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Copyright Ownership of Artificial Intelligence Generated Products

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ABSTRACT

The issue of defining the rights of artificial intelligence generated products has always been a hot topic in various fields, triggering heated academic discussions. The emergence of Chat Gpt has further exacerbated the complexity of the problem. ChatGPT mainly has powerful abilities such as dialogue comprehension for any task, complex logical reasoning, long grid multi text generation, and automatic generation of program code. Compared to the past where only certain algorithms, rules, and modules were used, ChatGPT has become more advanced, and its models and computational methods are more complex. Especially, its ability to meet the personalized needs of users has led to its generated content being more similar in form to human creative achievements. The definition of its ownership of rights has become more complex.The development of technology will inevitably bring potential for development and legal issues that are difficult to define in the short term. It is of utmost importance to use the system to regulate newly emerging products in appropriate development channels.In the current state of socio-economic development that emphasizes the protection of rights, especially intellectual property, it is necessary to start from the reality of China and construct a copyright ownership model for artificial intelligence generated products that is suitable for China's active development level and legal system practice.

KEYWORDS

Artificial Intelligence; ChatGPT; Copyright; Science and Technology.

1. INTRODUCTION

Artificial intelligence works and human works belong to different creative subjects, and both have economic value.While artificial intelligence brings more opportunities for social development, as a new species with huge legal disputes, it will inevitably trigger many difficult to solve social problems. The specific division of copyright ownership for artificial intelligence generated products is an urgent and necessary issue to be addressed.

2. DEFINITION AND DEVELOPMENT OF ARTIFICIAL INTELLIGENCE GENERATIONS

2.1. Definition of Artificial Intelligence Generated Products

Artificial Intelligence, abbreviated as AI in English. It is a new technological science that studies and develops theories, methods, technologies, and application systems for simulating, extending, and expanding human intelligence. It is generally believed that artificial intelligence products are the creative achievements of machines after deep learning of big data. Specifically, artificial intelligence

products are based on programs set up by humans through artificial intelligence. They use relevant data information provided by human subjects to understand the operating rules of human affairs through machine learning and artificial neural network systems, and then autonomously analyze, organize, and reconstruct data, ultimately forming the creative results that human subjects want to obtain. Artificial intelligence is a branch of computer science that aims to understand the essence of intelligence and produce a new type of intelligent machine that can respond in a way similar to human intelligence. Research in this field includes robotics, language recognition, image recognition, natural language processing, and expert systems. Since the birth of artificial intelligence, its theory and technology have become increasingly mature, and its application fields have continued to expand. It can be imagined that in the future, the technological products brought by artificial intelligence will be the "container" of human intelligence.Artificial intelligence can simulate the information process of human consciousness and thinking. Artificial intelligence is not human intelligence, but it can think like humans and may even surpass human intelligence.Artificial intelligence is a highly challenging science, and those engaged in this work must have knowledge of computer science, psychology, and philosophy. Artificial intelligence is a broad science that encompasses various fields such as machine learning, computer vision, and more. Overall, one of the main goals of artificial intelligence research is to enable machines to perform complex tasks that typically require human intelligence.But different times and people have different understandings of this' complex work '. In December 2017, artificial intelligence was selected as one of the "Top 10 Popular Media Phrases in China for 2017". On September 25, 2021, in order to promote the healthy development of artificial intelligence, the "Code of Ethics for the New Generation of Artificial Intelligence" was released.

2.2. The Development Status of Artificial Intelligence and Generative Artificial Intelligence

Generative artificial intelligence is not a new thing either. It has long been applied in fields such as chat dialogue and text translation, until programs represented by ChatGPT emerged, and its development entered a new stage. The neural network scale of the GPT-2 architecture released in 2019 was 1.5 billion parameters, while the neural network scale of the GPT-3 architecture released in 2020 has reached 175 billion parameters, and GPT-4 will reach a scale of trillions of parameters.Although it is still far from the million billion scale of synapses in the human brain, it will not be long before generative humans.The scale parameters of artificial intelligence neural networks may reach a level comparable to or even surpassing the synaptic scale of human neurons. As a result, generative artificial intelligence is no longer the same as before, achieving a qualitative leap.

2.3. Analysis of the Generation Logic of Artificial Intelligence Products

Artificial intelligence products are generated by AI users who input instructions to trigger AI, and this stage is the generation of AI products. The user edits the content and sends it to the artificial intelligence. After receiving the input text content, the artificial intelligence encodes it to enable the model to understand and process the text content. Afterwards, the model will output the content that best matches the instructions to the user based on the training learned and the previous text input by the user. The user is mainly responsible for the selection, input, adjustment, and result selection of command parameters.ChatGPT is a chat type generative artificial intelligence based on Transformer architecture and self supervised learning through pre training, which enables the model to learn how to understand context (dialogue history), learn language structure, grammar, and semantics from massive text data. Through fine-tuning, the model can better adapt to specific tasks and improve its effectiveness in practical applications. In short, artificial intelligence itself can perform self-learning, operation, optimization, and other tasks according to the rules set by the program. And design developers mainly participate in the writing, adaptation, and deployment of artificial intelligence programs, while users mainly participate in triggering the operation of artificial intelligence programs and selecting the results.

3. CONTROVERSY OVER THE IDENTIFICATION OF ORIGINALITY IN ARTIFICIAL INTELLIGENCE GENERATED PRODUCTS

From the perspective of the Copyright Law, originality is a major prerequisite for the protection of artificial intelligence products. The view that artificial intelligence has creativity holds that: firstly, artificial intelligence analyzes, combines, and arranges data given by humans based on pre-set operating programs to create "AI works." In the process of China, artificial intelligence does not seek additional help and guidance from humans, but is the result of its independent creation and completion of works, which belongs to creative expression originating from itself rather than others. Secondly, artificial intelligence products are products created from massive amounts of data information, and the interpretation of data information by artificial intelligence itself is also included in artificial intelligence works. Thirdly, artificial intelligence works can meet the requirement of creative depth required for flat creativity, which requires the works to express the author's thoughts or emotions. Therefore, the viewpoint that artificial intelligence has originality suggests that it is possible to consider registering artificial intelligence works and assessing their originality during registration. For those creative achievements that meet the originality standards and have market value, they can be protected by law. For other artificial intelligence products that do not meet the originality standards, they can be brought into the public domain to inspire public creative inspiration. However, this is equivalent to negating the concept that "copyright only protects human works", and simply conducting legal doctrinal analysis from legislative history and legal texts, believing that humans have sufficient reasons to abandon the traditional view that the object of copyright belongs to the objective element of human intellectual creations. As long as a specific work itself has a minimum level of creativity, can meet the needs of the public, and can provide the same benefits as human works, it should be protected by copyright as a work, and subjective standards such as "whether it is created by humans behind the scenes" should not be used. In other words, copyright protection should focus on creativity itself, not just human creativity itself. Due to the rapid development of artificial intelligence, it is now able to "autonomously select, process, refine, and optimize the required materials, and use different techniques and methods to create new and random content, which also includes the ability of artificial intelligence to reflect its individual choices and judgments in the process of processing." It can meet the requirements of "creation" and is essentially content generated through labor processing. At the same time, there is also a viewpoint that "China's laws do not explicitly stipulate that originality must directly come from natural persons," and the Copyright Law does not mention that works must be human intellectual achievements when defining works. Therefore, as long as the content generated by artificial intelligence meets both originality and replicability, it should be recognized as flattened under the Copyright Law. It is hoped that this will provide legal basis for the originality of artificial intelligence. However, this recognition method has certain loopholes in logic, and even contradicts the legislative purpose of copyright, and lacks legal basis. The above viewpoint belongs to the legal logic deduction of the state of ought to be. Since formal logic does not have exceptions, a single counterexample can lead to the collapse of the formal logic system. If it is believed that the source of originality of a work can be identified outside of humans, that is, as long as there is objective originality, it can be identified as a work, and therefore a work can be identified as originating from non-human creation, then this conclusion must have universality in logic, that is, as long as it has "objective originality", it can be identified as flat, and so on. Many non-human works are also subject to the identification of originality. For example, in the famous macaque selfie case, a macaque snatched the photographer's camera and imitated the photographer's movements by holding the camera and pressing the shutter button. The photo it took also included a selfie. By chance, the timing and focal length of the photo were just right, and the macaque in the photo was grinning and baring, as if posing. The photographer posted the photo on the website and included it in a book for publication, claiming that he and the publisher are the copyright holders. An animal protection organization in the United States has sued photographers, websites, and publishers, demanding that the court determine that macaques have copyright to the

selfie and that displaying the selfie and publishing it in a book infringes on macaques' copyright. The profits from the infringement should be returned. In this case, should the court, after determining that the selfie was taken by a macaque, "decisively abandon the creative view centered on natural person authors", regardless of whether the selfie is "created by humans" and deny that "created by humans" is a "necessary condition for obtaining copyright protection"? If we follow the logical reasoning mentioned above and abandon the criterion of identifying natural persons as authors, and instead adopt an objective standard for judging originality, emphasizing that "copyright protection should focus on creativity itself, not just human creativity", and adopt a "consequentialist" stance to "concentrate more on the value of its object itself", then the selfie of the macaque is certainly "original" in form, because it is not the result of remaking any existing photos, but must be the product of the macaque's "operation" and "essentially the content generated through" labor "processing". At the same time, macaques also have intelligence. The fact that they can imitate photographers manipulating cameras and taking photos shows that they are smart enough. "So it is not difficult to see" that the photo can reflect the macaque's "personality choices and judgments", and itself "has a minimum level of creativity". At the same time, after the selfie was posted online, it was highly sought after and reposted on various websites, to the extent that the macaque also became an "internet celebrity". This fully demonstrates that the selfie and the photos taken by humans have an external indistinguishability and similarity in content, and of course, can meet the needs of the public and provide the same benefits as human works. However, the final court did not determine that the macaque was the creator of the flat. But the reason is not because the leveling lacks pure "originality", nor is it a product of the independent labor of macaques or the lack of governance over macaques. Rather, recognizing it as a work and providing copyright protection would fundamentally violate the legislative purpose and spirit of copyright law, and also be inconsistent with legal provisions. Even if we set aside the ultimate philosophical consideration of human creation, we should recognize that the reason why countries formulate copyright laws is to ensure that authors can receive corresponding rewards from others' use of their works, and encourage them to create more quantity and higher quality works. Because every law has its legislative purpose and spirit, deviating from this purpose and spirit will leave the law in a vacuum zone, like building a castle in the air. In 1710, the first copyright law in human history, the Queen Anna Law, pointed out in its first article that, given the frequent unauthorized printing, reprinting, and publication of books and other works by printers, booksellers, and others, without the consent of the authors or owners of the books and works, causing great damage and often leading to their bankruptcy and that of their families. In order to prevent such behavior from happening in the future and encourage knowledgeable people to create and write useful books (Therefore, it is stipulated that...) The author and their assignee of any book that has been created but not printed or published, as well as any book that will be created in the future, shall have the exclusive right to print and reprint the book for a period of fourteen years. Through incentive effects, achieve the legislative purpose of copyright law to encourage the creation of works. Based on this inference, the core of artificial intelligence is computational programs, algorithms, models, and data. If artificial intelligence is regarded as an incentivized creative subject, it does not conform to the logic of reasoning or the legislative purpose of copyright law. So in the end, the United States District Court for the Northern District of California held that the concept of author in US copyright law does not explicitly extend to animals, and the law does not mention animals anywhere. The US Supreme Court and the US Ninth Circuit Court of Appeals (the appellate court of the district court) always point to "people" when analyzing authors in copyright law. At the same time, the US Copyright Office also explicitly states in its "Practical Handbook" that "in order to constitute a work, it must have been created by a person. Results that do not meet this requirement lack copyrightability. Therefore, it only registers works created by humans, and does not register content generated by "nature, animals, or plants". The example given is a photo taken by a monkey. The court agrees with the view of the United States Copyright Office that the macaque in this case is not an "author" in the sense of copyright law and does not have the right to sue. In the second instance,

the United States Court of Appeals for the Ninth Circuit further pointed out that it can also be inferred from the language of relevant provisions of US copyright law that the author must be a "person".

4. THE LEGITIMACY OF COPYRIGHT PROTECTION FOR ARTIFICIAL INTELLIGENCE GENERATED PRODUCTS

The artificial intelligence mentioned earlier lacks rationality as a creative subject not only in legal regulations but also in the most basic logical inference. However, it cannot be denied that artificial intelligence has played a huge and profound role in current social life, influencing and changing our behavioral habits and norms. Although it cannot be defined as a creative subject, providing reasonable protection for it is an important part of promoting technological innovation, safeguarding rights, and resolving disputes.

4.1. The Copyright Protection of Artificial Intelligence Generated Products Conforms to the Purpose of the Copyright Legal System

The emergence of artificial intelligence has greatly reduced the time we spend on complex and disorderly activities, allowing us to invest our time in spaces that require more thinking and creativity. At the same time, it also provides us with more references for data collection and statistics. It has a powerful promoting effect on the development of creativity, and can help humans interpret works composed of symbols such as sound and images that individuals cannot independently analyze.

4.2. The Copyright Protection of Artificial Intelligence Generated Products Conforms to the Principle of Fairness

The principle of fairness is a value judgment concept that applies to all social resources and public rights. Artificial intelligence is essentially a machine, without emotions and the need for motivation. However, behind artificial intelligence lies the labor input of multiple entities such as AI programmers, AI users, and AI owners, which contains enormous economic value. Confirming their rights through the system to prevent infringement is not only a necessary protection for their rights, but also an incentive for the exclusive property rights of the entities behind artificial intelligence. By granting copyright protection to works generated by artificial intelligence, it is possible to ensure that the resource investment costs of relevant parties receive corresponding returns, realize the economic and cultural value of AI generated works, and stimulate their enthusiasm for further creation.

5. THE CURRENT MODEL OF COPYRIGHT OWNERSHIP FOR ARTIFICIAL INTELLIGENCE GENERATED PRODUCTS

There are various modes of copyright ownership for artificial intelligence works worldwide, including the following:

5.1. Copyright Belongs to the Artificial Intelligence Mode

The viewpoint that copyright belongs to the artificial intelligence model holds that the AI team plays a decisive role in the creation of their works, and at the same time, they have put in the same undifferentiated creative labor as humans in the creation of their works. The rights holder not only enjoys copyright, but also needs to bear corresponding responsibilities and obligations. Although artificial intelligence can create works, it does not have legal capacity for behavior and meaning, nor does it have independent property, and cannot assume corresponding responsibilities and obligations. In response to this situation, American scholar Timothy L. ButLer proposed the "FHA" theory, which suggests that by first creating a virtual legal personality for artificial intelligence, it can obtain legal

subject status and thus enjoy copyright over AI generated products. However, from the current development situation, granting virtual legal personality to artificial intelligence only exists in a few countries in the world, and fully attributing the copyright of AI generated products to AI itself is still an idealized institutional concept.

5.2. Copyright Belongs to the Artificial Intelligence Designer Mode

This recognition model holds that since artificial intelligence designers are the ones who create artificial intelligence, without the development and design of artificial intelligence designers, there would be no biological intelligence and its subsequent artificial intelligence products. Therefore, artificial intelligence designers should receive corresponding rewards. The programming and design of artificial intelligence programs lay the foundation for the generation of artificial intelligence products, and artificial intelligence is the realistic expression of the designer's thoughts and emotions. Therefore, based on the rational nature and labor input of programming design, the relevant copyright rights of artificial intelligence products are granted to them, and they can intuitively feel the positive role of the copyright legal system, which motivates them to better engage in intellectual creative activities such as computer programming.

5.3. Copyright Belongs to the User Mode of Artificial Intelligence

Under this mode of recognition, all copyright rights related to artificial intelligence works belong to the users of the artificial intelligence. Because the user of artificial intelligence, Li Yong, has created specific works using artificial intelligence.Granting the copyright rights of artificial intelligence generated products to AI users can, on the one hand, motivate AI users to actively develop and create AI, thereby stimulating market creativity. On the other hand, it can enable the economic and cultural value of AI generated works to be discovered and recognized by human society, thereby achieving an increase in the overall material civilization wealth of society.

6. CONSTRUCTING THE LEGAL FICTION PATH OF COPYRIGHT OWNERSHIP OF AI PRODUCTS

6.1. The Model of Rights Attribution Combining Artificial Intelligence Subjects with Traditional Subjects

The tool nature and dependence on human assistance of artificial intelligence itself limit its legal personality to a certain extent, and there are also certain differences between it and human subjects when undertaking specific responsibilities and obligations.Therefore, implementing a attribution model that combines artificial intelligence subjects with traditional subjects can comprehensively achieve the unity of rights and obligations. On the one hand, before artificial intelligence is sold to others, the copyright of the AI generated products belongs to both the AI designer and the AI, and the responsibilities and obligations are shared by both parties. On the other hand, after the sale of artificial intelligence to others, the copyright of artificial intelligence is jointly developed by the AI owner and the AI, and the responsibilities and obligations are also shared by both parties.

6.2. The Dual Ownership Model of Copyright Property Rights and Copyright Personality Rights

Although artificial intelligence currently lacks relevant regulations and basis as a legal subject, it can still maintain a comprehensive negation of this. On the one hand, the name of artificial intelligence can be labeled on AI generated products to distinguish them from human works, which is equivalent to granting them certain legal personality rights. However, in terms of the ownership of property rights in artificial intelligence generated products, there is no possibility of incentives for artificial

intelligence itself. However, for the development and use of artificial intelligence, relevant protection and incentive mechanisms can be used to encourage related creations and promote the positive role of artificial intelligence and human subjects in both directions.

6.3. Artificial Intelligence Products with Creative Contributions from Users are Copyrightable

Artificial intelligence generated products do not meet the requirements of the work and cannot be protected by copyright law. The reason is that artificial intelligence programs do not possess human thoughts and emotions, and their output behavior does not belong to creative behavior, which does not meet the requirements of subjectivity, originality, and intellectual achievements. Therefore, the prerequisite for including artificial intelligence generated products in copyright law protection is to address the issue of compliance with requirements such as subjectivity and originality.Taking ChatGPT as an example, before ChatGPT generates content, artificial intelligence designers and developers need to input data, write programs, and other work. However, these tasks are essentially creating ChatGPT programs directly and have no direct impact on the artificial intelligence generated products. It cannot be determined that the generated products were created by the designers and developers. When ChatGPT generates content, artificial intelligence users need to input commands, and then ChatGPT outputs results that conform to human language and grammar habits according to the set program rules and data model library, that is, users play a critical role in ChatGPT generated content. Therefore, the participation of users is the prerequisite and key to determining whether the generated product has copyrightability.

6.4. Artificial Intelligence Products Should Be Accompanied by Mandatory Labeling Generated by Artificial Intelligence Programs

Artificial intelligence generated products look similar to human works in appearance, and ordinary people cannot recognize whether they are generated products, so there are also cases of impersonating natural person identities. The Bletchley Declaration states that artificial intelligence design developers should ensure the safe development of artificial intelligence through security testing systems, assessments, and other appropriate measures.On October 30, 2023, the US government issued an administrative regulatory order on generative artificial intelligence, requiring that generative artificial intelligence should embed information watermarks that are difficult to remove when outputting, in order to verify the authenticity, origin, modified or disseminated identity or features of the output.Therefore, when outputting generated products, artificial intelligence design developers should have a mandatory labeling obligation to attach information watermarks or other marks to the generated products for identification purposes. And artificial intelligence users also have direct control over the output of the generated product, therefore, they also have the obligation to attach labels to indicate that the generated product was generated by an artificial intelligence program when using the generated product. This approach can to some extent distinguish between creations and human works, avoiding confusion between it.

7. CONCLUSION

The development and progress of artificial intelligence have significant implications for the progress of society. Its rapid development and diverse styles require legal responses to guide it towards a positive and constructive direction.Due to the involvement of numerous legal rights attribution issues, it has become more complex, and there are also many contradictions and difficulties in the process of definition. Therefore, it is even more necessary for the law to play its expected role, maximize its effectiveness, and create a more innovative and dynamic environment.

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