

# Analysis of work recognition and copyright protection of artificial intelligence generated objects

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**Abstract:** With the advent of the era of artificial intelligence, especially the emergence of ChatGPT, the trend of AI-generated works entering the field of copyright law cannot be avoided, and it is necessary to protect the copyright of AI-generated works. Based on China's national conditions, this paper composes the views of Chinese scholars on the recognition, attribution subject and protection mode of AI generated works, and considers that AI generated works are recognized as works, the attribution subject adopts eclecticism, and the protection mode introduces the all-round protection of specialized blockchain technology, aiming at exploring the development path of copyright field of AI generated works.

**Keywords :** Artificial intelligence generated objects;works;attribution;protection model

## 1. Identification of works generated by artificial intelligence

### 1.1 Definition of the properties of AI-generated works

Judging the AI generated objects from the standard of works separated from the subjective and objective, the definition of works should be judged first. A work is an intellectual achievement in the field of literature, art and science that has originality and can be expressed in a certain form.

A work in the sense of copyright law has three basic characteristics: fixable intellectual achievements, originality, and belonging to the categories of literature, art and science. Works created by artificial intelligence meet the above three basic characteristics.

There is no doubt that AI generated works can be copied and fixed, and the key to judgment lies in originality and intellectual achievement. We analyze the work from two levels: originality and intellectual achievement. Originality standard, originality includes "independent creation" and "creativity". "Independent creation" only requires that the work not be copied or reproduced at the level of expression, while whether the new work is similar to existing works in terms of ideas or connotations is not a consideration for "independent creation" and is divorced from the subject of creation, and artificial intelligence. The criterion of "creativity" is either in accordance with the "minimum creation", which is in line with the form of expression of human works, or in accordance with the "sweaty creation", which is Whether it is "minimal creation", which is in accordance with the form of expression of human works, or "sweat creation", which is the creation of works with a certain amount of labor, the artificial intelligence generation meets the above requirements. At the current stage of development, artificial intelligence can be called "strong artificial intelligence". If we exclude the identity of the subject of AI, it is difficult to distinguish the results of AI from the works created by human beings in terms of appearance and connotation. In terms of external characteristics, AI-generated works are not substantially different from those created by human beings. Not only do they have external carriers such as poetry, music, and painting collections, but their contents also have grammatical and sequential characteristics, and can be cognized, understood, and learned by readers and presented to human readers through orderly text arrangement and data integration. Its works also contain a large amount of information, ideas and emotions; from the internal properties, AI-generated results are not simply the result of relying on established algorithms and fixed procedures for creation, but the result of intellectual activities with a certain degree of "creativity" [], in summary, AI-generated objects are works.

The shift from "author-centrism" to "work-centrism". The judgment of "authorial intent" is often difficult to implement in practice. The author's intention is not only unknown, but sometimes even contrary to the actual work produced. From practical experience, it is more feasible to evaluate the author's contribution by objective criteria rather than by investigating psychological activities, since it is impossible to find out the author's subjective psychology at the time of creation, and subjective criteria always bring great ambiguity and uncertainty. []

### 1.2 Overview of the view that AI-generated objects are not works

From the viewpoint of author-centrism, some scholars believe that the current copyright law protects works by attributing them to authors and proposed authors, i.e., natural persons, legal persons and other organizations. The identification of a work cannot be separated from the author, so the AI-generated object cannot be identified as a work. Understood from the perspective of originality, the reason why artificial intelligence generates the content of creation is not the expression of its own ideas, but the result of the algorithm technology generated due to the design of the developer (or designer), which cannot express the ideas and personality of the creator, and does not have the originality characteristics that a work should have, so the artificial intelligence generated results do not have the attributes of a work. [] From the aspect of expression, for the final product, the manipulator does not play a substantial role in its generation, and does not put enough emotion and thought into it, and the work, as an original expression, must originate from human feelings and thoughts, so the manipulator cannot be recognized as the creator of the final product, and the generated result cannot be recognized as a "work ". []

## 2. Works of Artificial Intelligence Generators Attribution

One view is that the work of an AI-generated object should be attributed to the designer. Based on the copyright incentive system that gives the copyright of the generated product to the designer, the premise of the AI "work" is the value of data filtering conveyed by the designer in the process of machine learning. Where artificial intelligence surpasses humans is in its superior computing power and the value trade-offs it is given

through training. Therefore, the AI-generated content can be regarded as a creative act representing the will of the designer under copyright law, and the designer of the AI is thus regarded as the author, and the relevant copyright should belong to the designer of the AI.

Some scholars believe that the works generated by artificial intelligence should be attributed to investors. The copyright law should take into account the factors of “protecting investment and promoting industrial development” in the issue of “attribution of rights”, and protect them through special institutional design. At the present stage, the construction of AI systems is a difficult task, and investors have made great efforts and costs in pooling the human intellectual resources necessary for AI development and making the necessary technical arrangements. In the case of a large number of AI designers, the copyright of AI “works” should be enjoyed by the investors as the owners of AI, instead of being shared by scattered individuals, similar to the system designed under the current copyright law that the copyright of movie works is unified to the producer, which is in line with the efficiency value of copyright economy.

Other scholars believe that works of AI-generated objects should refer to collaborative works. In the process of AI-generated results, both the designer and the user claim to contribute the hardware support of the program design or the creative intent support of the target design to the result. Therefore, the attribution of AI-generated results can be identified through the collaborative authorship model of signing a collaboration agreement without distinguishing a specific single attributed subject. However, the designer only has the intention to develop the AI but not the intention to use it; the user only has the awareness of using the AI and focuses on its final generated results, but has no intention to design and develop the AI. Therefore, the designer and the user do not have the intention to jointly use the AI in the future, nor do they have the creative intention to co-create, and they cannot satisfy the basic elements of the co-authorship model, and thus the designer and the user cannot be recognized as co-authors of the AI-generated results.

In summary, the preferred approach is to take the general principle of “attribution of AI-generated products to users”, take into account the protection of investors’ interests, and respect the subject’s autonomy. In view of the fact that the copyright of AI-generated products is inappropriate no matter to whom it is attributed, it is advisable to construct a model of attribution exclusively for AI-generated products based on the existing legal system, in which the protection of the legitimate rights and interests of users is the focus, while taking into account the general protection of the rights and interests of investors and designers and respecting the effectiveness of mutual agreement among subjects.

### 3. the protection model of artificial intelligence generated objects

#### 3.1 Work protection model

##### 3.1.1 Legal entity works

Most of the current “algorithmic creations” have legal entities acting as the main developers or owners of intelligent technologies, and the AI-generated contents should be original works with elements of personality. In the case of human-computer synthesis creation, both the “machine author” and the human author make substantial contributions to the work, and their copyright ownership can be handled with reference to the provisions of the legal person’s work or the agreement of the creator.

##### 3.1.2 Compilation work protection model.

In the current development of weak artificial intelligence, the creation of artificial intelligence “works” is similar to the creation logic of compilation works. The existing machine learning, taking visual perception as an example, the machine realizes the process of “low-level perception - pre-processing - feature extraction - feature selection - inference, prediction and recognition” to The process of “low-level perception - pre-processing - feature extraction - feature selection - inference, prediction, recognition” is used to extract and infer the features of the recognized object, which has similarities with the collection of compiled works.

##### 3.1.3 Yield protection model.

The traditional model of work protection is author and work, but since artificial intelligence cannot have the identity of author, its relationship with the creature is that of “creature-born”, and it is protected by “intellectual property fruits”, and the rights of the intelligent creature can be attributed to both the Roman law “originalism” principle and the Germanic law “productionism principle”. The copyright of such intelligent creations can be attributed to the developer, user or owner of the artificial intelligence by adopting both the principle of “originalism” in Roman law and the principle of “productionism” in Germanic law.

#### 3.2 Non-work protection model

##### 3.2.1 Neighboring rights protection model.

The use of neighboring rights to protect AI-generated objects does not violate the moral and ethical requirements of anthropocentrism, nor does it violate the principle that the subject-objects in private law are not interchangeable, and the pressure in terms of legislative costs is not too great. However, there are doubts that the traditional neighboring rights are generated in the process of dissemination and are “non-creative input”, while AI-generated works have creative input, and creative input includes the subjective intention to create and the objective act of putting in creative labor. The AI developer defines the function of AI to achieve creation, which means that the developer has the subjective intention of creation, and the developer invests in equipment, develops algorithms, and selects learning data to achieve AI creation, which means that the developer has put in actual labor for creation and finally obtains the work with originality.

##### 3.2.2 “Orphan works” protection model.

There is no essential difference between “orphan works” and works recognized by the Copyright Law, and their protection can play a role in stimulating creativity. Given the controversy over the recognition of AI generated works, the protection of AI generated works under the “orphan works” model can indeed eliminate many intermediate steps. The combination of compulsory licensing and deposit can effectively solve the problem of legal protection of AI generated works, and a national administrative department can be designated to manage “orphan works”.

### 3.2.3 Anti-unfair competition and public domain protection model.

When there is unfair competition in the market in which competitors use means that violate the principle of honesty and credit to engage in the dissemination and trading of AI-generated materials, the anti-unfair competition law can be applied to regulate it in order to maintain the business ethics of fair competition and order of transactions. non-competitive use behavior, such as personal use and other situations, at this time, AI-generated materials should enter the public domain and become the common wealth of society.

## 4. Review of the study

### 4.1 Justification of copyright protection for AI-generated objects

From the practical point of view, from the "Philadelphia case" that artificial intelligence is not a work to the "Tencent v. PCG case" that artificial intelligence is a corporate work, although the final attribution of corporate works, but also for the future of artificial intelligence as a work The case of Tencent v. PCG found that the AI product was a work of legal person.

From the theoretical point of view, the protection of AI-generated materials is in line with the purpose of China's copyright law. The purpose of our copyright law is to protect the interests of authors as the core principle combined with the principle of promoting the prosperity of culture, science and art. The protection of authors' interests lies in the incentive theory, which is the incentive of economic interests on the one hand and the incentive of spiritual claims on the other. Regardless of the controversy over the attribution of works, human beings at least participate in the process of creation and deserve to be motivated. And the incentive for the interests of authors can further promote the ultimate goal of the prosperity of the cause of science, culture and art in China, which at the same time coincides with the purpose of copyright legislation.

### 4.2 My opinion on copyright protection of artificial intelligence-generated objects

In view of the fact that "author-centeredness" no longer meets modern needs, the ambiguity and uncertainty of the determination of the author's creative intent, and the dichotomy of thought and expression focusing on the protection of expression, the existing copyright law in China has changed the previous enumerated provisions and adopted enumeration plus generalization for works. The existing copyright law in China has changed the previous enumerated provisions and adopted the enumeration plus generalized provisions for works. To a certain extent, such provisions can be regarded as leaving room for the impact of technological development on the law. Artificial intelligence-generated works are in line with the provisions of China's existing copyright law on works. As for the attribution of AI-generated works, compared with placing them in circulation regardless of the subject of creation for special use restriction and protection, determining the attribution of AI-generated works can better stimulate the development of creation in the field of AI. Considering the disadvantages of double profitability that may arise from only attributing to the investor or designer, and the possible existence of exceptions where the user does not participate in the creation, such as the emergence of writing AI creation, ChatGPT, the user may only commission the creation, enter the title of the article, and have ChatGPT create an article, as for the future strong AI era, AI The construction of legal personality will depend on the future development of science and technology. In terms of the protection mode of AI products, if the AI products are recognized as works, they will be protected by the creator's ownership mode, which will be determined according to the agreement, and the blockchain technology will be used to combine "blockchain and work registration", which is different from the previous copyright upon completion of creation, and the circulation of AI works will be stamped with In addition, the blockchain and the registration of works are combined to achieve exclusive protection of AI works by stamping the circulation of AI works, and to achieve all-round protection of AI works by attaching the anti-unfair competition law.

### 4.3 Technological development and legal regulation

On the one hand, the development of science and technology reconstructs law, especially intellectual property, a jurisdiction closely related to science and technology; on the other hand, the institutional construction of law promotes the development of science and technology in a direction more favorable to human beings. Regarding the future direction of AI works, we should balance the value rationality of law and the instrumental rationality of technology, not break the legislative stability of copyright law as much as possible before the era of strong AI has fully arrived, and protect AI works under the existing copyright law system to achieve the overall goal of copyright law of stimulating creativity and regulating risks.

## 5. Concluding remarks

Combing the relevant views of scholars in China on the three panels of work identification, subject attribution and protection mode of AI-generated materials, we can see that the development of China's copyright law has shifted from international legislation-driven development to independent development, and most scholars strive to integrate the protection of AI-generated materials within the framework of China's existing copyright law, and believe that with the development of China's technology and law, a better balance between the two can be found in the future.

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