

Liability Principles for Copyright Infringement of Generative Artificial Intelligence

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Abstract: Unlike the traditional network copyright infringement model, the copyright infringement model of Generative Artificial Intelligence is more complex. In this model, the infringing subject cannot be simply defined as direct infringement or indirect infringement. For network users, if they consciously input instructions to guide the generation of infringing content, the principle of fault liability should be adopted. For the providers of Generative Artificial Intelligence services, their copyright infringement behavior does not match the concept of fault in the principle of fault liability, and as the weaker party, network users often have difficulty in providing evidence. Even if the principle of presumed fault can alleviate the difficulty of providing evidence, the fundamental issue of "whether there is fault or not" has not been solved. The determination of the provider's fault is contrary to the objective fact that the provider cannot foresee and control the generation of infringing content. Therefore, it is more appropriate to adopt the principle of no-fault liability for the providers of Generative Artificial Intelligence services in the attribution of copyright infringement liability.

Keywords: Generative Artificial Intelligence; Copyright infringement; No-fault liability principle

1. Introduction

Under the background of big data, human society has entered the era of artificial intelligence, and the rapid development of algorithm technology makes artificial intelligence applied to all aspects of society. In 2022, OpenAI introduced ChatGPT, a new Generative Artificial Intelligence. As a typical work of Generative Artificial Intelligence, ChatGPT algorithm contains a range of knowledge across many fields, and has a major breakthrough in language and text cognitive mode, cognitive relationship and cognitive level. It can be predicted that once such Generative Artificial Intelligence products can be applied to the industry, they can occupy the market of various industries with the huge advantages of high quality and high efficiency, thus setting off a wave of emerging technologies affecting social governance.

However, with the wide application of Generative Artificial Intelligence such as ChatGPT and ERNIE Bot, the copyright problems caused by AIGC (Artificial Intelligence Generated Content) emerge one after another. On the one hand, academic circles have different theories on the application of the principle of liability. Professor Wang Liming believes that based on the consideration of the development of artificial intelligence industry, the principle of fault liability should be adopted for Generative Artificial Intelligence infringement, and the principle of presumed fault liability should be adopted only when the rights and interests of personal information are infringed.^[1] Professor Xu Wei believes that there are theoretical and practical obstacles in the application of fault liability principle and fault presumption principle to the tort of Generative Artificial Intelligence service providers, and the most logically compatible liability principle is the no-fault liability principle.^[2] On the other hand, how to divide tort liability between network users and generative AI service providers is worth exploring. Both in theory and in judicial practice, the tort liability of generative AI service providers is discussed, but it is ignored that network users, as instruction inters, should also bear tort liability for their faults under certain circumstances. In July 2023, the State Internet Information Office jointly issued the Interim Measures for the Management of Generative Artificial Intelligence Services (referred to as the Interim Measures), which provides the normative obligations that service providers should perform, but the relevant provisions are not detailed enough to be directly applied to judicial practice. The "Interim Measures" also did not specifically regulate the infringement liability of users. Although Generative Artificial Intelligence service providers have mastered Generative Artificial Intelligence algorithms and other technologies, if users intentionally exploit algorithm loopholes or intentionally guide Generative Artificial Intelligence to produce AIGC copyright infringement, the infringed may be

unable to properly defend their rights due to the lack of rules for the identification of infringement liability of network users. Therefore, how to divide the tort liability of network users and generative AI service providers is particularly important.

2. Traditional liability determination of copyright infringement

Many scholars have analyzed AIGC's copyright infringement liability under the traditional network infringement model. In the traditional sense, network infringement refers to the behavior that network users use the Internet as a carrier and upload the infringing content to the Internet platform to infringe the civil rights and interests of others. The liability of network infringement discussed here is mainly to solve the legal relationship between the network user and the infringed and to fulfill the duty of care of the network service provider. However, there is a big gap between Generative Artificial Intelligence services and traditional network services, and the copyright infringement liability generated cannot be generalized, and the operation rules of the traditional network infringement mode must be clarified first.

In traditional network services, network users upload content to the network, and network service providers, as "intermediaries", provide a place to accommodate and store the content, and provide others with search, browsing, positioning and other services. If the content uploaded by a network user infringes the copyright rights of others, the network user is the direct infringing subject. Compared with the initiative of network users, network service providers do not directly create infringing content, so they only need to be the indirect infringing subject and bear joint and several liability for the infringing act when they fail to fulfill their duty of care or take necessary measures to stop the infringement or prevent the expansion of damage. Under the traditional network service model, according to the provisions of Article 1194 of Civil Code of the PRC (referred to as the Civil Code), the "fault liability principle" applies to the liability for damages caused by network infringement. Faults include intent and negligence. As the exporter of infringing content, there is no possibility of no fault, and the infringed can directly find the user and ask him to bear the direct infringement liability.

In judicial practice, the court will determine whether the Internet service provider should take positive measures to prevent the further occurrence of the infringement or the expansion of the infringement harm according to the "popularity", "traffic" and "popularity" of the infringing content on the Internet platform. If the problem is not dealt with in time, the Internet service provider should bear indirect tort liability for its negligence in fulfilling the duty of care. In this regard, the Civil Code stipulates the "safe harbor" rule belonging to Internet service providers, which can be interpreted as the "notice-deletion" rule in a narrow sense. Specifically, it means that copyright owners can send a written notice containing specific content to the Internet service provider if they find content infringing on their right of information network transmission in the management and control space of the Internet service provider. It is required to take necessary measures for this content, including but not limited to deleting, blocking and disconnecting links, to evaluate whether the network service provider has fulfilled its duty of care and whether there is subjective fault.^[3] In traditional network services, network service providers are similar to search engines and network platforms and other technical service providers. They do not produce, copy and publish network information, but only undertake platform information management and security responsibilities. Even if the copyright owner has not yet learned that copyright infringement has occurred, if the network service provider knows or should know that the network user uses its network service to infringe copyright, it should also take necessary measures in a timely manner, otherwise it will be jointly and severally liable with the infringing user. The joint and several liability shall be assigned to the infringement liability of network users and network platforms according to the network infringement provisions. In traditional network services, the "safe haven" rule can urge network service providers to strengthen supervision and strengthen the responsibility of network users.

3. Dilemmas in the application of traditional principles of liability for copyright infringement

3.1. Difficult to determine the accurate direct infringement body

In the generative AI infringement model, generative AI, network users, and service providers are all involved in the generation of infringing content, so how to divide the infringement liability among the three? Who is the direct infringing subject?

3.1.1. Discussion on the tort subject status of Generative Artificial Intelligence

As to whether Generative Artificial Intelligence itself or algorithm product itself can be regarded as the subject of copyright infringement, there are different opinions in the academic circle. First, the full subject qualification theory, that is, after passing the Turing test, artificial intelligence can have all the attributes like humans and become a subject in the constitutional sense. But there are significant values implications in applying this view. From a philosophical point of view, even if the performance of artificial intelligence is "intelligent", it can imitate human appearance, language, behavior, and even imitate the way of human thinking, but it is still fundamentally a man-made machine. Generative Artificial Intelligence learns and generates content within the framework of algorithms set by technology providers. From the perspective of existing technologies and future technologies, Generative Artificial Intelligence should not have self-awareness and self-emotions. Therefore, the skills displayed by Generative Artificial Intelligence in behavior do not belong to the same level as human intelligence in essence. In reality, it is difficult to be regarded as an entity with the same legal subject status as human beings. Second, the non-subject qualification theory, that is, the AI is only regarded as a product, and the infringement is attributed to the service provider or network user at fault. Third, the limited subject qualification said that it will be bound with artificial intelligence-related personnel, including but not limited to developers, programmers, producers, users, etc., to form a new legal entity - "electronic person". Similar to the legal person in the sense of civil law, the Generative Artificial Intelligence needs to be registered to obtain the legal subject status, and if the loss of others is caused in the process of production and market use, it can be transferred to the machine or the algorithm itself through the transfer of responsibility, and then the "electronic person" performs the liability for damages. This view seems to solve the problem of the subject status of Generative Artificial Intelligence, but at the same time produces a new concept "electronic man", which will be a new discussion on the relevant legal provisions of "electronic man", for example: how to divide the rights and obligations of "electronic man"? What are the thresholds and legal procedures for the registration of generative AI? Over and over again, with no real conclusion.^[4]

To sum up, Generative Artificial Intelligence becomes the subject of copyright infringement, which means that the concept of legal personality needs to be extended to the non-human, algorithmic field. From a rational point of view, the activities implemented by artificial intelligence products or algorithm technology follow the technical operation rules designed for them by human developers and human technical control, and do not have the necessary autonomy of legal subjects, cannot assume legal responsibility based on "human rationality" factual legal behavior, and cannot give them legal personality.

3.1.2. The principal position of network users' infringement

Network users cannot simply be defined as the direct infringing subjects of generative AI. In the traditional identification of liability for infringement of network services, network users often act as uploaders of infringing content, and use network service providers as media to spread the infringing content to the Internet, so network users are the direct infringing subjects, and network service providers are the indirect infringing subjects. In the determination of tort liability of Generative Artificial Intelligence, the content generated by AIGC is generated under the joint action of network users and Generative Artificial Intelligence service providers. If the joint action is regarded as a "contractual relationship to complete the work", the network user, as the "ordering person", selects the service provider to provide it with a certain directed service, the service provider completes the service at the request of the network user, the network user accepts the work results of the service provider and pays the corresponding remuneration.^[5] In this contractual relationship, the two parties shall reach a trust condition, that is, the service provider shall deliver the content text without intellectual property infringement dispute to the network user, otherwise the service provider shall bear the liability for breach of contract. The network user, as a party who does not know whether the content text infringes, does not have to bear the infringement liability unless it is at fault. Although network users are the users and disseminators of the content generated by AIGC, due to the complex technology of Generative Artificial Intelligence, hidden algorithm and difficult access to the outside world, network users can neither predict the content provided by artificial intelligence, nor effectively judge and have no obligation to spend energy to judge the infringement nature of the content generated by AIGC. Moreover, there is no duty of care to review, compare, and screen infringing content, so in the identification of Generative Artificial Intelligence copyright infringement, network users should not be simply identified as direct infringing subjects.

There is also another situation, that is, the network user has touched the infringed works before entering the instructions, and the purposeful multiple input instructions guide the Generative Artificial

Intelligence to generate content that is substantially similar to the infringed works within the scope of its database, in which case the network user should be the direct infringing subject. However, in practice, due to this subjective purpose is difficult to consider, and the law does not set a duty of care for Internet users to review, compare and screen infringing content, so it is often difficult to identify the direct infringing subject in judicial practice.

3.1.3. Tort subject status of generative AI service providers

The role of Generative Artificial Intelligence service providers in the identification of copyright infringement liability is different from that of traditional network service providers. In Japanese law, the "Artificial Intelligence and Copyright Treatment Plan (Draft)" formulated by the legal system sub-committee of the Copyright Branch of the Japanese Cultural Council points out that both users and generative AI service providers may bear direct infringement liability. Whether the Generative Artificial Intelligence service provider directly bears the infringement liability needs to consider whether the artificial intelligence can generate the infringing products frequently, and whether the service provider has taken active measures to prevent its generation of infringing products.

This is quite different from the tort liability of traditional Internet service providers. At the technical level, traditional network services rely on algorithm recommendation, while the generation behavior of AIGC is more algorithm creation within the scope of the database set by technicians. In the algorithm recommendation behavior, the network service provider only serves as a platform to accommodate the infringing content, and the real upload of the infringing content is the network user. The network service platform only knows or should know that the content has caused intellectual property infringement harm, or fails to take necessary blocking measures after receiving feedback from others, resulting in increased infringement losses. It should bear joint tort liability for the enlarged part of the damage. In the act of algorithm creation, the generative AI service provider provides the algorithm technology, algorithm tools and data contained in the database to the network user, so it bears the responsibility for the possibility of loopholes and deviations in the algorithm and the possibility of infringement risks in the database. If the content provided by the service provider directly to the network user causes infringement harm, it shall bear direct infringement liability. However, there are also views that even if generative AI service providers do not bear direct infringement liability, they can also bear joint infringement liability as helpers of network users' infringement. The premise of this method of joint infringement liability is that the network user is the direct infringing subject, that is, the user knows that the input of certain instructions can obtain the content generated by AIGC that is substantially similar to the infringed work, and the service provider only acts as an "accomplice" to help the user generate the content he wants under the user's instructions.

The above analysis is enough to see that in the Generative Artificial Intelligence technical services, it is difficult to identify the real infringing subject by applying the traditional network services and simply applying the framework of direct infringement or indirect infringement, so there is a risk that the infringed may not find the right direction to deal with the problem of Generative Artificial Intelligence copyright infringement.

3.2. Not directly apply the principle of fault liability

Based on the current law of our country, in the absence of other special provisions, the principle of fault liability should be applied to the infringement of network service providers and network users. However, the adoption of fault liability principle in generative AI infringement cases will face some problems.

First, generative AI copyright infringement does not match the concept of "fault" in the principle of fault liability. In the principle of liability for fault, the subject of infringement must subjectively have "intention" or "fault" to explain that the subject of infringement has the subjective intention to commit the act of infringement. If the subject is subjectively not at fault, it should not bear tort liability. The principle of fault liability has played a significant role in the tort determination of traditional network services. In the identification of copyright infringement liability of Generative Artificial Intelligence, the service provider generally adopts the neural network technology, and the artificial intelligence determines the generated content through the probability of word collocation. Taking ChatGPT as an example, when setting up the algorithm database, the service provider will consciously avoid undesirable content such as values and world views, and will conduct multiple rounds of repeated tests in the training stage, so as to ensure that the artificial intelligence will not violate the basic ethical and moral standards of human society while reaching the accuracy rate. However, it is difficult for the

creators and technicians involved in the setting process to prevent factual errors. For example, some Internet users once entered the command "Are Lu Xun and Zhou Shuren the same person" in ChatGPT, and the generated content of ChatGPT roughly means "No, Lu Xun is a giant of modern Chinese literature, while Zhou Shuren is a famous contemporary Chinese writer". In the process of input algorithms, technicians can "teach" artificial intelligence not to generate uncivilized content, but it is difficult to "teach" it not to generate factually incorrect content in a huge database. Factual errors do not belong to the category of faults, but in practice, the infringement disputes of Generative Artificial Intelligence are often because artificial intelligence has generated factual errors.

Second, it is difficult for the infringed to prove the fault of the service provider. First of all, for the duty of care, there are no relevant provisions on the threshold of the duty of care of Generative Artificial Intelligence, and the technical level of its Generative Artificial Intelligence must be considered as the focus in order to prove that the service provider has violated the duty of care. But the industry is still in its infancy, there is not much generative AI, and the technology is iterating so fast that the level of reference technology is difficult to measure.^[6] The technical level of ChatGPT should be in a leading position in the industry. If the artificial intelligence involved is ChatGPT, the consideration of duty of care, whether referring to ChatGPT itself or lower than the technical level of ChatGPT, is not enough to prove that its service provider is at fault. Secondly, it is extremely difficult to require the infringed to prove the fault of the service provider, which can be compared with the difficulty of natural persons suing the group in civil cases. Of course, the promulgation of the "Interim Measures" reduces the difficulty of proof, which stipulates the rule of "illegal presumption of fault", that is, as long as the service provider is proved to be illegal, it can prove its fault. Service providers shall use data and basic models from legitimate sources, formulate clear, specific and operable labeling rules that meet the requirements, and identify the generated content such as pictures and videos. The infringed party can find evidence to prove the illegal behavior of the service provider according to the above rules, so as to prove the fault of the service provider. However, the "illegal presumption of negligence" rule only reduces the difficulty of proof, but does not replace the burden of proof, and the infringed still bears the obligation to prove the violation of the service provider. It is still difficult for the infringed to protect their rights.

If the fault liability principle does not apply to generative AI copyright infringement liability, can the fault presumptive liability principle apply? The principle of presumption of fault is a special form of fault liability, both of which are based on "fault" in essence, that is, the perpetrator bears responsibility for the existence of "fault" in his behavior. Our country adopts the principle of presumptive liability of fault for the infringement of personal information and inverts the burden of proof to the personal information processor. The most important point is that it effectively alleviates the contradiction between weak individuals and powerful companies such as personal information processors. This is similar to the situation where the infringed proves the fault of the service provider in the case of Generative Artificial Intelligence infringement, but there are also obvious differences. In the personal information processing scenario, the personal information processing behavior is firmly in the hands of the personal information processor, and there will be no major deviation, so it is up to the personal information processor to prove that the personal information processing behavior it implements conforms to the legal provisions and meets the attainable industry standards. In generative AI scenarios, the generation of AI content is not controllable. Due to the complexity of the algorithm, coupled with uncertain factors such as the algorithm black box, even if the service provider has ensured that the data source is safe, reliable, and legal in accordance with the provisions of the Interim Measures, artificial intelligence may still generate infringing content due to network users entering certain instructions, unpredictable errors in algorithm technology, and other reasons. It can be seen that the problem faced by Generative Artificial Intelligence infringement is not the simple problem of "how to prove fault", but the problem of "whether fault exists". To sum up, if the principle of fault presumptive liability is applied to the problem of Generative Artificial Intelligence infringement, although it can alleviate the pressure of the infringed person's difficulty in proving evidence, it undoubtedly brings the problem of using "fault" to identify tort liability, and solves the symptoms rather than the root cause.

4. Generative Artificial Intelligence mode of copyright tort imputation principle of focus

4.1. Internet users are liable for faults

The principle of liability for copyright infringement of network users is based on fault. Generally

speaking, in the generation phase, the network user enters instructions based on trust in the generative AI, expecting the generative AI to produce a content that meets its expectations and is legal. At this time, if the content infringes the copyright of others, the network user will not be liable for infringement because of ignorance and no fault. However, under special circumstances, if the network user has certain faults during the generation, such as the input instructions are of a guiding nature and the use of multiple instructions to generate content substantially similar to the works of others, the network user shall bear the copyright infringement liability. The application of the principle of "fault liability" to the copyright infringement liability of network users is beneficial to the implementation of infringement liability. Unlike generative AI service providers, whose faults are difficult to find, network users generally, as individuals, can clearly see their behavior path and subjective purpose when entering instructions. In order to achieve infringement, on the premise that there is no factual error in Generative Artificial Intelligence, network users need to input words with obvious subjective color of infringement. Therefore, whether network users should bear copyright infringement liability needs to be specifically determined according to their forces and subjective faults in the "generation - dissemination" chain of infringing content.^[7] When the network user is liable for infringement due to the above circumstances, it shall stop the infringement and bear the liability for damages. If a network user propagates the content on the network after it is generated, so that the loss of the infringing is increased, and neither the user nor the service provider takes necessary measures to prevent the expansion of the damage, it shall be jointly and severally liable for the expansion of the damage with the service provider.

As for the exemption of "fair use" of network users, there is a view in the academic circle, that is, in the generation stage, because network users actively input instructions to obtain infringing content, the user is the direct infringer, while the Generative Artificial Intelligence service provider is only the indirect infringer who provides Generative Artificial Intelligence tools. But there is something wrong with this view. First of all, if you agree with this view, Generative Artificial Intelligence applies the direct infringement and indirect infringement subject rules, but the adverse effects of applying this rule have been discussed in the previous article, and will not be repeated here. Second, endorsing this view also affects the commercial interests of the entire copyright landscape.^[8] The emergence of a large number of individual uses may lead to a agglomeration effect, that is, a large number of web users obtain generated content on the grounds of fair use, and jointly build a free "fair use" business model to replace the market for copyright owners' works. For this kind of "fair use" mode which deviates from the copyright protection setting, the network user can not escape the liability, and should bear the compensation for the infringement damage caused. Therefore, we should establish and raise the threshold of "fair use" of network users in the environment of Generative Artificial Intelligence, as a dividing line to balance the agglomeration effect of fair use and network users' copyright infringement interests.

4.2. Generative Artificial Intelligence service providers assume no-fault liability

Artificial intelligence is an emerging field, and the legal provisions for artificial intelligence are not complete, and Generative Artificial Intelligence, as a new type of research in the emerging field, has fewer legal provisions and less practical experience, so a more binding principle - the principle of no-fault liability should be applied to service providers. Compared with the fault liability principle, it is more appropriate for generative AI service providers to apply the no-fault liability principle to bear the liability for copyright infringement damages for the following reasons:

First, based on the consideration of protecting the vulnerable party infringed. In a certain scenario, if neither the perpetrator nor the victim can foresee the possibility of damage, and there is no means to prove fault on either side, how should the outcome of the existing infringement be addressed? This situation is akin to high-altitude throwing, where the perpetrator's floor cannot be determined. Article 87 of the "Tort Liability Law of the People's Republic of China" clarifies, for the first time, the division of civil tort liability in cases of high-altitude throwing, stipulates that "when it is difficult to ascertain the specific infringer in such cases, the principle of fair liability shall be applied, with compensation payable by the building users who may have caused the harm. In fact, the essence of this kind of problem is how to fairly distribute the liability for the damage that has occurred to the parties. "Fair" here does not mean equally divided responsibility. One of the important factors affecting the distribution of responsibility is to determine who is the weaker party on the moral level. In the Generative Artificial Intelligence scenario, the service provider who cannot foresee the formation of infringing content is innocent, but the infringed is more innocent in the vulnerable party. In terms of technology, the service provider has deep technology such as artificial intelligence algorithms, which

can be said that the content generated by default when the network user enters the instruction is impossible to infringe. There is also a view that the unpredictability of harmful content is in some sense precisely the technical result pursued by service providers. For the infringed, the infringed has nothing to do with the generation of the infringing content, but its ultimate copyright interests are damaged. Usually in practice, most of the infringed are individuals, there is no other way to protect their rights and interests, and the vast majority of service providers who can develop Generative Artificial Intelligence are large enterprises or groups, if the infringed need to prove that the service providers of enterprises or groups are at fault, it is unreasonable and unreasonable. Therefore, based on the protection of innocent and vulnerable infringed party, it is more appropriate for service providers to bear no-fault liability.

The second is to encourage service providers to strengthen their technical and ethical standards. The adoption of no-fault liability principle will undoubtedly cause some burden to service providers. Service providers are liable for damage, regardless of fault. Therefore, in order to reduce the risk of infringement compensation, service providers and their technical research and development teams will regulate the internal algorithms and procedures of generative AI, train generative AI more, and test and supervise its generated content more, so as to reduce the possibility of the generation of infringing content. In addition, the adoption of the more stringent principle of no-fault liability has formed some warnings and strikes against service providers who are subjectively destructive of ethics, after all, not all data is suitable to be added to the database and become part of the algorithm. As a new type of intelligence, Generative Artificial Intelligence is not deeply understood by humans, even the technicians who created the intelligence, so when selecting the internal data of the algorithm, it should avoid the content with the color of destroying human ethics, life and health, and ecological environment. Therefore, the principle of no-fault liability can become a "wake-up call" for generative AI service providers to a certain extent.

5. Conclusions

The trend of AI development seems to have moved in an irreversible direction. Generative Artificial Intelligence has both the advantages of science and technology and innovation, and stands out in this competition of science and technology and innovation, and becomes one of the important components of measuring the comprehensive strength of the country. However, in the process of developing Generative Artificial Intelligence, it is necessary to maintain enthusiasm and tolerance for it, but this does not mean that when the generated content of Generative Artificial Intelligence touches the bottom line of infringement, the law should be completely ignored and indulgent. When the generated content causes copyright infringement, we should adopt the fault liability principle for the network users who are subjectively at fault. For generative AI service providers, the principle of no-fault liability should be adopted. Of course, this era is in the embryonic stage of the development of Generative Artificial Intelligence, and the research on the principle of liability for Generative Artificial Intelligence copyright infringement should also be gradual.

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