A Post-Imaginary Imprint on the Infringement of Personality Rights of Virtual Humans in the Metaverse

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Abstract

Objective: When linking the metaverse with media infringement, it is essential to not only envision existing technological capabilities but also contemplate the future scope of infringement. Virtual personalities will, in the future, become as central to media ethics within metaverse spaces as real individuals are in physical reality.

Methods: This study analyzes and speculates on virtual humans and their personality rights, the core components and ethical foundations of the metaverse, and potential infringement scenarios that virtual personalities may encounter within metaverse environments.

Results: The study proposes that future identification of virtual personalities should be based on both traceable and non-traceable dimensions.

Conclusion: It is necessary to re-examine the scope and magnitude of rights for virtual humans in metaverse spaces, while concurrently emphasizing the protection of production materials for virtual personalities.

Full Text

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Abstract

[**Objective**] When connecting the metaverse with media infringement, it is essential to imagine not only existing technological capabilities but also the future scope of potential violations. Virtual personality will become the ethical core of media in metaverse spaces, just as real humans are today. [**Method**] This study analyzes and imagines virtual humans and their personality rights, the

core and ethical center of the metaverse, and potential infringement scenarios that virtual personalities may encounter in the metaverse. [**Results**] The study proposes that future recognition of virtual personality should be based on both traceable and non-traceable dimensions. [**Conclusion**] It is necessary to re-examine the scope and extent of rights for virtual humans in metaverse spaces while emphasizing the protection of production materials for virtual personalities.

Keywords: metaverse; virtual personality; media infringement; algorithmic communication; virtual space

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The concept of the metaverse first emerged in Neal Stephenson' s 1992 science fiction novel *Snow Crash*, which depicted a new virtual spacetime that humans could enter simply by wearing virtual reality glasses. Within this realm, people could engage in normal social interactions, work, daily life, and even commercial transactions. This represents one of the earliest literary descriptions of the "metaverse" concept. In simple terms, the metaverse is a fictional spacetime that approximates reality—but does this approximation equate to digital twinning?

1. Exploring Virtual Humans and Their Personality Rights

As products of and entities independent from both virtual and real worlds, the primary creators of value in the metaverse are technology and humans. Since discussions of media infringement and various ethical issues revolve around people, humans constitute the ethical core of real life. In the metaverse era, can virtual humans similarly become the ethical core of this new spacetime? This discussion will proceed from virtual humans and human rights to the personality rights of virtual humans.

People' s imagination of metaverse spaces is certainly not about complete replication but rather about diversity and integration. In this virtual spacetime, individuals can construct environments that are difficult to achieve or nonexistent in the real world. Moreover, when mobile internet, big data analytics, and virtual simulation technologies reach a certain scale, humans and objects in the virtual world can autonomously create value.

1.1 Virtual Humans as Important Information Carriers in the Metaverse

Xia Cuijuan argues that virtual humans are created through the comprehensive utilization of various technological resources to achieve a full-scale, highly matched simulation of a real-world individual' s physiological, psychological, and social attributes, possessing independent creative and social capabilities [2]. From intelligent software that once existed only on PC and mobile terminals to today' s relatively mature virtual humans capable of interacting and socializing with audiences, artificial intelligence intervention, improved motion capture

technology, and big data analytics have provided core support. Virtual humans are gradually penetrating various industries, such as "Digital Mei Lanfang" created to preserve classical heritage, and relatively mature virtual singers like "Hatsune Miku" who can hold concerts and release albums through synthesized soundtracks and sophisticated appearance modeling. As the interactivity of virtual humans continues to strengthen and boundaries with humans gradually diminish, they attract increasing attention while revealing limitless commercial potential.

The "2023 China Virtual Digital Human Influence Index Report," based on imagination of future media ecology, proposes that "virtual digital humans" will become new service carriers in both real and future virtual spaces [3]. In past technical discussions, "human decentralization" phenomena emerged, such as debates about industrial production gradually breaking away from strong human intervention and achieving autonomous production, and so on. Today, the role of humans seems to have returned to the core of technology service fields. In the virtual world, "humans" will undertake tasks of information creation, responsibility transmission, and establishing connections between virtual media. Therefore, the emergence of such "virtual characters" will certainly become an important carrier for human entry into the metaverse in the future, providing more imaginative space for "the medium is the extension of man."

1.2 The Emergence of Virtual Humans Will Lead to New Understandings of Personality Rights

The continuous application of "virtual characters" is regarded as a form of proto-consciousness and an essential path for human entry into the metaverse, finding widespread application in education, culture, entertainment, and commerce. The emergence of "virtual idols" and "AI hosts" represents, from a business logic perspective, a conservative celebrity effect strategy by merchants facing the currently chaotic celebrity market. However, future virtual characters will differ from today' s virtual humans with fixed modeling images, fixed scripts, and strong human intervention—they will possess relatively independent creative capabilities. The "human" in virtual digital humans also indicates that regardless of whether they serve as new memory-bearing media or digital technology-transformed mediums, their existence will inevitably be accompanied by certain communication ethics issues.

In terms of human rights, although countries, nations, and classes may differ in economics, politics, culture, and values—leading to variations in understanding the concept of human rights—the "human-centered" core remains unchanged. Human rights as an academic concept encompass interpretations of political, economic, philosophical, and even religious issues in human history. This article discusses not the broad field of human rights itself but rather specific rights derived from it. These specific rights derived from human rights essentially set a baseline for use and protection across various current and future domains. This study examines potential media infringements on virtual human rights,

exploring what possibilities may emerge beyond existing violations and focusing on additional rights that virtual personalities might possess.

2. Metaverse Order Centered on Humanism

Based on the above discussion of virtual humans and specific personality rights, we can perceive that as the metaverse era arrives, discussions about media ethics will increase rather than decrease. Exploration of metaverse order points toward both a technology-centered core and a human-centered ethical core.

2.1 The Technology-Centered Core of the Metaverse

Most scholars approach the core of the metaverse from a technological perspective. Xia Cuijuan et al. argue that whether before or after the internet, humanity remains in an era where text and images serve as primary memory carriers [4]. Digitization merely compresses heavy paper carriers in spatial terms while strengthening transmission speed and efficiency, without fundamentally changing people' s mindset toward media. The continuous development of digital technology, the rise of 3D media resources, and the widespread application of virtual scenes provide more possibilities for the presentation of memory media. Scholars like Yu Guoming believe the metaverse interconnects virtual and reality while creating a new space with dimensions higher than the real world [5]. Li Juan argues that current virtual simulation technology will give rise to a "metaverse proximity viewing mode," enabling people to bid farewell to the past way of understanding news from screens and watch on-site in person [6]. Discussions about the future core of the metaverse are typically based on technological capabilities, imagining how to present a "virtual character" with diverse, all-media, and multi-ecosystem characteristics.

2.2 The Human-Centered Ethical Core of the Metaverse

Discussions about the ethical core of the metaverse must attend to the "manipulators" behind technology, emphasizing the mutual support and counteraction between technology and humans. Chen Changfeng's "human-centered"approach stresses that the metaverse era can maximize human creative initiative while remaining vigilant about the blurring boundaries between virtual and real worlds [7]. We must consider whether future humans will be genuine humans, and as the capabilities of virtual characters become infinite and their proximity to humans increases, whether humans will remain the dominant subjects in both virtual and real worlds. Therefore, we must guard against humanistic crises brought about by potential reversals in the human-technology relationship. Additionally, many scholars currently focus their ethical discussions in the metaverse primarily on privacy rights. For instance, Li Ling proposes that algorithmic media infringement [8] represents a typical ethical issue arising from big data algorithms. While many scholars have contemplated the prevention and handling of media privacy infringement, this study seeks not only to resolve current

ethical issues but also to analyze other potential problems in the metaverse era. Thus, examining possible ethical issues based on the "human-centered" concept in the metaverse world becomes the focus of this research.

3. Imagining Infringements on Virtual Humans in the Metaverse

Foucault' s concept of the "panopticon" envisions technology as the most powerful and fair "supervisor," achieving fully automated, highly transparent, low-cost comprehensive social management. Unexpectedly, this idealistic vision has become the primary arena for media ethics discussions today. The arrival and development of the digital era have gradually dissolved the boundaries between public and private domains. Chen Changfeng argues that the metaverse, centered on artificial intelligence, will become even more dependent on data and algorithms [7]. Therefore, when facing media infringement issues in the metaverse era, we must still focus on problems arising from data communication and algorithms. We must imagine not only the development of data and algorithms in the metaverse era but also analyze whether the scope of infringement will expand.

3.1 Personality Rights Issues Arising from Big Data Communication in the Metaverse

Problems arising from data communication are typically closely linked to privacy rights. Song Yuanyuan argues that big data algorithmic infringement of information divides into public and private domains, with scenario information as a type of public domain infringement primarily based on data flow information from scenarios [9]. For example, smartphone step-counting functions can synchronize users' daily walking data to platform software. Scenario information mainly involves the collection and application of past and real-time information. While these examples appear benign, they become controversial once extracted by big data. Some platforms exploit these so-called data recording functions to release originally private information flows into the public domain as a means of profit, as seen in Facebook' s trust issues regarding user information leaks.

In the metaverse era, the severity of privacy rights violations from such data leaks will intensify. Blockchain originally emerged to eliminate platform intermediaries and prevent unqualified platforms from acting as "black whistleblowers" in various transactions, with its inherent purpose being to make transactions more secure and transparent. However, applying this "decentralization" concept to information communication processes produces different effects. On one hand, when a virtual individual engages in production, creation, or transactions in metaverse space, blockchain technology records and backs up these activities. As more people access these backups, privacy characteristics cease to exist. Such scenarios mostly occur during transactions, where parties typically prefer that transactions remain unknown to third parties—yet blockchain technology makes

processes transparent. On the other hand, whether blockchain technology application in the metaverse is completely secure remains questionable, as blockchain development is also technology-based, and its production subjects may be influenced by political, economic, and other factors. In the future, whether this decentralized existence of blockchain technology makes transactions fairer or spreads transaction privacy more widely requires further discussion.

Portrait rights also represent a concentrated type of private domain information infringement by big data. Big data may collect, apply, and even distribute information without user consent or knowledge. Take the once-popular face-swapping app ZAO as an example: photos uploaded by users remain in the system, posing certain risks to personal privacy security. Similar situations include covert eavesdropping, consumer data leaks, navigation system data leaks, and real-time capture of user conditions during facial recognition—all conducted under the guise of "panoramic surveillance" for supposedly more thoughtful service, clearly violating ethical principles.

Whether celebrity portrait rights can be protected in metaverse space should also be a focus of discussion. Currently, on major social platforms, people can use celebrity-identifying information such as portraits as avatars or background images for social interaction without being deemed to infringe on celebrity portrait rights. Whether such practices will constitute infringement in metaverse space requires attention, as the determination of celebrity portrait rights infringement may expand in scope in the future.

In the metaverse era, portraits, fingerprints, and even blood may no longer serve as unique standards for user identity recognition. Gu Liping argues that the rapid development of artificial intelligence will make intelligent biometric recognition technology more widespread [10]. Currently, citizens' fingerprints, voiceprints, irises, and portraits have become core elements for authentication and identity verification. However, in metaverse space, people' s physiological and psychological data will be copied and pasted like "digital twins" into another spacetime. During cross-scenario migration, we cannot ensure that core data remains unique, nor can information security systems guarantee that data existing simultaneously across multiple spacetimes will not be plagiarized.

3.2 Personality Rights Issues Arising from Algorithmic Communication in the Metaverse

Algorithmic infringement represents the most critical and complex issue in the metaverse era.

First, based on algorithmic calculation and analysis, the profiling of real personalities will inevitably be more accurately reflected in virtual personalities. Combined with the application of virtual reality technology, we must also consider the rights of the deceased in metaverse space. Do their virtual digital human identities involve personality rights, privacy rights, and portrait rights? For instance, when a deceased person' s psychological activities or behavioral

trajectories are precisely recorded by advanced sensing technology during their lifetime and transformed into virtual characters continuing to exist in metaverse space, should big data extraction of their lifetime data fully simulate and restore their identity or be selectively retained? What should be the standard threshold and mechanism for such retention? The creation of virtual images in metaverse space may trigger user observation, making it impossible to confirm with the deceased whether such information should be deleted, potentially infringing upon the deceased' s privacy and personality rights.

Second, algorithmic technology is non-static and forward-looking, requiring us to consider whether conclusions drawn from data mining will infringe upon user privacy and right to know. Algorithms can accurately infer individuals' thought directions, behavioral trajectories, and even subconscious tendencies through precise profiling. Current research already claims the ability to predict an individual' s intellectual potential, interests, and even sexual orientation through comprehensive calculations [11]. These algorithmic conclusions are based on complete behavioral chains and user profiles, which may be generated with or without user knowledge. Should such conclusions be disclosed to the parties involved? Disclosure may be perceived as privacy infringement, while non-disclosure coupled with coupling user data to other services may damage users' right to know.

Finally, virtual personalities may possess certain independent creativity, generating various rights including copyright. Big data algorithms can reproduce production materials based on virtual human profile data. For example, the AI "Xiao Ice," who graduated from Shanghai Conservatory of Music, can sing, write lyrics, compose music, and arrange songs with stable quality, low cost, and high concurrency without human participation. In future metaverse spacetime, the deceased can exist in virtual space, engaging in independent creation through big data analysis and production based on their lifetime creative style. The attribution of copyright for works created by the deceased in virtual space requires attention. Big data scraping has never been limited to a single source, and newly produced works will inevitably result from continuous disassembly and splicing of other already-produced works. Thus, it is evident that copyright decomposition in metaverse spacetime will become even more fragmented and complex.

3.3 Manifestations of Infringement on Virtual Humans in the Metaverse

Beyond the rights discussed above, virtual personality rights to reputation also warrant consideration. In real life, when reputation rights are infringed, parties can typically use legal means to protect their legitimate rights and interests. The real-name system in the internet era also aims to make such infringements traceable. In the metaverse era, whether the law should redefine the severity of harm when virtual personality reputation rights are violated requires examination.

Take the case of Zhang from Jilin who sued Lianzhong Company for clearing his account data and posting announcements accusing him of cheating, which he claimed severely infringed his reputation rights [12]. The key issue was whether the company' s announcement constituted reputation infringement. In the game, Zhang existed under another identity for social interaction. When such "virtual personality"reputation rights are violated, how should we approach the issue? The author suggests addressing this through the traceability and non-traceability of virtual personalities.

Currently, "virtual humans" are not included as civil subjects in the legal sense. Virtual humans in metaverse space are created in two ways: first, through registration on platforms by civil subjects such as citizens or legal persons; second, through "out-of-thin-air" generation using high-end modeling and other technical means. In the first case, virtual personalities are traceable, carrying real personality information data that can be connected to real individuals. Such "virtual personalities" should be recognized as civil subjects enjoying civil rights and reputation rights. When these traceable virtual personalities are arranged to engage in behaviors violating public order and good customs, thereby affecting the real personality' s social evaluation, this involves infringing upon the real person' s reputation rights.

Since current reputation rights judgments are based on whether real personality social evaluation is affected, when such traceable virtual personalities are infringed upon and the public cannot connect them to real-life personalities, reputation infringement cannot be established and is often linked to other rights like mental distress. If Lianzhong Company had used only Zhang' s online username in its announcement, and the public could not connect it to his real personality, it would not constitute reputation infringement. However, infringing upon a virtual personality' s reputation rights will inevitably affect its social and creative activities in virtual space, causing real personality property loss and mental stress. This phenomenon has already emerged in short-video content creation.

Another situation likely to exist in metaverse space involves virtual personalities without traceable real personalities in real life. Like "virtual singers," when they suffer reputation rights infringement or other rights violations (such as copyright), how can their rights be protected? Currently, in the real world, we can still trace these virtual personalities' creators to provide legal protection. But when future creators are virtual personalities themselves, how should we measure rights protection? Lei Lili suggests that rights attribution for production materials can be determined with reference to provisions regarding "fruits" [13]. When virtual personalities themselves infringe upon others' personality rights or copyright, the "fruits" tracing method can also be applied. Current academic discussions on liability subjects roughly divide into four categories: designers, operators, owners, and cooperative authors.

Additionally, "virtual property" in such cases warrants deep consideration. Virtual space existence in the metaverse era may gradually become normalized, and the use and value measurement of virtual property will differ from the past.

Zhao Danwen believes that virtual currency markets (including existing NFT collections) will to some extent promote the construction of a closed-loop economic system for the future metaverse [14]. In the metaverse era, the virtual space we inhabit may contain many personalities that do not exist in real life, motivating us to improve existing rules. In the future, their identities may be certifiable and capable of generating value, and their existence will similarly require "meta-society" protection because their rights are linked to production activities, social interactions, and property proceeds in virtual worlds. Zhao Bei believes that technology itself has no purposefulness, and only the manipulators behind it truly determine whether social robots are benevolent or malicious [15]. Therefore, regardless of technological advancement, we must firmly believe that humans remain the ultimate controllers behind the technological lever. Technology should be regarded as a means, and the existence of virtual humans, whether separate from or integrated with humans, should be endowed by humans themselves. In the future, humans may grant virtual humans more rights, provide them with greater identity and group recognition, and include them within the protective scope of various rights.

The virtual space, virtual personalities, and virtual property discussed in this study will trigger legal exploration and adjustment in this emerging field. The imagination of metaverse space and discussion of potential problems also stem from the inherent "lag" in laws and regulations, requiring us to seek solutions through more reasonable speculation. Although technological development and enhanced communication power will always be accompanied by ethical issues, we believe that in the future, humans will use more meaningful actions to shape the metaverse world. As Yu Guoming stated, "The metaverse cannot be defined by one person or one company, but will be defined by many people and will remain in constant evolution."

Note: Figure translations are in progress. See original paper for figures.