Finding of Fact of Copyright Infringement in Artificial Intelligence Generated Objects

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Abstract: With the development of generative AI technology, different forms of AI generated objects appear in various fields of people's lives. In the past, copyright protects the intellectual achievements and innovative research of creators, but nowadays, it is difficult to identify and trace the specific behavior of the copyright subject and infringement of AI, which leads to a series of AI fair use problems and copyright infringement problems. This paper analyzes the rules and dilemmas of copyright infringement identification from the characterization of AI generators, and proposes a mechanism for preventing copyright infringement by AI, which is expected to promote the soundness of the legal regulation of AI in the whole process of training, reasoning and generating.

1 INTRODUCTION

Artificial intelligence is one of the most influential technologies today, and it is changing people's way of life and way of work in a very deep way. In the field of artistic creation, in the field of scientific research, as well as in the field of news writing and film and television production, the variety and quantity of AI-generated works are increasing, and the proportion of AI-generated works in these fields, such as the cultural industry, is also increasing. Against this background, conflicts and contradictions between AI-generated works and traditional copyrights are slowly emerging, and because of the existence of such conflicts, disputes over copyright infringement have become particularly numerous. Accurately determining copyright infringement of AI-generated objects is related to whether the legitimate rights and interests of creators, users, and related industries can be protected and also affects whether the AI industry and the cultural industry can develop in a healthy and sustainable manner. This is of crucial significance in maintaining a favorable intellectual property ecosystem. The purpose of this paper is to build a copyright infringement prevention mechanism by clarifying the considerations for the determination of copyright infringement of AI-generated objects and analyzing the difficulties in applying the rules of infringement.

2 DIFFICULTIES IN DETERMINING COPYRIGHT INFRINGEMENT OF ARTIFICIAL INTELLIGENCE GENERATED OBJECTS

2.1 Fuzzy Definition of Copyrightability of Artificial Intelligence Generated Objects

In the traditional copyright law, the subject of creation of works generally refers to natural persons and requires works to have a certain degree of originality to reflect the input of human intellectual creativity; however, the process of generating artificial intelligence and traditional human creation is completely different. Artificial intelligence systems are able to generate content with a certain degree of expressiveness and value, such as paintings, music, and articles, without direct human creative intervention, by virtue of training on a large amount of data and complex algorithms, which has led to disputes about whether AI-generated content is copyrightable (Yang, 2024). If the copyrightability of AI-generated content cannot be clarified in the law, then there will be a lack of basic prerequisites for the determination of copyright infringement, and it will be difficult to determine whether it can be protected by the copyright law, and it will be difficult to

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determine whether it is possible to infringe on the rights and interests of others (Hua, 2024).

2.2 Difficulty in Applying the Determination Standard of Infringement Behaviour

In the traditional copyright infringement determination process, the general use of the "contact plus substantial similarity" determination standard, specifically, if the defendant has access to the plaintiff's work and after comparison, it can be found that there are substantial similarities between the two, then it is likely to be an infringement. However, the entire process of creation of AI-generated works has a very high degree of complexity and non-explainability, and the correlation between the content it generates and its training data is not the kind of simple and direct causality, so it is necessary to judge whether the AI-generated works have been exposed to other protected works intuitively, just as in the case of traditional works, and whether the similarities are due to independent creation or coincidence, or whether the similarities are due to independent creation. Creation or substantial similarity due to infringement, it is very difficult to do so (Lin, Zhang, Shi, et al, 2025). In addition, AI is likely to incorporate multiple different data sources and creative styles, which makes it more difficult to determine whether it constitutes an infringement or not (Yang, 2024).

2.3 Controversy over the Definition of the Subject of Liability

When the content generated by AI constitutes copyright infringement, it becomes a very complicated and critical thing to define the specific responsible body. The developer, user, and owner of the AI system may be related to the infringement responsibility. The developer's main job is to be responsible for the design of algorithms and models and to provide the necessary infrastructure for the content generated by the AI. Developers are responsible for designing algorithms and models and providing the infrastructure required to generate content for the AI; users input commands and data into the AI as needed to guide the AI in its creative activities; and owners may have the so-called right to control and benefit from the AI system and the content it generates (Su, 2024). In different application scenarios and legal relations, these different subjects in the infringement of the role played by the degree of fault are difficult to accurately and accurately divide, so that when the need to pursue the responsibility of infringement arises, there is no way to determine who should bear the responsibility and the responsibility can not be reasonably and fairly distributed, which has a bad influence on the accuracy and fairness of the determination of copyright infringement. This has a bad influence on the accuracy and fairness of the determination of copyright infringement (Huang, 2024).

3 CONSIDERATIONS FOR THE DETERMINATION OF COPYRIGHT INFRINGEMENT OF ARTIFICIAL INTELLIGENCE GENERATED OBJECTS

3.1 Application of the Principle of Technological Neutrality

Technology itself is neutral, the purpose of the development of artificial intelligence technology is to improve the efficiency of work, create new value, it itself is no legal sense of good or evil attributes, in determining whether there is a copyright infringement of the content generated by artificial intelligence, the principle of technological neutrality should be taken into account, to prevent unnecessary inhibition of the use of technology on the development of innovative activities and industries. Inhibitory effect on the development of innovation and industry due to the use of technology (Zhan, 2024). If the developer or user of the AI system has used the technology without subjective fault and in accordance with reasonable technical specifications and common industry practices, it may be necessary to look elsewhere for the cause of the infringement and the responsible party, rather than simply assigning responsibility to the technology itself or the person using the technology. or the person who uses the technology (Mei, 2024).

3.2 Judgement of the Degree of Fault

In the process of determining copyright infringement, fault is a very key consideration, when it comes to the infringement of AI generators, we need to comprehensively consider the degree of fault of each relevant subject, for example, whether the developer has taken the necessary measures to avoid infringing the copyright of others when designing and training

the AI system, which includes the need to carry out a rigorous examination of the legitimacy of the training data, and also the need to use the training data to avoid infringing the copyright of others. For example, when designing and training the AI system, whether the developer has taken necessary measures to avoid infringing others' copyrights, which includes strict examination of the legitimacy of the training data and adopting reasonable data processing methods; furthermore, whether the user has used the content generated by the AI in the case that he/she knew or should have known that his/her behaviour might constitute infringement, and whether there has been inappropriate intervention in or misuse of the AI system, and so on. According to the different degrees of fault, the infringement responsibility that each subject should bear should be reasonably determined, so as to do so can make the infringement determination to achieve fairness and reasonableness

3.3 Clarification of the Boundary of Fair Use

The fair use system in the copyright law mainly balances the interests of the creator and the public and the establishment of the relationship. This system allows, in some specific circumstances, a certain degree of use of the protected works, and does not need to specifically go to obtain authorization (Murray, 2023). In the case of the determination of copyright infringement involving artificial intelligence generation, we need to figure out where the boundaries of fair use in the end. It is clear that the use of other people's works by AI systems belongs to the scope of fair use or not. For example, if an AI system analyses and processes a relatively small number of works for the purpose of study and research, it may be considered fair use; however, if it copies and uses other people's works on a large scale without authorisation to train the AI model, and then generates commercial works with a high degree of similarity to the original works, it may have exceeded the scope of fair use. However, if the work is copied and used on a large scale without authorisation to train the AI model, and then generate a commercial work with a high degree of similarity to the original work, then it may have exceeded the scope of fair use and constituted copyright infringement (Yao, 2024).

4 THE CONSTRUCTION OF COPYRIGHT INFRINGEMENT PREVENTION MECHANISM OF ARTIFICIAL INTELLIGENCE GENERATORS

4.1 The Application of Technical Means

With the help of technical means to prevent copyright infringement of AI generated products, this is a very key initiative, to develop and use effective digital watermarking technology, for example, can be the author's name, copyright information into the content generated by the AI, so that in the subsequent dissemination and use of the process, can accurately identify where the work is from and who owns the copyright. and who owns the copyright. In addition, encryption technology can be used to protect AI-generated content with high commercial value, so as to prevent unauthorised copying and distribution, and a traceability system can be created for AI-generated content. This system will record the key information in the generation process, such as where the data used in training came from, what are the specific parameters of the algorithm, etc., which can provide very strong technical support for the determination of infringement, and can also protect in terms of evidence (Su, 2024).

4.2 Improvement of Legal Norms

The legislative and judicial authorities need to improve the relevant legal norms in a timely manner, the purpose of doing so is to adapt to the new needs arising from the protection of copyright in the era of artificial intelligence, to clearly define the copyrightability standards of AI-generated materials and the rules of copyright attribution, with the help of which can provide a clear and explicit legal basis for the determination of infringement, in addition to one point, it is also necessary to refine the criteria for the determination of copyright infringement. In addition to one point, it is also necessary to refine the copyright infringement judgement standard, according to the characteristics of artificial intelligence to formulate special rules and a detailed operation process, and to reasonably define different subjects in the artificial intelligence copyright infringement of the responsibility of the way, and the specific proportion (Zhu, Cui, Wang, et al., 2024). By

virtue of such a way, to ensure that the pursuit of infringement responsibility has fairness and operability, in addition, it is also necessary to strengthen the exchange and cooperation between countries in the legal aspects, and actively promote the formation of a unified legal framework for the protection of artificial intelligence copyright, so as to be able to face the complexity and variability of copyright infringement brought about by the transnational application of artificial intelligence technology (Chalu, 2024).

4.3 Ethics and Industry Self-Regulation Guidance

In addition to relying on legal and technical means, moral norms and industry self-discipline also play an indispensable role, people should actively advocate those enterprises and institutions related to artificial intelligence and practitioners to establish a correct awareness of intellectual property rights, fully respect all the creative achievements of other individuals, and consciously comply with copyright laws and regulations. People need to formulate self-regulatory guidelines and codes of conduct for the AI industry, and strongly encourage enterprises to take various positive and effective measures to prevent the risk of copyright infringement during the development and use of AI technologies, such as establishing a set of their own internal copyright review mechanism and conducting copyright-related training. People also need to strengthen the public's concern and understanding of the copyright of artificial intelligence, with the help of this way to improve the public's awareness of copyright protection, and then create a good atmosphere of social opinion, so as to constrain the emergence of copyright infringement of artificial intelligence generators from the moral level.

5 CONCLUSION

As a focal point of copyright system change in the digital era, the infringement determination of AI-generated works is essentially a dilemma between technological innovation and the existing legal framework. Through the analysis of legal hermeneutics and comparative law, this study finds that the core contradiction in the determination of infringement focuses on the three dimensions of the judgment of the eligibility of the creative subject, the blurring of the originality standard, and the breakage of the chain of responsibility. The specific path should follow the principle of "three-step progression": introduce the "limited copyright" system at the stage of rights allocation, and include AI generated objects into the scope of neighboring rights protection; build the composite standard of "substantial similarity + contact possibility + algorithmic independence" at the stage of infringement determination; and implement the attribution model of "presumption of fault + proportionality" in the mechanism of responsibility sharing. This is not only a systematic response to build a digital copyright governance system, but also a key breakthrough point to improve the rule of law governance in the field of emerging technologies, which has important theoretical and practical value for promoting the high-quality development of the digital economy.

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