the lack of practice of commissioned works in current judicial practice, in terms of AI, the mechanism of professional works can be chosen to replace. However, according to China's Copyright Law, this method does not have a complete basis, because AI and its work subject cannot form a real "employment relationship".

2.2. The Rationality of the Protection Model of Neighboring Rights for AI-generated Works

The method of protecting neighboring rights mainly includes AI-generated works in the jurisdiction of neighboring rights and achieves the legal purpose of protecting AI-generated works by creating new

neighboring right objects. The purpose of setting up neighboring rights is mainly to protect the information disseminators of artistic works, which mainly refers to the rights obtained by those who have paid corresponding labor or funds in the information transmission activities in the process of the gradual move of artistic works towards the cultural society. Although the principle of neighboring rights is similar to other intellectual property rights, due to the progress of technology, it has brought corresponding changes. Its position in AI-generated works is just in terms of information transmission channels, which is similar to the role of recording and video producers in preserving recordings or video products. Therefore, it can also achieve judicial protection of AI-generated works through the creation of new neighboring right objects[5]. The neighboring rights protection model does not have clear requirements for the originality of its object, so there is no need to entangle in the judgment standard of originality. The use of AI neighboring rights to protect AI-generated works will not dampen the enthusiasm of natural person creation to a certain extent, so the neighboring rights protection model has certain superiority in China's judicial system and is in line with the basic logic of international copyright law.

3. System Design of Neighboring Rights Protection Mode for AI-created Works

3.1. Determination of the Subject of Neighboring Rights of AI-created Works

The AI-created works are the core subjects of neighboring rights, which are the intelligent results generated by integrating a large amount of data under the reasonable design of a logic computer using neural network technology on a big data mining platform. In essence, because AI-created works are new products formed by the combination of new technological means and traditional business models, they have legal characteristics of product subjects, which will not affect their becoming the specific content protection objects of neighboring rights, but only affect the application scope of neighboring rights protection objects at some level. However, not all AI-created works can become the protection content of neighboring rights, and the created items of corresponding art forms can become the subject of neighboring rights. Firstly, the law stipulates that all AI-created items must be created by AI, the appearance should conform to the basic form of art, and they need to have reproducible characteristics. Secondly, the rights holder also needs to make appropriate "non-creative input" for AI-created items. Thirdly, AI-created items, like other traditional art forms, cannot violate basic ethical morals and judicial norms, and can adapt to people's needs for spiritual artistic activities. Finally, neighboring rights do not protect factual data and current news generated by AI. Factual data should be public products and cannot set usage restrictions or exclusive protection rights. And current news cannot set exclusive rights protection under copyright law.

3.2. Clarify the Right Holder of AI-created Works

Under the protection mode of neighboring rights, the rights involved in AI-created works mainly include designers, consumers, and users, these three parties play completely different roles in the process of AI-created works. The designer of AI makes AI come into being from nothing, from program compilation, algorithm architecture, to version updates, all permeated with the designer's sweat and effort, because of the designer's substantial investment, it has the right to profit. However, from another perspective, since all the labor work of the AI designer is in the pre-program of AI creation, in the process of AI creation and the final result, due to the lack of direct participation of the designer, it is likely to produce works completely beyond its image, and the specific content cannot express the thoughts the designer wants to convey, so there is no way to talk about the "agreement" of the works.

The users of AI are usually the people who directly affect the creation content of AI-created works. They can guide the operation of the program by using AI software, which may be a light touch of the mouse button or inputting keywords, but this behavior alone cannot make the user fully control the corresponding rights of AI-created works. On the one hand, users do not have control over the generated content of AI; on the other hand, like all designers and investors of AI, the investment cost is negligible for users. The owner of the high-tech is also all participants in the research of AI, who has invested a lot of manpower, material resources, and money in the research process, and has to bear the consequences caused by errors in the research process. Therefore, the "non-intellectual input" of AI investors far exceeds any participant, in this sense, all the newly generated content of AI must belong to the investor.

3.3. Rights Content of AI-Created Works

3.3.1. Personal Rights

From the perspective of personal rights, there is a natural logical relationship between the personality rights in the content of copyright and the personal elements in the originality of the work, while the personality rights stipulated in copyright law are not premised on the recognition of the work. In performers' rights, the provisions to clarify the status of performers and maintain the form of performance from being distorted are based on the consideration of the performers' reproduction and transmission functions of the artwork. The investor does not have any other "intellectual input" in the process of information generation, and its function is only manifested in the dissemination and commercialization of production information. However, the actor cannot infringe the investor's personal rights in the commercialization process, and intellectual property rights are just a means for the investor to realize the cost of the rights and interests paid and the transfer of the cost of rights and interests to get the investment price.[6] Furthermore, as the intellectual achievements of AI technology have no personal elements, and investors cannot have something akin to performers' rights, AI investors do not have the personal rights of authors.

3.3.2. Property Rights

In terms of property rights, for AI-made content, it refers to the exclusive rights and interests obtained by investors, which are obtained in a certain form through computer-made content for economic benefits. Since the production process of AI differs from that of ordinary novels, after the infringement of intellectual property rights, it is quite difficult to confirm the relationship between the production subject and the investor, which is also easy to cause rights infringement in a certain sense, so the protection of the rights of AI investors such as the right to copy, distribute, and publicly communicate (performance rights, projection rights, broadcasting rights, exhibition rights, information network transmission rights) is particularly important. But considering the low cost and high quality of AI, and the main purpose of AI after production is commercial use, it is necessary to exclude the derivative rights such as the right to make, adapt, translate, compile copyright, and the rental rights shared by the copyright owners of film and television works and computer software rights holders.[7] At present, although AI is not a necessary auxiliary tool for people to achieve artistic creation, it is indeed an important means for people to conduct economic transactions. Therefore, it should be allowed for other investors to reuse the compilation works after the public without the approval of the previous investors, but they need to pay the corresponding return, which also fits the copyright law's requirement for the balance between public interest and proprietary rights.

3.4. Legal Protection Term of AI-Created Works

AI-created works are cheap and efficient, but at the same time, because AI does not have a defined lifespan, the patent protection period for its creations and the patent protection period for human creations should not be confused. And if the same protection period is given to AI-created works and ordinary works, it may result in the loss of rights and interests of natural persons and market participants. Therefore, the protection of AI-created works should not exceed the copyright protection under intellectual property rights, and it must also have certain permissions. For this, we can refer to the neighboring rights protection period of electronic databases in Europe, and set the neighboring rights term that AI investors bear for the content of AI to a 15-year protection period. Within 15 years, investors can get corresponding returns from the investment in commercial applications of AI-generated content, which not only ensures the accelerated development of China's AI industry but also improves the public's access and reuse of AI-generated content.

4. Conclusion

Currently, research on the specific content generated by the new generation of AI is ubiquitous, and science and technology are rapidly developing at a speed that people can imagine. Clearing the legal characteristics, rights provisions, and authority settings of the related content generated by the new generation of AI will form a positive loop chain for the development of Chinese science and technology and the upgrading of the cultural industry. This not only achieves the legislative purpose of Chinese copyright law but also promotes the dissemination of socialist scientific and technological knowledge, meets the value requirements of Chinese copyright law, promotes the healthy development of socialist science and technology and the new AI field, and plays a significant role in the construction

of Chinese copyright law and related fields.

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