Copyright Regulation of Artificial Intelligence Generated Graphs

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Abstract. With the profound advancement of AI algorithmic models, AI generators have progressively found applications across diverse industries. Nevertheless, this development has presented new challenges to legislation and judicial determinations concerning copyright and related matters. There remains no definitive conclusion on whether AI-generated works can be considered original or fall within the scope of copyright law, nor whether they are eligible for copyright protection. However, a thorough analysis of current domestic and international legislation and judicial precedents suggests that copyright protection should indeed be extended to AI-generated creations. This is supported by the fact that artificial intelligence models fundamentally serve as tools to aid human creativity, lacking autonomous will and primarily relying on human data analysis, compilation, and integration as a basis for creation. Therefore, even though the process of artificial intelligence creation may ultimately reflect the original thought and personalized expression of humans, it is essential to consider granting copyright protection to AI-generated content.

Keywords: Artificial Intelligent generators, Copyright, Originality, Intellectual productions.

1. Introduction

Generative AI models are currently undergoing rapid development, having progressed through an inferential exploration phase, a knowledge representation phase, and a mechanical learning phase. Researchers are increasingly exploring the application of deep learning models to generative AI drawing, particularly in maturing "graph-to-diagram" drawing modes and command-based generative drawing forms. The ease and speed with which people can now use generative AI-assisted painting generation services have lowered the threshold, leading to a series of legal issues involving copyright. The issue of copyright protection for AI-generated objects is currently a central topic of controversy in both theoretical and practical circles. Some scholars believe that, at present, artificial intelligence is more instrumental than subjectivity as the subject of creation. They argue that artificial intelligence should be recognized as a tool for assisting humans in creating works, with the copyright belonging to the user of the artificial intelligence-assisted generation of painting services. While the originality possessed by an AI object may meet the standards of copyright law, it is essentially the thoughts and feelings of the human user of the AI-assisted painting generation service that are expressed, not those of the AI model. These scholars argue that artificial intelligence lacks the unique personality of the creator, instead being based on algorithms, rules, and templates [1]. Therefore, they assert that AI-generated graphics do not qualify as works within the meaning of copyright law. However, there are also scholars who advocate for granting copyright protection to artificial intelligence. Currently, AI models are not considered to have independent thoughts and wills and are generally not seen as creative subjects in the legal sense at both domestic and international levels, and thus cannot hold copyright. Therefore, most scholars who support granting copyright protection to AI believe that the AI model and the user should be considered as co-authors, with the right to creation still owned by the human user. For example, according to Wu Handong, machines share thoughts and wills with humans to achieve interaction on a mental level and can have the identity of co-creators or separate creators [2]. This paper composes and analyzes the controversy surrounding the determination of originality of AI-generated objects in the current theoretical and practical circles and researches the standard for judging the originality of AI-generated objects, aiming to provide theoretical references for the copyright protection of AI-generated objects.

2. Controversy over the Determination of the Originality Standard for Artificial Intelligence Generated Objects

Originality is the essence of art, and individuality is its soul [3]. According to Article 3 of the Copyright Law of the People's Republic of China, a work refers to an intellectual creation in the fields of literature, art and science that is original and can be expressed in a certain form. Therefore, in determining whether an AI-assisted creation qualifies as work and what type of work it constitutes, the first consideration is whether it meets the originality standard for a work. At a theoretical level, originality is defined as "independent creation, originating from oneself", distinct from being merely "first" and "unique". Professor Wang Qian explains that copyright law does not require a prior identical creation; rather, it recognizes the coincidental nature of creation. It encompasses two types of original creations: those that are independently created from scratch and those that are based on existing works, with an objectively recognizable and not overly subtle distinction from the original work. Currently, there are two main perspectives on the originality of AI-generated content: affirmative and the negative.

Scholars holding the negative view argue that Articles 4 to 7 of China's Copyright Law limit the extension and exercise of copyright through public law coercion, primarily achieved via two methods. Firstly, by directly restricting copyright objects through explicit provisions in the law; Secondly, by authorizing relevant administrative bodies through legislation, indirectly restricting copyright objects through administrative management. Regarding the nature of AI creations, although works generated by AI may meet the originality requirements of the Copyright Law in terms of form, they are not fundamentally expressions of thoughts or emotions, do not result from intellectual labor, and represent merely mechanical outputs derived through algorithmic analysis and selection [4]. This output of artificial intelligence is now roughly capable of completing the entire process of data collection, analysis, and creation of works on its own, and the role of human participation in the creation of artificial intelligence works is limited to the initiation process. In terms of the legal status of the subject, artificial intelligence itself does not currently enjoy an independent legal personality, and it still belongs to a kind of machinery [5].

On the other hand, scholars who hold the affirmative view insist on "work-centrism". In their view, originality requires the adoption of objective criteria. If the results of generation are compared, there is no obvious difference between AI-generated works and works created by human beings, and the minimum requirement of creativity is also satisfied. Therefore, they should be recognized as works. Moreover, copyright only protects expression, regardless of whether it reflects subjective factors such as human emotion and thought [6]. Encouraging creativity is recognized as a core purpose of the copyright system. As far as the current technology is concerned, the quality of the pictures produced by users utilizing generative AI has reached the standard and requirement of originality, and the user's original choice is reflected in the AICG. As long as the original intellectual input of a person is reflected in the AI-generated pictures, which are in accordance with the context, technology, and background, it should be recognized as works of art and protected by copyright law.According to the viewpoint of the "objective theory of originality", that is, "the content generated by artificial intelligence is not a naturally existing product in the natural domain,The product must be generated by artificial intelligence software through specific processing and operations, with labor processing playing a crucial role. The simplest way to generate it is through labor-intensive processing.It is essentially generated through ‘labor’ processing, so it is consistent with the basic theory of 'labor creates property' to recognize it as a work and provide copyright protection [7]. "When defining a work, the Copyright Law does not mention that a work must be the fruit of human intellect. Therefore, the content generated by AI should be recognized as a work under the Copyright Law as long as it meets the requirements of originality and reproducibility simultaneously [7]. For example, in the case of Shenzhen Tencent v. Shanghai Yingxun [8], the court held that the article in question embodied the plaintiff's needs and intentions as a whole. Because the plaintiff wasn't responsible for it, he concluded that the article in question was the work of a legal entity created under the plaintiff's authority [9]. It can be seen that in our judicial practice, artificial intelligence generation can indeed

embody originality in the sense of copyright law. In another case, Li v. Liu [10], involving a dispute over infringement of the right of authorship of works and the right of dissemination on the information network, the Beijing Internet Court ruled that the AI generator embodied the original expression of the user of generative AI services, was original, belonged to a work, and was protected by the copyright law. It was determined by the court that the pictures involved in this case,which is no different from the photographs and paintings that people usually see, clearly belongs to the field of art and has a certain form of expression, and that the work reflects the intellectual input of the creator in the process of creation. Plaintiff's input of cue words into the Stable Diffusion model, tweaking of the parameters, and final selection of the work are undoubtedly a manifestation of the creator's mind, and it is reasonable at this point to argue that the AI generation is an original work of authorship.

However, in February 2023 the U.S. Copyright Office revoked the copyright registration of the manga Zarya of Dawn [7]. Kshtanova, the copyright applicant for the drawing, used the AI drawing tool Midjourney to generate a comic strip containing multiple images based on the text of the story. The U.S. Copyright Office initially registered the cartoon as a work of fine art but withdrew the copyright registration after being informed of the process by which the image was created. The U.S. Copyright Office has stated that the text of a cartoon may be protected as a written work, and that the cartoon text and the written work as a whole may be protected as a compilation, but that a single cartoon cannot be protected as a work of fine art. Not coincidentally, when Taylor, an American, applied to register his AI-generated painting "A Shortcut to Heaven" as a work of authorship, the U.S. Copyright Office denied it [11]. The U.S.'s Copyright Review Commissioner According to the Copyright Office, copyright law only safeguards the results of intellectual work that stems from the creative powers of the human mind. The U.S. Without a human author creating the content, the Copyright Office will not register it as it is not created by machines or purely mechanical processes, as the author must be created by a human being. It can be seen that the main dispute in the three cases mentioned above is whether AI-generated objects can obtain copyright protection. However, there is no conclusion yet.

3. Criteria for Determining Copyrightability of Artificial Intelligence Generations

3.1. Artificial Intelligence Generators Meet the Standard of Originality and Should be Protected by Copyright Law

On the one hand, before the emergence of generative AI models, people needed certain drawing skills to create paintings, or they commissioned others to create paintings for them. In the scenario of commissioning a painting, the commissioner will provide specific requirements and conditions, and the artist would then created a work of art based on the commissioner’s needs. Typically, the artist who creates the painting is considered the creator in this scenario. This situation is somewhat analogous to a person using artificial intelligence to generate a picture. However, there is a major difference between the two. The human artist incorporates their own will, thoughts, and feelings into the painting as they complete the commission. The AI model, on the other hand, does not have a will as far as we can see, and does not reflect its own will in creating the painting requested by the user. Instead, it primarily expresses the emotions of the user of the AI model. Therefore, AI generators are still essentially expressions of human emotional thought and should meet the originality standard.

On the other hand, although AI models are created through deep learning and information integration, this does not their originality. The direct contribution of human users to the creation lies in the provision of keywords as well as the selection of parameters. Even if the AI model has a strong creative ability, it still relies on human decision-making in the process of generating the work. The creation of a picture that conforms to the keywords and parameters according to the human choices is undoubtedly an expression of human thoughts and feelings. In addition, to address the threshold of originality. It is necessary to determine whether AI-generated content is original under copyright law. It should not be assumed that a work lacks originality just because it contains AI components.

Currently, most negative judgments against AI-generated objects as being original are based on the lack of human intellectual achievement. However, this undoubtedly raises the bar for determining originality. The standard for judging originality has transitioned from the "sweaty forehead principle" to the "minimum standard principle", and AI-generated content clearly has original content clearly meets the minimum standard for original content. The Copyright Law of China dictates that works must have a certain level of originality from the perspective of domestic law. In other words, there is a lack of legislative provisions on the objective criteria of originality as far as the contribution of mankind in the expression of originality is concerned.

The civil law system and common law system's copyright legislation are more unclear when it comes to regulating the status of works with respect to AI-generated content from an extraterritorial law perspective. The German Copyright Act identifies the elements of originality of a work: firstly, it must be based on human creativity; secondly, it must be intellectual; and thirdly, it must be a creation with a specific height of creativity judged from the perspective of an ordinary observer. When determining the originality of generative AI-generated content, if the first two criteria are not met, (e.g., non-personal creation, automatic generation by model training, lack of human thought and emotion), the originality of AI-generated content cannot be recognized [12].

3.2. Whether Artificial Intelligence Generations are Intellectual Product within the Meaning of the Copyright Law

From the perspective of the objective standard, i.e., from the perspective of the result, the manner in which the AI product is presented satisfies the requirement of originality and is an intellectual achievement. In the case of Shenzhen Tencent v. Shanghai Yingxun Company [8], the court held that the financial articles automatically written by Tencent's robot "Dreamwriter" belonged to the written works protected by the Copyright Law, and the plaintiff enjoyed copyright over them. Without permission, the defendant made the infringing articles available to the public on their website, thus infringement of the plaintiff's right to distribute information networks. According to the court, Tencent's robot 'Dreamwriter' generated articles that were copyrighted under the Copyright Law and the plaintiff had ownership over them. The World Intellectual Property Organization(WIPO) secretariat's Revised Issues Paper on Intellectual Property Policies and Artificial Intelligence defines this as follows, "AI-generated" means "autonomously generated by AI", which is to be distinguished from "AI-assisted". The Dreamwriter-generated article was found to be a written work, but the court also did not break with the general rule of law that a work must be the fruit of the author's intellectual creativity. In the judgment, the article in question was created by the creative team of Shenzhen Tencent, who sued, using Dreamwriter software, as highlighted by the Court. The arrangements and choices made by the creative team in terms of data input, setting of triggers, templates, and the selection of corpus styles were considered to be intellectual activities directly related to the particular form of expression of the article in question, based on the personal arrangements and choices made by the relevant personnel of the plaintiff's creative team.

The plaintiff's creative team's personnel personalized arrangements and choices were responsible for determining the form of expression in the article. Therefore, the work in question exhibits a certain degree of originality and falls under the category of written works protected by China's copyright law [9]. Hence, from this perspective, it should be considered that the AI generation content qualifies as intellectual achievements within the realm of the copyright law. However, from the standpoint of subjective determination standard, i.e., AI-generated objects content not being the creation of human beings and are not falling under the definition of works within copyright law, a different conclusion arises. At present, generative AI models lacks free will and do not possess legal personhood. Thus, identifying the creator when using an AI model to generate an image poses no dilemma- it is fundamentally a human utilizing a tool for creation. Throughout the creative process, it is the human, rather than the AI model, providing the intellectual input. According to Wang Qian, the "learning" ability of AI does not equate to the act of creation when applying such learned results to generate content, nor does the resulting content constitute a work. Instead, it signifies that AI programs can

autonomously discern more intricate patterns within data by analyzing vast datasets, unlike traditional program designers who establish predetermined rules leading to direct outcomes [1]. Scholars holding this perspective argue that AI models are machines, distinctly separate from the human brain, and that the nature of AI generators is computational rather than creative, involving the amalgamation of diverse data.

For the time being, artificial intelligence remains fundamentally an extension of "human" intelligence, lacking the intrinsic "intelligence" essential for true creation, and thus does not qualify as copyright-protected work. Article 2, paragraph 1, of China's Copyright Law stipulates that Chinese citizens, legal persons or unincorporated organizations are entitled to copyright protection for their works, published or unpublished, in accordance with this Law. In this context, the term "work of a legal person or an unincorporated organization" pertains to works authored by humans, rather than those "created" by non-human entities like animals or AI-generated content, explicitly excluding them from copyright protection. This clearly excludes animal and AI-generated content from being protected. Even if Locke's property theory of labor is employed to justify the legitimacy of copyright law's empowerment, the "labor" in question must originate from human effort (including the labor of individuals utilizing various tools), excluding "labor" of animals or machines or software.

The "labor" must also be human labor (including labor performed by humans using various tools) and cannot be "labor" of animals, machines, or software [7]. For example, in the copyright infringement case of Flynn Law Firm v. Baidu [13], the plaintiff claimed that the article in question was a legal person's work, and that the copyright belonged to it. The court held that although the data analysis report provided by the Philadelphia Law Firm is not a work within the meaning of copyright law (it can be attributed to mechanical labor and lacks the embodiment of intellectual achievement), it is rather a compilation and summary of the data through an artificial intelligence model. However, it cannot be used freely as a work in the public domain either. Through the creative process provided by the plaintiff, the overall view can reflect the law firm's creative process of the article in question. The court concluded that the article in question was a corporate work created by the plaintiff, but did not consider it to have developed value worth protecting. In summary, with regards to whether the AI generation qualifies as an intellectual achievement within the scope of the copyright law, this paper contends that assessment should be conducted from the perspective of the AI generation itself. Such an evaluation should consider its actual value and comprehensively weigh the benefits it generates in order to determine the attribution of its copyright.

4. Conclusion

China's Copyright Law's original goal of incentivizing creation requires the protection of AI-generated diagrams. Currently, the quality of AI-generated diagrams is gradually improving, and their application in daily life scenarios is becoming more extensive. The economic benefits they bring about can no longer be underestimated. Moreover, in the entire process of creating AI-generated diagrams users have already infused their personal thoughts and feelings into the works through choosing keywords and setting parameters. It can be recognized that AI-generated diagrams are works in a new form. Providing copyright protection for AI generation can incentivize AI models to maximize their benefits in production and life, using the rule of law to protect the development of the AI industry in the digital age. It should be noted that the research on the regulation and development of copyright for artificial intelligence generation in China till needs further depth, as the development of artificial intelligence is rapidly changing. Therefore, theoretical and practical circles should pay timely attention to the developments in the field of artificial intelligence and subsequently improve relevant legislation to better address the new challenges brought by the advancement of artificial intelligence during the Internet age.

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