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Legal Protection of NFT Digital Collectibles from a Copyright Perspective Research

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Abstract

As a product of internet cloud technology, network cloud disks offer features such as large space, virtuality, and immediacy, and they widely used and easy to operate, providing users with a variety of services. However, due to its inherent confidentiality, the lack of administrative supervision in the cloud storage industry, the difficulty in accountability, the imperfection of online copyright infringement systems and related technical measures, and the low awareness of online copyright among internet users, the of copyright infringement on network cloud disks has become increasingly prominent. Network cloud disks have become tools for online pirates to infringe on others' copyrights, and the network disk industry has entered a new phase after a series of shutdowns. There are two types of infringements on network cloud disks: direct infringement and indirect infringement. from the network cloud disk copyright protection systems of the European Union, the United States, and the United Kingdom, the main insights are that the conditions for the applic of the safe harbor principle should be noted, the reasonable attention obligations of network service providers should be clarified, and the filtering obligations should be reasonably introduced. To improve copyright protection system for network cloud disks, it is suggested to accelerate the formulation of a systematic network copyright protection law, update the provisions on the right of reproduction and right of online dissemination, optimize the safe harbor principle, and introduce the filtering obligations of network service providers, etc., to achieve a balance of interests between network cloud service providers, copyright owners, and the public.

Keywords

Online disk; Copyright infringement; Safe harbor principle; Filtering obligation

1. The Legal Nature of NFT Digital Collectibles

1.1. The Concept of NFT

NFT stands for "Non-Fungible Token," commonly referred to in China as non-fungible currency. It is a non-fungible circulation certificate based on blockchain technology. Essentially, it is a digital certificate issued according to the Ethereum platform's ERC721 smart contract standard, featuring unique identity information, traceability, and indivisibility. NFTs are called non-fungible tokens because they are unique, meaning that each NFT is one-of-a-kind and cannot be replaced by another identical entity. This characteristic enables NFTs to represent unique real-world items such as artworks, collectibles, and in-game items, which are digitized through blockchain technology and assigned a unique identity. Blockchain technology is a distributed ledger technology characterized by complete transparency and traceability. It employs a decentralized approach for transaction verification, utilizing multi-party collaboration and consensus mechanisms to achieve trustworthy data transmission and storage, significantly enhancing data security, reliability, and stability. Blockchain technology provides NFTs with a decentralized platform, ensuring their transparency, security, and immutability. Blockchain technology also provides a public record of ownership, allowing the purchase, transfer, or holding history of any NFT to be tracked on the blockchain. This offers a trustworthy, immutable proof of ownership for NFTs, enhancing the credibility and value of the asset. In summary, NFTs rely on blockchain technology to ensure their uniqueness, proof of ownership, transaction security, and automated processing, enabling digital assets to be effectively managed and traded within a decentralized network.

1.2. The Underlying Technological Logic of NFT Digital Collectibles

1.2.1. Application of Blockchain Technology

The realization and operation of NFT digital collections mainly rely on the application of "blockchain technology" and "smart contract", and with the application and development of these technologies, the trading of NFT digital collections has become increasingly popular. First of all, for blockchain technology, it is a block chain storage, tamper-proof, secure and trustworthy decentralized distributed ledger, which combines distributed storage, peer-to-peer transmission, consensus mechanism, cryptography and other technologies, and records transactions and information through the growing data block chain (Blocks), to ensure the security and transparency of data. Its main features include "decentralization", "non-tampering records" and "transparent and traceable information". Among them, the realization of decentralization depends on the consensus mechanism of the blockchain, i.e. how to reach an agreement when there is disagreement in the ledger. And and based on the implementation of decentralization, the blockchain system has an excellent robustness, which can be realized through technical means Inter-organizational Collaboration; This also makes the blockchain not rely on any central institution to maintain the integrity and authenticity of the data, but through multiple nodes (participants) in the network to jointly maintain and verify the data. The "record of incontrovertibility" and "confidence transparency and traceability" make the historical data in the blockchain, such as transaction information, fully traceable, and once the data has been added to the blockchain, it is difficult to be modified or deleted, because any changes need to be made to the entire blockchain. It is almost impossible to modify the subsequent blocks on the entire blockchain at the same time, which also circumvents the behavior of malicious deception, ensures the security and stability of the data, and maintains the security of the transaction process.

1.2.2. the Application of Smart Contracts

For smart contracts, their essence is the program code deployed on the blockchain. Smart contracts are written in Turing-complete language and can be automatically executed after deployment in the blockchain network. As smart contracts are deployed on the blockchain, their code and execution results cannot be tampered with, ensuring the transparency and reliability of transaction records. Meanwhile, the smart contract automatically executes operations through preset conditions, which reduces human errors, strictly manages the ownership of NFTs, and prevents unauthorized transfers. In addition, NFTs generated by smart contracts have unique identifiers that cannot be copied or forged, ensuring the authenticity of digital collections. To enhance security, smart contracts are usually audited by a third party before deployment to identify and fix potential vulnerabilities, and defend against attacks through cryptography and blockchain consensus mechanisms. All operations are recorded on the chain, transparent and traceable, providing a highly secure and trustworthy environment for NFT transactions.

1.3. Relationship between NFT and NFT Digital Collections

The relationship between NFT and NFT Digital Collections can be understood as a close connection between the technical foundation and specific applications.NFT is a crypto token based on blockchain technology with unique irreplaceability, each NFT is unique, which is fundamentally different from traditional homogenized tokens (such as Bitcoin, Ether, etc.). Due to this irreplaceability, NFTs are particularly suitable for representing the ownership of unique digital assets or specific items.NFT digital collections, on the other hand, are the form of practical application of NFT technology in various fields such as digital art, music, video, virtual items, and so on. Through NFT technology, artists, musicians, content creators, etc. can cast their digital works into unique digital collections, which can be verified and protected through blockchain technology and can be bought, sold and transferred in a decentralized market. In this process, NFT, as a technical protocol, provides the infrastructure for digital collections, guaranteeing their tamperability and uniqueness. At the same time, NFT digital collections give this technology actual value and market significance , making it a unique asset for the circulation of digital artworks, game items, music works, etc. in the virtual world.Therefore, NFT is the key technology to realize the uniqueness, ownership authentication and transaction of digital collections, and NFT digital collections are the specific embodiment and application of this technology in all kinds of digital assets. The two are inextricably linked and jointly promote the development and innovation of the digital artwork and virtual asset market.

2. Problems in the legal Protection of Copyright of NFT Digital Collections

The transaction of NFT digital collectibles is divided into two stages, namely, "the preparation stage of the transaction and the implementation stage of the transaction", for the "preparation stage of the transaction" mainly involves the casting of NFT digital collectibles and its release behavior, and for the implementation stage of the transaction behavior mainly involves For the "preparation stage of transaction", it mainly involves the casting of NFT digital collection and its release behavior, while for the implementation stage of transaction behavior, it mainly involves the release of NFT digital collection and "re-sale behavior", including:The circulation of NFT digital collections between buyers and sellers and the circulation of NFT digital collections in the secondary trading market are two parts. However, due to the limited nature of the current technology leading to the fact that the founders can not enjoy absolute copyright and its related rights to their uploaded works, which leads to a number of infringement problems in the transaction process of NFT digital collections. For the implementation stage of NFT digital collection transaction, the essence of its first sale behavior is the behavior of claim transfer and claim creation. The casting of the transfer of its technical services to the platform claims, set the first-time buyers of the value of the commitment to its claims. The essence of subsequent resale behavior is the transfer of these two claims. In China's first NFT infringement case "Fat Tiger Vaccination", the court of second instance held that "in the stage of sale and transfer of NFT digital works, there is no reproduction, information network dissemination or distribution involved. Accordingly, there is an accurate characterization of the sale and resale of NFT digital collections, therefore, the copyright infringement of NFT digital collections mainly occurs in the preparation stage of NFT digital collections transaction, i.e., the casting of NFT digital collections and its release stage. The infringement behavior in the preparation stage of NFT digital collectibles transaction specifically includes the following aspects:

2.1. Unclear Attribution of Copyright Rights

Genus Under the existing legal framework, the works protected by the copyright law must have originality and fixity, the so-called originality means that it must be created by the author himself, not by plagiarizing or copying other people's works; the so-called fixity means that the works must be fixed on some form of carrier at the time of their completion or availability when they are created. While the application of blockchain technology provides NFTs with an immutable distributed ledger that ensures their uniqueness, it does not involve the authentication of the originality of the work or the quality of its creation. Thus, the minting agent itself does not become the owner of the copyright by virtue of its act of minting the digital collection. Of course, if the NFT digital collection is based on a pre-existing work protected by copyright law created, then the copyright attribution of the work should go to the original copyright owner, and the NFT founders may need to get the authorization of the copyright owner to legally carry out the work. In short, there is no way to ensure that the maker of an NFT digital collection will be able to obtain copyright during the manufacturing process of the NFT.

2.2. There is Plagiarism or Copying of Others' Work

The content of NFT Digital Collections may involve plagiarism or copying, including, but not limited to, direct reproduction of the original work, imitation of the concept or design of an existing work, and re-creation of the original work through modes such as mirroring and flipping, to make it appear as if it were created independently.Plagiarism or copying of NFT Digital Collections is referred to as imitation of a disk and specifically refers to the fact that a user who hosts on an NFT Digital Platform "Rogue Token". The term "rogue token" refers to NFT Digital Collections that are directly plagiarized or copied from existing themes or ideas. As the market of NFT digital collections is getting hotter and hotter, many investors turn their attention to the trading of NFT digital collections in order to benefit from the profit. However, it also triggers a series of plagiarism or copying behaviors. Under the existing technology, although the NFT digital collection can ensure its uniqueness, stability, security and irreplaceability, but in the preparation stage of NFT digital collection transaction can not ensure that the casting person or the uploader of the NFT digital collection is the creator of the original work or the owner of the rights himself. Most of the NFT trading platforms can only carry out a formal review of the users uploading NFT digital collections, but cannot carry out a substantive review of the users, which leads to the fact that anyone can cast other people's works and upload them to the NFT digital collections trading platforms for their own benefit, and this also leads to the difficulty of the right holders in defending their rights. The original work creators or rights holders in the works found to be infringed only through the NFT digital collections trading platform complaints to the way to defend the rights, this rights efficiency is very low, can not ensure that the original work creators or rights holders of the rights to be effectively protected. Moreover, there is no effective legal way to recover the benefits obtained by the infringer through the infringing behavior and clear the data on the blockchain.

2.3. Platform Infringement

The platform infringement problem of NFT digital collections copyright stems from the fact that NFT digital collections trading platforms, as intermediaries providing digital collections trading services, should assume certain obligations of care, which means that the platforms should carry out reasonable examination of the users before they upload and trade NFT digital collections. However, since most of the current NFT digital collections trading platforms will only carry out a formal review for the users, but are unable to carry out a substantive review, there will be situations in which the NFT digital collections trading platforms fail to fulfill their duty of care. In this case, when the NFT platform fails to fulfill its duty of care and allows or acquiesces to the existence and transaction of infringing content, it may constitute help infringement. If the platform is also directly involved in the infringement, it may also constitute joint infringement or direct infringement. In some special cases, even if the platform has exercised reasonable censorship, it may not be able to accurately determine the copyright attribution of the work due to the special characteristics of the work (e.g., high degree of innovativeness, abstractness, novelty, etc.), and the infringement problem in such cases may be even more complicated. Therefore, there is also the problem of platform infringement under certain circumstances for transactions of NFT digital collections.

3. The Solution Path of Copyright Infringement Problem of NFT Digital Collectibles

Based on the existing legal framework, for the NFT digital collectibles legal protection in the legislative level does not exist specific provisions, therefore, in the occurrence of NFT digital collectibles related rights infringement, as the court is difficult to rely on the existing law to effectively safeguard the rights and interests of infringers. At the same time, in the current society, for the effective protection of rights, mainly through the legal level to regulate. Therefore, for the NFT digital collection copyright infringement problem, we mainly based on the legislative level to formulate corresponding measures, and at the same time, consider the specific behavior of the main actors involved in the regulation of the legal level. Specifically:

3.1. Improve the Iegal Provisions, Clear Recognition of the Copyright of the Original Work

3.1.1. First, Improve the legal Provisions

China's existing intellectual property law clearly stipulates that copyright belongs to the author, but due to the NFT digital collection is an emerging product and the law has a lag, so the existing law also lacks specific provisions for the NFT digital collection. The state can amend the existing intellectual property law, formulate and issue laws and regulations specifically for the copyright of digital collections or issue judicial interpretations to clarify the attribution of the copyright of NFT works, which can provide a better solution for the protection of NFT digital collection copyright.This can provide the most basic legal basis and implementation standard for the protection of NFT digital collection copyright.

3.1.2. Establishment of Registration Mechanism

A clear registration mechanism can be established for NFT digital collections. For NFT digital collections, copyright registration certificates must be provided before they are allowed to be cast and traded, and in the process of registration, the source of the work, the process of creation of the digital collection, and the details of the participants and their contributions must be clearly recorded. For the choice of the mode of registration, registration effectivism can be adopted, i.e., NFT digital collections must be registered before they become legally effective and copyright can be obtained. The application of this model can avoid the infringement of NFT digital collections from the origin and determine the copyright attribution of NFT digital collections.

3.2. Raising Public Legal Awareness and Establishing Effective Infringement Handling Mechanisms

3.2.1. Raising Public Legal Awareness

Strengthen the public's copyright education and raise the public's awareness of respecting and protecting intellectual property rights. Enhance public awareness of NFT digital collections and their copyright issues through case publicity and educational activities. In particular, before casting and trading NFT digital collections, set up a mandatory reading mechanism to make creators and purchasers understand the importance of the copyright of NFT digital collections.Enable creators and purchasers to understand the risks they may face when buying and selling NFTs. At the same time, to enhance the creators' and purchasers' awareness of rights protection, copyright holders should actively take various measures to protect their rights and interests when encountering infringement. For example, adding watermarks in a timely manner, negotiating with infringers, and reporting to the platform.

3.2.2. Establishment of Feedback Processing Mechanism

Establish a rapid response multi-channel infringement complaint and reporting system, including online customer service complaints, robot customer service filing, offline complaints and telephone complaints, etc., so that copyright holders can report infringement to the platform in a timely manner, and to ensure that copyright holders' claims can be dealt with in a timely manner. Not only that, but also to formulate clear and specific infringement handling process and standards and other rules, such as: the deletion of data on the chain, the scope of compensation for damages, the way of compensation for damages, and standards.

3.3. Strengthening the Responsibility of NFT Platform and Improving Infringement Costs

3.3.1. Strengthening Platform Responsibility

At present, the state has not yet issued legal norms related to NFT digital work transactions, and most of the platform enterprises take the "safe harbor rule" as their action guide. If the copyright owner has evidence to prove that the trading platform is suspected of infringing on the dissemination of NFT digital works, the platform should take necessary measures such as deleting, blocking and breaking links.However, in the face of the development trend of NFT digital collections, the lower duty of care given to trading platforms under the "Safe Harbor Principle" can no longer satisfy the protection of copyright of NFT digital collections. Therefore, from the legislative level, the trading platform of NFT digital collectibles should be given a higher duty of care and review obligation. It should be made clear that before uploading NFT digital collections, NFT digital collections trading platforms should review the original works, including the formal and substantive review of the original works, to ensure the legality of the copyright attribution of the works. When users use the NFT Digital Collectibles Trading Platform to cast or trade NFT Digital Collectibles, it is necessary to strengthen the verification of the user's identity registration information to prevent users from infringing on copyrights in bad faith by using anonymous or false identities. The platform should also improve the technical protection measures.The characteristics of blockchain technology, such as the uniqueness of non-homogenized tokens (NFTs), should be used to ensure the originality and integrity of digital works and to restrict unauthorized works from being uploaded to the chain.

3.3.2. Increase the cost of infringement

Infringement should be strictly sanctioned at the legal level, including financial compensation and administrative penalties, especially the implementation of Article 1185 of the Civil Code of the Republic of China for punitive damages for infringement of intellectual property rights, but also for the failure of NFT digital collections trading platforms to fulfill their duty of care and duty of review, such as fines, restriction of services or revocation of the platform's qualification, in order to raise the legal costs of infringement, and to ensure that unauthorized works are uplinked. In order to enhance the legal cost of infringement behavior, and reduce the occurrence of NFT digital collection infringement.

References

[1] Huang Yuye,Pan Bin. On the Legal Attributes of NFT Digital Collections--An Appraisal of the First Case of NFT Digital Collections Copyright Dispute[J]. Editor's Friend,2022,(09):104-111.

[2] Hao Han,Long Xuguang. Research on digital cultural and creative assets trading platform based on blockchain technology[J]. Information Technology and Standardization,2023,(04):15-18+23.

[3] Li Yizhu, Study on the Legal Attributes and Transaction Relationship of NFT Digital Works [J]. Tsinghua Law,2023,17(03):192-208.

[4] Han Shuo. Infringement and Protection of NFT Digital Collections under Copyright Law[J]. Publishing Wide Angle,2023,(01):77-80.

[5] Wang Xiangjun. Risk Prevention of NFT Digital Work Transactions from the Perspective of Copyright[J]. NPC Construction,2023,(12):55-57.