

Attribution of Liability for Copyright Infringement by Artificial Intelligence Generated Content

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Abstract: As generative artificial intelligence continues to advance, providing an ever-expanding range of functions and applications for humanity, it has given rise to novel forms of torts, with the potential for more to emerge in the near future. Resolving issues of liability hinges on the identification of the responsible party. However, neither Chinese legislation nor academic views have specified rules or a clear and consistent opinion on the liability attribution issue. This paper aims to address this question. Commencing with the premise that artificial intelligence inherently lacks legal personality, this paper systematically examines all relevant subjects who could potentially bear liability for copyright infringement. The legal foundations for each entity's liability are thoroughly analysed. Meanwhile, this article elucidates the principles of attribution of liability, drawing from established theories of traditional tort law and jurisprudential principles while taking into account the special characteristics of copyright infringement and artificial intelligence. In conclusion, in the absence of a clear consensus on determining the liable party, the principle of “correspondence between risks, benefits and responsibilities” should guide the attribution of liability for copyright infringement involving generative artificial intelligence. This approach will ensure an equitable distribution of losses, responsible burden-sharing, and comprehensive protection of rights.

Keywords: generative artificial intelligence, generated content, legal subject, liability

1. Introduction

As generative artificial intelligence (hereinafter “generative AI”) technology keeps on developing, exemplified by ChatGPT, the application scenarios for this special technology continues to expand, which is likely to bring about issues of copyright infringement and attribution of liability. Presently, the legal landscape lacks comprehensive regulations to address these emerging concerns. This article focuses specifically on the domain of copyright infringement and seeks to clarify the responsible parties in the absence of established guidelines for liability attribution.

Addressing the issue of infringement liability necessitates the determination of the specific entities accountable for such actions, particularly in the context of copyright infringements stemming from the generated content of generative AI (hereinafter “AIGC”). This inquiry holds practical significance as it delineates legal responsibilities, enhances predictability, and fosters the responsible development of AI technology, ultimately serving the betterment of society.

This paper is mainly qualitative research and combines methods of literature analysis, comparative analysis and legal interpretation. The central focus of this paper is to analyse the liable parties for this novel form of copyright infringement, the legal bases for their liability, and the principles governing the attribution of liability in those cases. The aim is that this examination will contribute to the equitable resolution of copyright infringement liability stemming from AIGC and ensure that such issues are addressed appropriately.

2. Legal Personality of Generative Artificial Intelligence

2.1. Types of Artificial Intelligence and the Definition of Generative Artificial Intelligence

The legal landscape surrounding generative AI lacks a clearly defined framework, making it challenging to attribute liability for infringements caused by this technology [1]. Therefore, it becomes imperative to expound upon the scope and characteristics of AI, starting from a general understanding of AI types.

2.1.1. Types of Artificial Intelligence

Through the developing stages of AI, it can be categorised into three types: artificial narrow intelligence (ANI), artificial general intelligence (AGI) and artificial superintelligence (ASI). Based on known algorithms, ANI replaces known and repetitive human activities to perform mechanical repetition and simple responses. Its behavior is less predictable. AGI belongs to general AI, which can improve its model through autonomous learning and interact with the environment in unforeseen ways. It has a certain degree of decision-making ability, but still lacks autonomous consciousness. The ChatGPT-4.0 falls in the second category. ASI has autonomous consciousness, high-level of autonomous learning and decision-making capabilities. It can match and surpass human thinking, and even have emotional abilities and psychological needs similar to humans [2].

2.1.2. Definition of Generative Artificial Intelligence

Though there is no one widely accepted definition for AI so far, Chinese scholars has reached a consensus on the connotation of “intelligence” of AI, defining it as the ability to engage in autonomous activities based on free will in response to environmental changes. As to the scope of AI, the differences among international scholars mainly lie in whether AI includes machines. One could not deny that tangible forms of AI application are necessary for social production, such as machinery [1]. In the author’s view, generative AI encompasses a high degree of autonomous decision-making, access to a wide range of data sources, and advanced algorithms. It refers to machines and programs that emulate human intelligence by autonomously responding to environmental changes, selecting information, and producing complex, high-quality content.

2.2. Legal Personality Issues of Generative Artificial Intelligence

The question of whether generative AI possesses legal personality is a matter of debate within the academic community, with three main viewpoints: the negative theory, limited personality theory, and affirmative theory. The negative theory believes AI has no legal personality, thus no legal capacity to act. The affirmative theory holds the opposite opinion. The limited personhood theory holds that generative AI has a limited legal personality and can be held liable for certain scope of property damage it causes [2]. Each viewpoint has its merits, as they consider certain characteristics of generative AI at specific developmental stages.

Currently, in the practical realm, countries like Japan, Saudi Arabia has established some status in law for robots, while regions such as the European Union have demonstrated legislative tendency

regarding the legal status of intelligent products [3]. However, within the Chinese legal system, AI has not been recognised as an independent legal subject.

When answering the question whether generative AI should possess legal personality, the primary concern is the elements of autonomous conscious, independent will and property [2]. Autonomous consciousness and independent will are fundamental attributes of natural persons, and prerequisites for legal subjecthood, i.e., the status of having rights and obligations, and the capacity to act and assume responsibilities. The element of property has a typical meaning for practice, as it is the necessary material basis for a legal subject to bear its civil legal liability. For instance, the modern legal person system is built on the premise that a legal entity possesses independent property and can assume responsibility for its actions. Therefore, it is appropriate to take a cautious approach, bearing in mind current and foreseeable future developing level and supporting systems of generative AI. In principle, to deny legal personhood for generative AI, but to leave necessary exceptions for future development. At a certain point in the future when relevant supporting systems are built to ensure the independent property of generative AI, a limited legal personality could be considered for generative AI, requiring it to bear certain liability with its independent property. However, this does not preclude the possibility of piercing the AI “veil,” wherein human beings would ultimately bear the brunt of responsibility [4].

3. Liability Subjects and Attribution of Liability for Copyright Infringement in Content Generated by Generative Artificial Intelligence

3.1. Analysis of Relevant Subjects

Provided that in different stages those copyright infringements and relevant subjects involved may vary, the possible liability subjects discussed by scholars are mainly the following ones.

3.1.1. Product Producer

As generative AI products include machines and programs, the term ‘product producer’ here covers research and development personnel, designers and manufacturers among other subjects. Research and development personnel and designers are the main bodies responsible for selecting and controlling the pre-training data and fine-tuning data sources of generative AI products, and are critical subjects in designing the necessary algorithms for these special products [5], thus play a dominant role in determining the scope, direction, and path of subsequent services for generative AI. Based on the controlling power of manufacturers in the producing stage, traditional civil law on liability for tort prescribes a strict liability to the manufacturers, which is the product defect liability; in accordance with the principle of “whoever produces should be responsible”, manufacturers should bear the liability for tort, even this infringement is not caused by the manufacturers’ fault. This is also provided for in Article 1202 of the Civil Code of China [6]. In practice, research and development personnel, designers are often the same entity as the manufacturers, or appear as internal departments of the same legal entity. From the legal interpretation perspective, product liability also applies to the producer of generative AI products, including research and development personnel, designers and manufacturers. There is no reason to treat autonomous conscious machines, like generative AI, differently from other human used machines or tools among other products unless higher regulatory standards are provided for the former. The determination of defects in generative AI can be inferred from the theory that copyright infringement events themselves constitute evidence of defect in the implicated generative AI products, unless there is compelling evidence to oppose the defect theory [7].

In February 2023, Stability AI, a generative AI company, was sued by Getty Images, a visual content source company, on charges of copyright infringement [8]. Stability AI was claimed to bear

the liability as a product producer during the AI training process. Given the specialised and high-risk nature of generative AI's functioning and the control exerted by product producers, applying strict liability to them is at least necessary and justified at present and in the foreseeable future. Moreover, they are better positioned to bear the costs as compared to users, victims, or other entities. Based on the insurance theory, by deciding the price producers can widely distribute the burden of losses, as they can include "insurance premium" in the sales prices of AI products or services to offset anticipated liability costs. Another important point is, producers are also the ones who benefit the most from innovative products that reduce risks [7]. It can be concluded that implementing a strict liability regime on generative AI producers is both viable and rational.

3.1.2. Service Provider

The term 'service providers' here refers to the operator of generative AI. In reality operators are generally large technology companies, such as OpenAI, Meta, Google, Baidu, and other internet enterprises, of which many are internet platforms. These technology companies effectively control the generative AI services and use their technological power to gain the rulemaking power of a corresponding level as well as the benefits of data monopoly, making them the de facto internet oligarchs. Some scholar pointed out, the market monopoly of internet oligarchs probably will be strengthened by the rising of generative AI [9], hence those big companies could continuously exploit economic benefits among other interests from AI technology. Other scholars also refer to these types of technology companies as the "third level of power" added to the traditional two-tier social structure of public power and private rights. In light of the unlimited expansion of such third level of power under the auspices of technology, it is urgent to establish a special responsibility system for these special entities [4]. Operators of generative AI should realise the high risks involved in the services provided by these technologies, some of which are even unknown, accordingly operators will try to establish exclusive or stringent management and control over the software or machines to reduce risks. Meanwhile, operators should also bear responsibilities and liabilities corresponding to the risks and benefits. In the event of a tort occurring within their scope of control and management, operators should be held liable for the generated results of their AI services.

Article 5 of China's Interim Measures for the Management of Generative Artificial Intelligence Services (hereinafter "Interim Measures for Generative AI") stipulates a kind of special responsibility for operators, i.e., the responsibility of network information content producers [10]. The nature and scope of this responsibility is different from the one established by other Chinese regulative documents on internet information service providers, responsibility of service providers [11], as the latter contains an indirect tort liability while the former a direct one and thus imposes much stricter liability with a higher standard on generative AI service providers [12].

In January 2023, operators of AI image generation software, such as Stable Diffusion, DreamStudio, DreamUp, and Midjourney, have been sued by three American illustrators for copyright infringement [13]. In this case the defendants acted as the operators during the process when AI generated certain content, thus asserting those entities to bear the infringement liability goes in line with the logic analysed before that service providers should be held liable.

While product producers and service providers are distinct subjects in theory, they often overlap in practice. Establishing rules that hold both entities jointly and severally liable for the results of generative AI-created content does not compromise their separation in terms of responsibilities.

3.1.3. User

The term 'user' means the customer who directly use generative AI to make specific content which infringes others' copyright. It can be observed that a user acquires some extent of control on

generative AI when generating final content, by inputting precise requests and instructions into AI software or machine. The user's instruction is one of the reasons for copyright infringement, if the generated result causes such violation; in other words, the user's instructions have a certain degree of causal effect on the infringing content. If a user attacks the model of generative AI through prompt injection (PI) to realise the aim of employing AI to generate unlawful or indecent content [12], their causal effect on the infringement outcome is significantly higher.

Holding users partially liable for infringing content aligns with the principle of fairness, considering the causal effect of their actions when utilising generative AI services.

3.1.4. Third Party

Third party could be the hacker, the victim and other users of generative AI. Should third parties be found to have played a role, whether directly or indirectly, in shaping the consequences of a copyright infringement incident, the attribution of liability should be proportional to their respective contributions to or causal effects on the outcome. In essence, this approach advocates for a tailored and equitable assignment of responsibility, where the degree of involvement and impact of each third party is taken into account when determining their levels of liability. By adhering to this principle of proportional liability, the legal system can ensure that individuals or entities involved as third parties bear an appropriate share of the responsibility for copyright infringements involving generative AI. This approach upholds the fundamental principles of fairness and accountability while accommodating the complexities and nuances of each unique infringement scenario.

3.2. Suggestions on Attribution of Liability

Generally speaking, to form tort liability requires four elements: the wrongful behavior, the resulting damage or loss, the causal link between the behavior and the damage, and the fault. The attribution of liability for tort is grounded on the fact that both the subjective and objective situation are clear and can be proven. However, generative AI is challenging the attribution system of traditional tort liability. To effectively address the intricacies of liability in the context of generative AI, it is prudent to adopt an alternative approach—one that centers on the principle of “risks, benefits and responsibilities”. This paradigm shift involves the allocation of legal responsibilities, each commensurate with the nature and scope of risks borne by key stakeholders as well as the scope of benefits gained by them within the generative AI ecosystem. These stakeholders include product producers, service providers, users and third parties. It can be observed that either the producers are most suitable for bearing losses, or it would be much fairer to apportion responsibility among all relevant parties acting in the researching, designing, manufacturing stage of generative AI products as well as the operating and maintaining processes of related services. The reason is that it will be much better to distribute costs for mistakes in generative AI products and services among all the parties who are responsible for infringement incidents or among those who are in better positions to prevent or mitigate the possible damage while gaining considerable profit from it. A viable approach is to implement joint and several liability, where the law does not bother to concern allocating every small aspect of the wrongful conduct to a specific party. It is sufficient that each party engaged in conduct that contributed to the infringement. This strict liability regime can address the compensation issue when it is unpractical to identify a defect or determine the actual wrongdoer [7]. By assigning responsibilities based on the varying degrees of risk, the scope of profit and corresponding obligations they assume in relation to the outcomes of generative AI services, the logic is in line with the product defect liability, without preventing the party who provides compensation in advance from seeking recourse from the one who is actually at fault, hence the question how to attribute this kind of infringement liability can be well resolved within current Chinese legal system.

In essence, this “risks, benefits and responsibilities” approach recognises that traditional tort liability principles may not adequately account for the multifaceted challenges presented by generative AI. Instead, it seeks to establish a nuanced and adaptable framework that acknowledges the distinctive roles and risks associated with different entities in the generative AI landscape. By doing so, it aims to strike a balance between innovation, accountability, and fairness, ensuring that liability is assigned in a manner that reflects the evolving complexities of this technology while upholding legal principles and societal values.

4. Principles of Attribution of Liability for Copyright Infringement by Generative Artificial Intelligence

4.1. Analysis of Relevant Principles of Attribution of Liability

When dealing with tort liability issues, one should bear in mind that providing assistance and relief to individuals who have suffered harm without any fault of their own is an important value that aligns with the basic concepts of fairness, compensatory justice, and social risk allocation [7]. The allocation of liability for copyright infringement involving generative AI calls for a nuanced examination of existing legal principles. In this context, two fundamental principles of attribution of liability merit consideration.

4.1.1. Strict Liability

Article 1202 and 1203 of the Chinese Civil Code stipulate product defect liability [6], which can also be applied to tort incidents caused by AIGC. That means product producers will bear the strict liability, and this approach would protect the rights of victims to a greater extent. In essence, compared to general products, the training data sources of generative AI are not openly transparent, and their algorithms have the “black box” feature. The process of such services is not yet controllable, and the decision-making mechanism is difficult to explain. Only their producers can control and have the ability to manage them during the research and development, design, and manufacturing stages to effectively reduce risks and to a greater extent prevent infringements. When a manufacturer takes on the production of generative AI products, they should anticipate that they will face greater and possibly unknown risks.

China’s Interim Measures for Generative AI imposes the responsibility of network information content producers on generative AI service providers, but this responsibility is mainly defined from the perspective of administrative supervision, and it does not specify the specific way in which civil liability should be borne. Therefore, this can be viewed as long as the service provider fulfills its legal obligations, it would not bear any related liability for tort. This responsibility mechanism is insufficient for providing relief to the interests of the victim. According to the principle that “whoever controls bears the risks and corresponding responsibilities”, i.e., “whoever has control over the risks needs to take responsibility for the risks and the results that arise from them” [5], the principle of strict liability should also be applied to generative AI service providers. Additionally, from the perspective of huge trading cost and the burden of proof of fault, since the complexity of products and the costs of product liability lawsuits continue growing exponentially, it is better to compensate the victims than to pay high fees to lawyers and AI expert witnesses [7].

It is worth noting that some argue, in the case of hackers, liability should be determined based on fault. Given the formidable expertise, broad-ranging influence, high potential for harm, and the inherent difficulty in proving the actions of hackers, imposing strict liability on them is arguably a more reasonable course of action.

4.1.2. Fault Liability

Copyright infringements mainly appear in the form of intentional infringement, so the determination of liability for such infringement is also based on the premise of fault. Applying the principle of fault liability on users of generative AI is in line with the theory and practice of traditional copyright infringement. Now generative AI services run in a “black box” manner, and users do not understand the data source or the algorithm. If the risk is assigned to the users with the same standard as the product producers’ or service providers’, it would go against the principle of fairness.

Compared to product producers and service providers, users are significantly disadvantaged in exercising control and obtaining profits, thus it is not justified to impose strict liability on them. According to the principle of fault-based liability in traditional tort law, in the specific context of copyright infringement, only when the user acts intentionally, such as intentionally using generative AI to violate the personal or property rights of others, should they bear liability for tort under the principle of fault liability.

Victims and other users, whether directly or indirectly connected to the infringement, should similarly be held accountable for their faults and harmful actions, as they may contribute to the infringement outcomes. Such situations are not uncommon in reality.

4.2. Suggestions on Principles of Attribution of Liability

In general, tort law does not allow innocent parties to bear the damage caused by others [7]. Holding specific parties liable for tort requires adherence to the legal principles of attribution. China’s Civil Code mainly provides three principles to attribute liability for tort: fault liability, presumption of fault liability, and strict liability. Given the unique nature of copyright infringement, traditional copyright infringement liability based on fault is no longer applicable to new kinds of infringement caused by new technology. The highly complex and opaque operation of AI poses a challenge to the determination of copyright infringement. From a fault analysis and burden-of-proof perspective, achieving transparency in AI systems, disclosing data sources, and elucidating AI operational principles are imperative to hold relevant parties accountable. If these conditions are impossible to be met both currently and in the near future, then the high risks associated with generative AI should be distributed among relevant parties based on their control of risks and actual or expected gains, in a manner that complies with the principle of fairness and protects the interests of victims to the greatest extent possible.

Based on the views of academia on attributing liability for copyright infringement by AIGC, and considering the actual operational situation of generative AI services, a two-tiered and multi-subject liability system is a more suitable path to follow in the current stage and foreseeable future. Specifically, the first tier encompasses product producers and service providers of generative AI, who bear joint and several liability based on the principle of strict liability. This approach acknowledges their substantial control over the AI systems and the ability to mitigate risks. The second tier includes relevant actors, such as users and other third parties, except for hackers, who are liable for copyright infringement based on fault and within the scope of their causal contribution to the infringement outcomes. When hackers exist in some special cases, they should be held liable for the tort consequences under the principle of strict liability. Regarding the relationship between liabilities of these two tiers, when there is a situation that falls into the second tier of accountability, the relevant responsible parties in the second tier will within the scope of their fault liability jointly bear liability with the relevant actors in the first tier. In any case, the actors in the first tier of liability will be held liable for the infringement.

In summary, the application of strict liability principle to product producers and service providers of generative AI, coupled with fault-based liability principle for users and other relevant parties,

represents a pragmatic and adaptable framework for the attribution of liability. This approach respects the unique challenges posed by generative AI while upholding legal principles and safeguarding the rights and interests of victims. The delineation of responsibilities based on risks, control, and benefits offers a balanced solution in the evolving landscape of copyright infringement by generative AI.

5. Conclusion

In the rapidly evolving landscape of generative AI and its implications for copyright infringement, the absence of clear agreements among the relevant parties necessitates a meticulous analysis of liability allocation. This analysis must be conducted within the framework of the principle of “correspondence between risks, benefits, and responsibilities.” It must also draw upon the established theories of traditional tort liability while accommodating the unique characteristics of copyright infringement in the context of generative AI-generated content.

The foundation of liability attribution hinges on the allocation of risk-bearing and control over the generated content among the various actors involved, as well as the benefits derived from the utilisation of this transformative technology. By carefully weighing these factors, the subject of liability and the underlying attribution principles can be effectively determined in the realm of copyright infringement. The overarching goal of this attribution process is to ensure the equitable distribution of losses, the assumption of responsibilities commensurate with one’s role and influence, and the unwavering protection of the rights and interests of all stakeholders. In doing so, the intricate challenges posed by generative AI in the context of copyright infringement can be navigated with fairness, accountability, and an unwavering commitment to safeguarding the rights of creators, users, and victims alike.

As the landscape of generative AI continues to evolve, it is imperative that legal frameworks and attribution principles remain adaptable and responsive to the shifting dynamics of this technology. Through a balanced and thoughtful approach to liability attribution, we can foster innovation, ensure accountability, and uphold the principle of justice in this transformative era of AI and intellectual property.

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