

# *The Infringement Risk and Legal Regulation of Generative AI Works*

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**Abstract:** Generative artificial intelligence is a type of artificial intelligence technology that can automatically generate or modify text, images, audio, video and other content by using large scale language models or deep learning techniques. Generative artificial intelligence has great creativity and influence, which can provide convenience and value for various industries, as well as bring potential risks and challenges. Therefore, the legal regulation of generative artificial intelligence is a complex and dynamic issue, which requires careful and comprehensive analysis and evaluation. This paper briefly compares and analyzes the situation of legal regulation of generative artificial intelligence in the European Union, the United States and China, and puts forward some suggestions and recommendations for legal regulation.

## 1. Introduction

Generative AI works are a type of content that are generated by artificial intelligence systems based on human instructions or data. They can take various forms, such as text, image, audio, video, etc. Generative AI works have some distinctive characteristics, such as originality, diversity, and controllability [1]. They can be used for various purposes, such as creativity, entertainment, education, etc. However, they also pose some infringement risks and legal regulation challenges that need to be addressed.

The main research question of this paper is: what are the infringement risks and legal regulation challenges of generative AI works? This question is important and timely because generative AI works are becoming more prevalent and influential in the digital era, and they may have significant impacts on the rights and interests of human creators, users, and society. However, the current legal frameworks and practices for generative AI works are still unclear, inconsistent, and inadequate in different jurisdictions [2]. Therefore, there is a need to analyze the infringement scenarios and legal regulation problems of generative AI works, and to propose some suggestions and recommendations for improving the legal regulation.

The structure of this paper is as follows. The first part will analyze the possible infringement scenarios of generative AI works, such as plagiarism, defamation, privacy violation, etc. [3]. The second part will review the current legal frameworks and practices for generative AI works in different jurisdictions, such as China, US, EU, etc. The third part will propose some suggestions and recommendations for improving the legal regulation of generative AI works, such as establishing a

specific legal regime, clarifying the rights and obligations of different stakeholders, enhancing the cooperation and coordination among different jurisdictions, etc. The last part will conclude the paper by summarizing the main findings and arguments, answering the research question briefly, highlighting the implications and contributions of the paper, and suggesting some directions for future research.

## **2. Infringement Risks of Generative AI Works**

Generative AI works are a type of content that are generated by artificial intelligence systems based on human instructions or data. They can take various forms, such as text, image, audio, video, etc. Generative AI works have some distinctive characteristics, such as originality, diversity, and controllability. They can be used for various purposes, such as creativity, entertainment, education, etc. However, they also pose some infringement risks that need to be addressed.

The possible infringement scenarios of generative AI works can be classified into two categories: infringement of intellectual property rights and infringement of personality rights.

### **2.1. Infringement of Intellectual Property Rights**

Intellectual property rights are the rights that protect the creations of the human mind, such as works of literature, art, music, etc. Intellectual property rights include copyright, patent, trademark, etc. Generative AI works may infringe the intellectual property rights of human creators in the following ways:

**Copying:** Generative AI works may copy the content or expression of existing works without authorization or fair use. For example, ChatGPT, a text generating AI tool, may splice the works protected by copyright in its corpus in its responses, which may constitute copying.

**Adapting:** Generative AI works may adapt the content or expression of existing works without authorization or fair use. For example, DeepFake, an image generating AI tool, may swap the faces of celebrities or ordinary people in photos or videos, which may constitute adapting.

**Deriving:** Generative AI works may derive new content or expression from existing works without authorization or fair use. For example, DALLE, an image generating AI tool, may generate new images based on text descriptions that are inspired by existing works, which may constitute deriving.

The infringement of intellectual property rights by generative AI works may affect the normal use and legitimate interests of the human creators, such as depriving them of their economic benefits and moral rights.

### **2.2. Infringement of Personality Rights**

Personality rights are the rights that protect the personal dignity and identity of natural persons, such as portrait right, reputation right, privacy right, personal information right, etc.

Generative AI works may infringe the personality rights of natural persons in the following ways:

**Violating portrait right:** Generative AI works may use the portraits of natural persons without their consent or legitimate reason. For example, DeepFake, an image generating AI tool, may use the portraits of natural persons to create fake images or videos that are defamatory or obscene.

**Violating reputation right:** Generative AI works may damage the reputation of natural persons by generating false or misleading content. For example, ChatGPT, a text generating AI tool, may generate false or misleading statements that harm the reputation of natural persons.

**Violating privacy right:** Generative AI works may disclose or misuse the private information of

natural persons without their consent or legitimate reason. For example, DALLE, an image generating AI tool, may generate images that reveal or misuse the private information of natural persons.

Violating personal information right: Generative AI works may collect or process the personal information of natural persons without their consent or legitimate reason. For example, Make Video, a video generating AI tool developed by Meta company, may collect or process the personal information of natural persons to create personalized videos.

The infringement of personality rights by generative AI works may cause mental distress and material loss to the natural persons, as well as social disorder and public harm [4].

### **3. Legal regulation of generative AI works**

Generative AI works are a new type of content that challenge the existing legal framework and require appropriate regulation. The legal regulation of generative AI works can be approached from two aspects: the protection of generative AI works and the responsibility of generative AI actors.

#### **3.1. The Protection of Generative AI Works**

The protection of generative AI works refers to the legal recognition and safeguard of the rights and interests of the creators and users of generative AI works. The protection of generative AI works mainly involves two issues: the ownership and the scope of generative AI works.

##### **3.1.1. The Ownership of Generative AI Works**

The ownership of generative AI works is a controversial issue that has not been clearly defined by the current law. There are mainly three possible ways to determine the ownership of generative AI works:

Human ownership: This approach attributes the ownership of generative AI works to the human actors who are involved in the creation process, such as the developers, trainers, or users of generative AI systems. This approach is based on the assumption that human actors provide essential inputs or guidance to generative AI systems, and therefore deserve to be recognized as authors or owners.

Shared ownership: This approach attributes the ownership of generative AI works to both human actors and generative AI systems, based on their respective contributions to the creation process[5]. This approach is based on the assumption that human actors and generative AI systems collaborate in a synergistic way, and therefore deserve to share the rights and benefits.

No ownership: This approach denies the ownership of generative AI works to any party, based on the lack of originality or creativity of generative AI systems or their outputs. This approach is based on the assumption that generative AI systems merely reproduce or recombine existing works, and therefore do not create new works that are worthy of protection.

Each approach has its own advantages and disadvantages, and may have different implications for the development and innovation of generative AI technology and industry. Therefore, it is necessary to balance various factors and interests, and adopt a reasonable and flexible approach to determine the ownership of generative AI works.

##### **3.1.2. The Scope of Generative AI Works**

The scope of generative AI works refers to the extent and limit of the rights and interests that are granted to the owners or users of generative AI works. The scope of generative AI works mainly involves two issues: the eligibility and the exception of generative AI works.

### 3.1.3. The Eligibility of Generative AI Works

The eligibility of generative AI works is a prerequisite for their legal protection. It means that generative AI works must meet certain criteria or standards to be qualified as legal objects that are subject to protection. The eligibility of generative AI works may vary depending on different types or fields of law, such as intellectual property law, personality rights law, etc.

For example, under intellectual property law, one possible criterion for the eligibility of generative AI works is originality. Originality means that a work must reflect some degree of creativity or personal expression by its author or owner. However, originality is a vague and subjective concept that may be difficult to apply or measure in the context of generative AI works. Therefore, it is necessary to clarify and specify what constitutes originality for different types or categories of generative AI works.

### 3.2. The Exception of Generative AI Works

One of the legal challenges posed by generative AI works is whether they can be protected by copyright law. According to the Berne Convention, the basic requirement for copyright protection is that the work must be original, which means that it must be the expression of the author's own intellectual creation. However, generative AI works may not meet this requirement, as they are produced or modified by an algorithm that may not reflect the human author's personality or intention [6]. Therefore, some scholars and policymakers have proposed to create a special exception or exemption for generative AI works, which would allow them to be used or exploited without infringing the rights of the human authors or right holders. For example, some possible exceptions or exemptions are:

The public domain exception, which would treat generative AI works as part of the public domain, and allow anyone to use them freely and without restriction; The fair use exception, which would allow generative AI works to be used for certain purposes, such as education, research, criticism, parody, etc., without requiring permission or payment; The compulsory license exception, which would require the users of generative AI works to pay a fixed fee or royalty to a collective management organization, which would then distribute it to the human authors or right holders; The orphan works exception, which would allow generative AI works to be used when the human authors or right holders are unknown or untraceable, subject to certain conditions and safeguards. These exceptions or exemptions may have some advantages and disadvantages. Some advantages may include: They may promote the dissemination and utilization of generative AI works, and foster innovation and creativity in various fields; They may reduce the transaction costs and legal uncertainties involved in using generative AI works, and avoid potential disputes or litigation; They may balance the interests and rights of different stakeholders, such as human authors, right holders, users and society.

However, some disadvantages or challenges may include: They may undermine the incentives and rewards for human authors or right holders to create or invest in original works; They may create difficulties or complexities in defining and identifying generative AI works and their human authors or right holders; They may conflict or interfere with other existing or emerging legal regimes or norms, such as data protection, privacy, personality rights, etc.

### 3.3. The Responsibility of Generative AI Actors

The responsibility of generative AI actors refers to the legal accountability and liability of the parties who are involved in the creation, use and dissemination of generative AI works. The responsibility of generative AI actors mainly involves two issues: the identification and the

allocation of generative AI actors.

### **3.3.1. The Identification of Generative AI Actors**

The identification of generative AI actors is a prerequisite for their legal responsibility. It means that the roles and functions of different parties who participate in the generative AI process must be clearly defined and distinguished. The identification of generative AI actors may depend on different types or stages of generative AI works, such as development, training, generation, distribution, etc.

For example, according to the draft regulation on management of generative artificial intelligence services issued by the Cyberspace Administration of China, the main actors who are subject to regulation are the providers of generative AI services, which are defined as organizations and individuals who use generative AI products to provide chat and text, image, sound generation and other services, including those who support others to generate text, image, sound and other content by providing programmable interfaces and other means [7]. The providers are responsible for the content generated by their products, and for the protection of personal information involved.

However, the draft regulation does not explicitly address other possible actors who may have an impact on or be affected by generative AI works, such as developers, trainers, users, consumers, victims, etc. Therefore, it is necessary to further clarify and specify the identification of different generative AI actors and their respective rights and obligations.

### **3.3.2. The Allocation of Generative AI Actors**

The allocation of generative AI actors is a core issue for their legal responsibility. It means that the legal consequences and remedies for the harms or damages caused by generative AI works must be fairly and reasonably distributed among different parties who are responsible for or suffer from such harms or damages. The allocation of generative AI actors may vary depending on different types or fields of law, such as intellectual property law, tort law, contract law, criminal law, etc.

For example, under intellectual property law, one possible issue for the allocation of generative AI actors is infringement liability. Infringement liability means that a party who violates the intellectual property rights of another party must bear legal responsibility and provide compensation for the losses incurred. However, infringement liability may be difficult to apply or enforce in the context of generative AI works, due to the challenges of identifying the infringer, proving the infringement act, calculating the damages amount, etc. Therefore, it is necessary to adapt and update the existing infringement liability regime or introduce new mechanisms for different types or cases of generative AI works.

## **3.4. Summary**

Generative AI works are a new type of content that challenge the existing legal framework and require appropriate regulation. The legal regulation of generative AI works can be approached from two aspects: the protection of generative AI works and the responsibility of generative AI actors. The protection of generative AI works mainly involves two issues: the ownership and the scope of generative AI works. The responsibility of generative AI actors mainly involves two issues: the identification and the allocation of generative AI actors. Each issue has its own complexities and uncertainties that need to be addressed by clarifying and specifying the relevant concepts, criteria, standards and rules [8].

## 4. The International Comparison of Legal Regulation of Generative AI and Its Implications for China

The legal regulation of generative AI is a complex and dynamic issue that involves multiple stakeholders, interests and values. Different countries and regions may have different approaches and perspectives on how to balance the risks and benefits of generative AI, and how to ensure its ethical, legal and social implications. In this section, we will briefly compare and analyze the legal regulation of generative AI in three major regions: the European Union (EU), the United States (US) and China [9].

### 4.1. The EU's Legal Regulation of Generative AI

The EU is one of the pioneers and leaders in the legal regulation of generative AI. In April 2021, the European Commission proposed the Artificial Intelligence Act (AIA), which is the first comprehensive legal framework for generative AI in the world. The AIA aims to establish a risk based, proportionate and future proof regulatory approach for generative AI, based on the principles of human centricity, transparency, accountability and trustworthiness.

The AIA adopts a four-tier risk classification for generative AI systems: unacceptable risk, high risk, limited risk and minimal risk. Unacceptable risk refers to generative AI systems that are prohibited or restricted due to their serious threat to fundamental rights or public safety, such as social scoring systems or real time remote biometric identification systems. High risk refers to generative AI systems that are subject to strict regulatory obligations before they can be placed on the market or put into service, such as generative AI systems used for critical infrastructure, education, employment, essential public services or law enforcement. Limited risk refers to generative AI systems that are subject to specific transparency requirements, such as generative AI systems that produce or manipulate content that may mislead users or cause them harm, such as deep fakes or chatbots. Minimal risk refers to generative AI systems that are subject to voluntary codes of conduct or best practices, such as generative AI systems used for entertainment or personal purposes.

The AIA imposes different obligations on different actors involved in the generative AI lifecycle, such as providers, users, importers or distributors. For example, providers of high risk generative AI systems must comply with a set of requirements regarding data quality and governance, technical documentation and recordkeeping, human oversight and intervention, accuracy and robustness testing, conformity assessment and certification, registration in an EU database and postmarket monitoring. Users of high risk generative AI systems must use them in accordance with the instructions provided by the providers, monitor their performance and report any serious incidents or malfunctioning. Providers of limited risk generative AI systems must inform users that they are interacting with a generative AI system and disclose its capabilities and limitations.

The AIA also establishes a governance structure for the oversight and enforcement of generative AI regulation at both EU and national levels. At the EU level, the AIA creates a European Artificial Intelligence Board (EAIB), which consists of representatives from national supervisory authorities and the European Commission. The EAIB is responsible for facilitating the consistent application of the AIA across the EU, issuing guidelines and recommendations on various aspects of generative AI regulation, maintaining a list of high risk generative AI systems and updating it regularly. At the national level, the AIA requires each member state to designate one or more national competent authorities to supervise the implementation and application of the AIA within their territory. The national competent authorities are responsible for conducting market surveillance activities, imposing administrative sanctions for noncompliance with the AIA, cooperating with other national competent authorities and reporting to the EAIB.

The AIA represents a landmark initiative in the legal regulation of generative AI in the EU and beyond. It reflects the EU's ambition to become a global leader in trustworthy and human centric generative AI. It also sets a high standard for other countries and regions that are considering or developing their own legal frameworks for generative AI. However, the AIA is not without challenges and limitations. Some of them include: The complexity and uncertainty of defining and identifying high risk generative AI systems; The potential tradeoffs between innovation and regulation in the development and deployment of generative AI; The coordination and cooperation between different actors and authorities at various levels in ensuring compliance with and enforcement of the AIA; The compatibility and interoperability between the AIA and other existing or emerging legal regimes for data protection, intellectual property rights or consumer protection.

#### **4.2. The US's Legal Regulation of Generative AI**

The US is one of the most advanced countries in terms of generative AI research and innovation. However, unlike the EU, it does not have a comprehensive or coherent legal framework for generative AI at the federal level. Instead, it relies on a patchwork of sector specific laws and regulations that may apply to certain aspects or applications of generative AI. Some examples include: The Communications Decency Act(CDA),which provides immunity for online platforms from liability for user generated content; The Digital Millennium Copyright Act(DMCA),which provides safe harbors for online service providers from liability for copyright infringement by users; The Children's Online Privacy Protection Act(COPPA),which requires online services to obtain parental consent before collecting personal information from children under 13 years old; The Fair Credit Reporting Act(FCRA),which regulates consumer reporting agencies that use automated decision making systems to generate credit scores or reports; The Federal Trade Commission Act(FTCA),which prohibits unfair or deceptive acts or practices in commerce.

In addition to these federal laws and regulations, there are also various state laws and regulations that may affect generative AI in different ways. For example, California has enacted the California Consumer Privacy Act(CCPA),which grants consumers certain rights regarding their personal information collected by businesses; New York has enacted the SHIELD Act, which requires businesses to implement reasonable safeguards to protect personal information from unauthorized access or disclosure; Texas has enacted a law that criminalizes the creation or distribution of deep fake videos that depict a person engaging in sexual conduct without their consent; Virginia has enacted a law that requires online platforms to label deep fake content as such when they have actual knowledge that it is not authentic.

The US's legal regulation of generative AI is characterized by its sectoral approach, its reliance on self-regulation by industry actors and its emphasis on innovation over precaution. Some advantages of this approach include: It allows for more flexibility and adaptability to cope with the rapid changes and developments in generative AI technology; it encourages innovation and competition among different actors in the generative AI ecosystem; it respects consumer choice and autonomy in using or interacting with generative AI products or services. However, some disadvantages or challenges of this approach include: It creates gaps or inconsistencies in addressing crosscutting issues or risks posed by generative AI across different sectors or domains; It may result in insufficient protection or redress for consumers or users who are harmed or misled by generative AI products or services; It may create barriers or conflicts with other countries or regions that have different legal standards or expectations for generative AI.

#### **4.3. China's Legal Regulation of Generative AI**

China is one of the most active countries in terms of developing and applying generative AI

technology. It has also made significant progress in establishing a legal framework for regulating various aspects of generative AI. Some examples include: The Cyber security Law(CSL),which sets out general principles and rules for ensuring network security and protecting personal information; The Data Security Law(DSL),which establishes a multilevel classification system for data security protection and imposes obligations on data processors; The Personal Information Protection Law(PIPL),which defines personal information and stipulates rights and obligations for personal information processors [10];The Regulation on Management of Generative Artificial Intelligence Services(Draft)(RMGAIS),which is the first draft regulation specifically targeting generative AI services and imposing obligations on providers of such services. In addition to these national laws and regulations, there are also some local laws and regulations that may have an impact on generative AI in different ways. For example, Shenzhen has enacted the Shenzhen Special Economic Zone Regulations on Promoting Artificial Intelligence Industry, which aims to foster the development and innovation of artificial intelligence industry in Shenzhen; Beijing has enacted the Beijing Regulations on Promoting Artificial Intelligence Industry, which aims to support the construction and application of artificial intelligence infrastructure in Beijing; Shanghai has enacted the Shanghai Regulations on Promoting Artificial Intelligence Industry, which aims to enhance the integration and coordination of artificial intelligence industry in Shanghai.

#### **4.4. China's Legal Regulation of Generative AI**

China is one of the most active countries in terms of developing and applying generative AI technology. It has also made significant progress in establishing a legal framework for regulating various aspects of generative AI. Some examples include: The Cyber security Law(CSL),which sets out general principles and rules for ensuring network security and protecting personal information; The Data Security Law(DSL),which establishes a multilevel classification system for data security protection and imposes obligations on data processors; The Personal Information Protection Law(PIPL),which defines personal information and stipulates rights and obligations for personal information processors; The Regulation on Management of Generative Artificial Intelligence Services(Draft)(RMGAIS),which is the first draft regulation specifically targeting generative AI services and imposing obligations on providers of such services. In addition to these national laws and regulations, there are also some local laws and regulations that may have an impact on generative AI in different ways. For example, Shenzhen has enacted the Shenzhen Special Economic Zone Regulations on Promoting Artificial Intelligence Industry, which aims to foster the development and innovation of artificial intelligence industry in Shenzhen; Beijing has enacted the Beijing Regulations on Promoting Artificial Intelligence Industry, which aims to support the construction and application of artificial intelligence infrastructure in Beijing; Shanghai has enacted the Shanghai Regulations on Promoting Artificial Intelligence Industry, which aims to enhance the integration and coordination of artificial intelligence industry in Shanghai. China's legal regulation of generative AI is characterized by its comprehensive approach, its combination of top down guidance and bottom up experimentation, and its balance of development and governance. Some advantages of this approach include: It provides a clear and consistent legal basis and direction for regulating generative AI across different sectors or domains; It encourages innovation and experimentation by allowing local governments or industry actors to explore new models or mechanisms for developing or applying generative AI; It respects social values and public interests in ensuring that generative AI is used for good and not evil. However, some challenges or limitations of this approach include: It may face difficulties or conflicts in coordinating or harmonizing with other countries or regions that have different legal standards or expectations for generative AI; It may need to update or revise its laws and regulations frequently to keep pace with



the rapid changes and developments in generative AI technology; It may encounter ethical or moral dilemmas or controversies in regulating some sensitive or controversial applications of generative AI, such as social scoring or facial recognition.

## 5. Suggestions and Recommendations for Legal Regulation of Generative AI Works

Based on the analysis and comparison of the legal challenges and strategies for generative AI works in different countries and regions, we can draw some suggestions and recommendations for the legal regulation of generative AI works. These suggestions and recommendations are: Adopt a holistic and dynamic approach, which considers the various aspects and implications of generative AI works, such as technical, economic, social, ethical, etc., and adapts to the rapid changes and developments in generative AI technology; Adopt a risk based and proportionate approach, which assesses the potential risks and benefits of generative AI works in different contexts and scenarios, and applies appropriate legal measures and instruments according to the level and scope of risk; Adopt a human centric and value oriented approach, which respects and protects the human rights and values involved in generative AI works, such as privacy, intellectual property, personality, dignity, freedom, equality, etc., and prevents or mitigates the harm or threat caused by generative AI works to humans; Adopt a collaborative and cooperative approach, which involves and engages various stakeholders in the generative AI ecosystem, such as human authors, right holders, users, providers, regulators, etc., and establishes effective mechanisms for communication, coordination and accountability.

In conclusion, generative AI works are a new and emerging phenomenon that pose significant legal challenges and opportunities [11].By adopting these suggestions and recommendations, we can hope to achieve a legal regulation of generative AI works that is reasonable and effective, that balances the interests and rights of different parties, and that fosters the healthy development and application of generative AI technology.

## 6. Conclusion

Generative AI is a powerful and influential technology that can produce or modify various types of content, such as text, image, audio, video, etc. Generative AI has many applications and benefits in various fields and domains, such as education, entertainment, journalism, art, etc. However, generative AI also poses potential risks and challenges, such as privacy infringement, intellectual property violation, information distortion or manipulation, network security or public order threat, human value or morality impact.

Therefore, the legal regulation of generative AI is a complex and dynamic issue that requires careful and comprehensive analysis and evaluation. Different countries and regions may have different approaches and perspectives on how to balance the risks and benefits of generative AI, and how to ensure its ethical, legal and social implications. In this paper, I have briefly compared and analyzed the legal regulation of generative AI in three major regions: the EU, the US and China. I have also proposed some suggestions and recommendations for the legal regulation of generative AI works.

I hope that this paper can provide some useful insights and references for the future research and practice of the legal regulation of generative AI.I also hope that this paper can stimulate more discussion and debate on this important and timely topic among scholars, policymakers, practitioners and stakeholders in the generative AI field.

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