

## Virtual Authenticity: A Study on the Media Affordance of Human-like virtual influencer

Zi Li\*

School of Humanities and Communication, Guangdong University of Finance and Economics, Guangzhou 510320, China  
zi\_lee@sina.com

Wenqi Xie

Advertising School, Communication University of China, Beijing 100024, China  
seven7\_01@sina.com

**Abstract:** The development of digital technologies has led to the emergence of hyper-realistic virtual humans with high levels of realism. These hyper-realistic virtual influencers, equipped with personalized identities and specific social roles, have actively participated in diverse scenarios of human social life. Through in-depth interviews with 36 followers of hyper-realistic virtual influencers, this study investigates the unique affordances of hyper-realistic virtual influencers, distinguishing them from human influencers and anime virtual idols. The findings reveal that "virtual authenticity" serves as the foundation of these affordances, enabling the establishment of relationships with followers to be relatively easy but making the deepening of such relationships challenging. While hyper-realistic virtual influencers become objects of gaze, control, and attachment, they also face challenges such as being treated as disposable, engaging audiences only at a superficial level, and fostering limited trust. The relationships between hyper-realistic virtual influencers and their audiences lack sufficient stickiness, depth, and closeness, highlighting critical issues that require urgent attention in their operation and application. Hyper-realistic virtual influencers, while becoming objects of gaze, control, and attachment, simultaneously face the dilemma of audiences being easily disengaged, experiencing only superficial immersion, and maintaining limited trust. These challenges reflect shortcomings in the stickiness, depth, and closeness of the relationships between virtual influencers and their followers, highlighting critical issues that need to be addressed in the management and application of hyper-realistic virtual influencers.

**Keywords:** Hyper-Realistic Virtual Influencers; Virtual Influencers; Media Affordances

### 1. INTRODUCTION

In 1992, American author Neal Stephenson introduced two groundbreaking concepts, "Metaverse" and "Avatar," in his science fiction novel *Snow Crash*. Since 2021, when the sandbox gaming platform Roblox included the concept of the Metaverse in its IPO prospectus and Facebook rebranded its parent company as "Meta," the concept of Metaverse has

become a buzzword in the Internet field, rapidly spreading to various other fields. The concept of the "Avatar" has since evolved into what we now refer to as "virtual digital humans." As the "natives" of the Metaverse, virtual digital humans have proliferated alongside advancements in digital technology, deeply integrating into human life. These virtual beings have taken on diverse social roles such as intelligent customer service agents, singers, idols, news anchors, and social-media influencers, not only provide infinite possibilities for bridging interactions between humans and the virtual world but have also become a focal point of discussion in both industry and academia. With the continuous evolution of virtual digital humans, their terminology has become increasingly diverse. Internationally, terms such as "Virtual Human," "Virtual Agent," "Digital Avatar," and "Metahuman" are commonly used, while in China, they are referred to as "Virtual Human", "Digital Human", or "Digital Virtual Human". However, the conceptual understanding of virtual digital humans remains inconsistent. Broadly speaking, any entity possessing one or more digital attributes, such as appearance, voice, motion, expressions, or skills, can be classified as a virtual digital human. In a narrower sense, the term refers to digital representations with human-like personas, characteristics, and related abilities (Guo, 2022). In recent years, virtual humans have entered a stage of intelligent, refined, and anthropomorphic development, empowered by technologies such as computer-generated imagery (CG), voice synthesis, and artificial intelligence (AI). Many hyper-realistic virtual influencers—referred to as "human-like virtual influencers"—have emerged on various online platforms. These entities exhibit lifelike appearances, featuring ultra-high-definition skin textures, subtle facial microexpressions, and highly realistic 3D visuals. Beyond superficial resemblance, they are endowed with unique personalities, worldviews, and social roles, and can even engage in interactive communication with humans. These computer-generated "avatar" command large followings on social media. For example, Lil Miquela, a virtual influencer created by the American company Brud, has amassed millions of followers on Instagram and expanded her presence to platforms like Sina Weibo and TikTok, garnering a global fan base. Similarly, Japan's virtual model IMMA, Singapore's virtual artist REA, and China's virtual influencer Liuyexi have gained significant attention on major social media platforms. These virtual figures are also favored by prominent brands, frequently serving as digital ambassadors to aid in marketing and promotional campaigns. Compared to the thriving applications in industry, there has been relatively limited academic research on hyper-realistic virtual humans, especially virtual

influencers active on social media. The unique characteristics of hyper-realistic virtual influencers, particularly in comparison to anime-style virtual idols or human Influencers, and the reasons behind their ability to attract a large fanbase, remain underexplored. What are people's perceptions and attitudes towards these hyper-realistic virtual beings? How do audiences actively recognize and engage with them? What kind of relationship exists between hyper-realistic virtual influencers and their followers, and how might this relationship influence communication outcomes? Affordance theory offers a fresh perspective to address these questions. This study seeks to investigate these issues within the conceptual framework of affordance theory.

## 2. RELATIONAL PERSPECTIVE: UNDERSTANDING THE AFFORDANCE PRACTICES OF HYPER-REALISTIC VIRTUAL INFLUENCERS

### 2.1. Research Approaches to Hyperreal Virtual Influencers

Virtual influencers are digital personas with specific identity profiles created and managed by individuals, digital agencies, or brands (Sands et al., 2022). Similar to human Influencers, virtual influencers establish relationships with followers and interact with consumers on social media platforms. (Hugh et al., 2022) Hyperreal virtual influencers are a product of the 3.0 stage of virtual humans, characterized by high-precision models and AI-driven capabilities. Early research often categorized hyperreal virtual influencers as a subset of virtual digital humans, examining their attributes, distinctive features, and operational strategies from a broader perspective. With evolving forms and applications driven by technological advancements, understanding the essence of hyperreal virtual humans has also progressed. Hyper-realistic virtual humans, as a type of virtual human, are the result of the interplay between computer graphics, digital technology, and AI, making them primarily "artifacts" or "technological objects". When virtual humans are endowed with specific personas and talents to become virtual idols, they evolve from technological objects into "new types of communication media inherently embedded with relationships", extending human connections (YU & YANG, 2020). At a more advanced stage, hyperreal virtual influencers leverage social media to integrate into people's daily lives, creating simulacra spectacles and further establishing themselves as information producers in actor networks, social agents in emotional labor, and technological integrators in human-

computer interactions. These virtual influencers, who appear in public as bloggers, models, or artists, have gained favor from capital, markets, and audiences by leveraging their unique advantages derived from their technological, media, and social properties. Boasting highly realistic and aesthetically idealized appearances, they naturally attract attention and traffic while being positioned in roles that allow for deep interaction with real-life scenarios. Their extreme malleability and commercial value are further amplified by their hyper-realistic appearances, language, and other nonverbal representations, which make interactions feel more natural and lifelike, providing users with a sense of intimacy, care, and immersion. However, their development is not without limitations. Some scholars argue that current hyperreal virtual humans are merely digital figures without independent thought. AI technologies, by imbuing them with "human-like cognition," could present new opportunities for their evolution. Hyper-realistic virtual humans must transition from "human-like appearance" to "human-like essence," achieving a personalized construction that imbues them with a "soul". In addition to discussing the strengths and weaknesses of hyperreal virtual influencers, existing research has also explored public attitudes and behaviors toward these entities, particularly their communication effects in marketing applications. Studies have revealed behavioral differences in how audiences respond to social media content posted by hyper-realistic virtual influencers, human Influencers, and anime virtual idols. For example, videos posted by hyperreal virtual influencers tend to receive more clicks but also elicit more negative emotional expressions in the comments. This is partly because efforts to make them more human-like by incorporating emotional experiences can sometimes be perceived as infringing upon human uniqueness (Arsenyan & Mirowska, 2021). In marketing scenarios, experts suggest that Generation Z is the demographic most attracted to virtual influencers. However, whether hyperreal virtual influencers are more effective than anime virtual idols in capturing consumers' attention remains inconclusive (Moustakas et al., 2020). Some research, based on surveys of the advertising effectiveness of hyperreal virtual influencers, found no evidence that audiences prefer hyperreal virtual influencers. Instead, anime virtual idols were found to be more popular. That said, after crossing the "uncanny valley," the anthropomorphic degree of hyperreal virtual influencers is believed to positively influence audience attitudes toward them and the advertisements they endorse (Um, 2023). The above discussions predominantly focus on either the "virtual human scale" or the "human scale," often viewing one side from the perspective of the other.

However, they lack a perspective that considers the coupling scale between humans and virtual humans. Although existing studies have suggested that audiences exhibit parasocial interaction behaviors with cartoon characters, virtual avatars, and even chatbots (Jin, 2010; Ramasubramanian & Kornfield, 2012; Youn & Jin, 2021), and have further hypothesized that similar parasocial relationships may exist between individuals and hyperreal virtual influencers on social platforms (Um, 2023), there remains a lack of clarity regarding the specific nature of such relationships and the reasons behind them. How, as technological objects, do hyperreal virtual influencers leverage their unique traits to attract human attention and provide the possibility of relationship formation? Conversely, how do humans, as active agents, "embrace" these technological objects as another form of subject, and what emotional experiences and actions emerge in response to such relationships? Affordance theory provides a potential framework for exploring these questions in depth.

## 2.2. Research on Affordance Theory

The concept of affordance, originating from the field of ecological psychology, was first defined by James J. Gibson as the "compatibility" or "coordination" between an organism (or living being) and its environment. The focus of this concept lies not only in examining the environment but also in exploring the organisms within it, highlighting the interconnectedness, reciprocity, and complementarity between the environment and organisms. Affordance possesses two inherent characteristics: (1) its objective property and (2) its relational nature. (Gibson, 1979) The "existence" of affordance is objective—it neither belongs solely to the environment nor to the agent but rather reflects the interactive relationship between the agent and the environment (Parchoma, 2014). The tension within the concept of affordance lies in affirming the duality between the subject and the environment while emphasizing their "complementarity," thus constructing a strong coupling relationship of mutual coordination and influence between the subject and the object. The concept of affordance was subsequently introduced into various disciplines, where its connotation diverged into the two dimensions of "functional attributes" and "relational attributes." American scholar Norman introduced affordance into the field of design, defining it as "the perceived and actual properties of a thing, primarily those fundamental properties that determine how the object could be used" (Norman, 1988). According to Norman, designers embed implicit guidance into their

creations, suggesting how users should interact with a particular object. This emphasizes how designers create specific objects or environments to facilitate certain user actions while encouraging or constraining certain behaviors. While Norman's approach made affordance theory more operational, it also "functionalized" the concept. Another group of scholars has called for greater emphasis on the relational attributes of affordance. Technology sociologist Hutchby argued that affordance arises in the relationship between subjects and objects, emphasizing that affordance is neither deterministic nor relativistic but relational, enabling or constraining participation in different ways depending on the environment (Hutchby, 2014). Some Chinese scholars have translated "affordance" as "示能" (shìnéng), which emphasizes the equal relationship between the subject and the object (the agency of the object), meaning that the object "demonstrates its capability," while also retaining its material properties. Under this framework, technology or objects are no longer mere "passive entities" but function as non-human agents within a complex actor-network, capable of "demonstrating" their potential to human agents. In the field of communication studies, the use of "affordance" also manifests in two dimensions. Early studies, rooted in the structural functionalist paradigm, equated affordance with attributes, functionalities, possibilities, or characteristics. For instance, Liu et al., (Liu et al., 2024) introduced the concept of affordance into communication studies, framing it as the "possibilities" offered by technology for influencing everyday life. Donaldson (Donaldson, 2019) summarized four affordances of social media: visibility, editability, persistence, and association (Treem & Leonardi, 2013). These studies continued the tradition of treating affordance as a "functional attribute," emphasizing how the performance of media technologies influences user behavior and perception. In recent years, however, communication scholars have begun to reflect on whether the use of the affordance concept has strayed too far from its original ecological context, shifting toward emphasizing its relational attributes. Looi, (Looi, 2023) proposed that the affordance of new media technologies depends not only on the technology itself but also on the users of these technologies. Yan Qing and Chen Lou et al., (Lou et al., 2023) emphasized that affordance primarily addresses the relationships between humans, artifacts, and the environment. They suggested that adopting affordance as an analytical perspective requires understanding two directions: on one hand, how artifacts exhibit relationships through their characteristics, and on the other, how subjects (agents) present relationships through their

actions. While scholars have explored the conceptual connotations of affordances, they have also discussed affordances of objects such as designed artifacts, technological items, new media, mobile media, and social media. They have used the affordance perspective to analyze issues in various new media communication practices, such as short video addiction and the impact of beauty video communities on women's "visibility". However, existing affordance research primarily focuses on material entities in real-world spaces or media applications with tangible carriers and interactive interfaces. Little attention has been given to the affordances of virtual objects that exist in cyberspace and lack physical materiality. Therefore, this paper attempts to extend the scope of affordance research to virtual objects, exploring the unique affordance connotations of hyper-realistic virtual influencers as digital entities, deeply understanding their interactive relationships with people, and addressing their roles and positions in human society, ultimately guiding their development and application.

### 3. RESEARCH DESIGN

This study primarily adopts an in-depth interview method. Compared to other quantitative and qualitative research methods, in-depth interviews are more effective for exploring respondents' cognitive attitudes, emotions, and behavioral motivations regarding hyperreal virtual influencers as unique entities. Additionally, this method facilitates the comparison of hyperreal virtual influencers with human Influencers and anime virtual idols, enabling a comprehensive understanding of how audiences perceive the key characteristics, such as "virtuality" and "hyperreality," and how they actively respond to these unique features to form specific relationships distinct from those with human Influencers and anime virtual idols. This study employs semi-structured interviews, with questions covering respondents' level of engagement with hyperreal virtual influencers, their modes of interaction, and psychological motivations. The interviews also address respondents' overall impressions and attitudes toward hyperreal virtual influencers, comparing them with human Influencers and anime virtual idols to identify fundamental differences. Furthermore, the study explores respondents' acceptance of hyperreal virtual influencers as communicative agents, as well as the effectiveness of their communication content and methods. A total of 36 followers of hyperreal virtual influencers were interviewed for this study. Given that hyperreal virtual

humans are a relatively new phenomenon, the respondents—primarily Generation Z individuals—were aged between 18 and 25, as they are the demographic most familiar with and interested in hyperreal virtual influencers. The average interview duration was approximately one hour, with the transcriptions of the recorded interviews exceeding 170,000 words. The raw data were analyzed using NVivo software, leading to the conclusions presented in the following sections.

#### 4. RELATIONSHIP FORMATION: GAZE, CONTROL, AND ATTACHMENT

Empowered by digital technologies such as computer-generated imagery (CG) and artificial intelligence (AI), hyperreal virtual influencers possess highly realistic human-like appearances and meticulously designed personas, participating in communication activities as social actors. Increasingly, they have become representations of the virtualization and intelligent augmentation of human life in the digital era. This virtual sense of realism imbues them with a unique "ambiguity," characterized by being "human-like yet non-human" and "non-human yet superhuman." Freed from the physical limitations of material bodies, hyperreal virtual influencers leverage their "informational bodies" to bridge the virtual and real worlds, showcasing an expanded range of possibilities in cyberspace. They have become distinctive "media spectacles" of the digital age, captivating audiences with their highly appealing appearances and stable personas, which render them seemingly perfect and reliable objects of attachment. Despite being virtual entities, these digital beings are capable of providing authentic aesthetic experiences and emotional connections. Their appearances, personas, and verbal and non-verbal behaviors serve as rich social cues in parasocial interactions, offering audiences ample opportunities for emotional projection. These interactions often fulfill certain psychological and emotional needs that may be difficult to satisfy in the real world, thereby creating an imaginative form of compensation for unmet desires.

##### 4.1. Spectacle Gaze: The Illusory Experience of the Virtual-Real Fusion

Existing studies have characterized the growing prevalence of influencers and anime virtual idols on social media as "spectacles" in the sense of Guy Debord's concept. Virtual idols, as cultural products, construct hyperreal worlds mediated by digital symbols and exhibit various



forms of spectacular representation. Meanwhile, internet influencers, continually emerging and evolving through the collective influence of stakeholders such as online promoters, media, and audiences, are regarded as a type of "media spectacle." The hyper-realistic virtual influencers, as an upgraded fusion of these two phenomena, further amplify the dazzling and surreal characteristics of digital spectacles through the application of advanced information technologies. "The creation of virtual humans occurs through the interaction of data input from the real world and data output from the virtual world," blurring the boundaries between reality and virtuality and serving as a nexus for connecting the two realms. This fusion of the virtual and the real generates immense imaginative space, presenting novel and mysterious fantasies. On one hand, hyper-realistic virtual influencers have achieved a high degree of "realism" both in appearance and in behavior. Externally, their body shapes, facial features, skin textures, expressions, and movements closely mimic those of real humans. Internally, they are equipped with meticulously crafted personality traits, life experiences, and cultural backgrounds. They "use" social media to post daily updates, share emotions, and engage in interactions, thereby expressing their own values and worldviews, offering audiences a sense of novelty and intimacy. For instance, Reddi, a hyperreal virtual influencer, is designed as a 21-year-old girl passionate about fashion and art. She behaves like a member of Generation Z, sharing her daily life and fashion choices on platforms like Weibo and Xiaohongshu. Meanwhile, Ling, a virtual idol with a traditional Chinese aesthetic, showcases distinct Chinese characteristics in her appearance, attire, and content style. To make such virtual humans even more "human-like," their life details are meticulously designed to craft rich and vivid personal stories. As one respondent (P 25) noted, "I was surprised to learn that Lil Miquela's team created a virtual boyfriend for her, documenting their daily lives—even details like arguments, breakups, and reconciliations were described." Moreover, leveraging big data, artificial neural networks, and affective computing, hyper-realistic virtual influencers can develop realistic language systems and assume various social roles across industries, taking on tasks traditionally performed by humans. For instance, Ling\_Ling appeared as a guest on China Central Television's youth cultural program *The Nation's Greatest Talents* hosted by CCTV; AYAYI engaged in a live-streaming dialogue with real-life host Li Jiaqi as a virtual anchor; and Liu Yexi served as a brand ambassador for companies like Xiaopeng Motors and VIVO, starring in both print and video advertisements. Hyper-realistic virtual influencers have seamlessly integrated into diverse commercial,

communication, and social scenarios, coexisting harmoniously with humans and interacting fluidly. This fusion of the virtual and the real creates an unprecedented media spectacle, delivering a sense of novelty and curiosity. Many respondents mentioned that their initial exposure to hyper-realistic virtual influencers stemmed from curiosity. As one respondent stated, “I once came across a post from a virtual influencer. At the time, I didn’t realize it was virtual—I thought it was a real person. When I clicked in and realized it was a virtual human, I found it very interesting, so I decided to learn more about it” (P 3). On the other hand, hyper-realistic virtual influencers, free from the constraints and limitations of physical bodies, gain “superhuman” abilities through digital technologies. They build imaginative bridges between the virtual and real, and between the present and the future, offering audiences unprecedented, fantastical experiences. As one respondent (P 21) noted, “The greatest advantage of virtual humans is that they are virtual. On one hand, their possibilities and malleability surpass real humans, transcending time and space. On the other hand, the sense of technological sophistication they exude is something real people cannot achieve, which makes them irresistibly intriguing.” Digital genes endow virtual humans with unlimited possibilities, enabling them to effortlessly possess abilities beyond human reach, offering a space for creativity and imagination, and thus generating unique appeal. According to Baudrillard’s As the highest stage in Baudrillard’s “three orders of simulacra,” the era of hyperreality shifts the object of imitation from the real world to the “mental images” of individuals. Digital technologies now facilitate direct communication between human perception and hyperreality, creating dreamlike, surreal experiences. For example, in the videos of Liu Yexi, a virtual monster hunter, her “digital body” transcends time and space, seamlessly navigating between the virtual and the real. She embarks on adventures, explores the unknown, and embodies narrative scenarios where she saves the world—accompanied by cinematic-quality visual effects that provide audiences with both audiovisual and psychological satisfaction. The realism of the virtual world, mingled with psychological suggestion, gains approval, and the strongest stimulation to the psyche lies in the fulfillment of self-imagination.” The sense of reality in the virtual world, mixed with psychological cues, triggers the strongest stimulation of the spirit, which is nothing more than self-imagining” ? Virtual influencers carry humanity’s yearning to transcend the physical limitations of the body. Through these virtual beings, humans experience the fusion of virtuality and reality,

breaking free from the constraints of time and space and reawakening utopian visions of the future within the framework of modern technological rationality.

#### 4.2. Customized Perfection: Safe and Controllable Creations Tailored to Demand

Unlike human Influencers and idols, virtual humans' "appearance," "capabilities," and "personality" are entirely crafted by their development teams, akin to the mythical creation of humans by Nüwa in Chinese mythology. Rooted in their inherent commercial nature, virtual influencers are designed to cater to the preferences and expectations of the majority. This human-centric perspective drives the positioning, tone, and characteristics of hyper-realistic virtual influencers toward ideals of human perfection, resulting in "customized perfection." At the same time, this perfection is highly controllable, offering a sense of safety that human idols cannot provide. Without a physical body or independent consciousness, virtual humans are free from the constraints of reality. People can project their imaginations onto them, shaping and customizing them at will, creating a space for self-expression and cultural identity construction. Similar to the "impression management" employed by human Influencers on social media to attract attention and gain traffic, hyper-realistic virtual influencers are meticulously managed in terms of appearance and persona to meet audience expectations and achieve the goals of their teams. Data and digital technologies serve as the driving forces behind this process of virtual image creation. Big data and algorithms facilitate the digitization of human bodies, behaviors, and thoughts, refining ambiguous concepts into deterministic digital representations. This process enhances humanity's sense of control and security over the world and its creations. Under the creed of "data-ism," the "heartbeat" of virtual beings is determined by data and algorithms, brought to life and made tangible through digital technology. Hyper-realistic virtual influencers like AYAYI, CHUAN, and IMMA possess tall, attractive physiques and trendy, eye-catching appearances. Their visually appealing looks and carefully curated backstories make them powerful tools for attracting fans. Many respondents cited aesthetic appeal as a primary reason for following virtual influencers. "What attracts me to virtual humans is their appearance, which fits my aesthetic preferences" (P 28). Another respondent stated, "My favorite is Imma. Her pink hair is just so cool, her expressions are amazing, and her figure is perfect" (P 26). Similarly, one respondent expressed, "I personally like traditional Chinese aesthetics. Liu Yexi's cyberpunk-inspired

Chinese style is very appealing to me, especially the design details of her face. What draws me most to digital virtual humans is their beautiful appearance” (P 1). The role construction of hyper-realistic virtual influencers is shaped by the collusion of communicators, audiences, and the zeitgeist, embodying a "coexistence of public and private characteristics." From basic attributes such as gender, age, birthdate, and social circles to individual beliefs like worldview, values, and life philosophy, every aspect of their identity is meticulously customized. For instance, Lil Miquela has explicitly expressed support for racial and gender equality on social media and frequently shares other personalized viewpoints crafted by her team. "The character setting of digital virtual humans involves the creation and presentation of a virtual personality, serving as a bridge intentionally constructed by communicators to connect virtual and real worlds, and as an imagined empowerment jointly shaped by operators and audiences. " People project their ideals and aspirations onto these virtual characters, who, through technology, embody an almost perfect form that fulfills audience fantasies of an idealized image. "They are designed, so whether in appearance or ability, they can achieve whatever level of perfection is desired. Even their past experiences are fabricated, making them free from scandals, excessive negative emotions, or harmful thoughts. All in all, they are flawless in every aspect (P 5)." The "perfection" that virtual humans possess—from their physical form to their personality—creates a significant part of their appeal. As one interviewee noted, "Perhaps it is precisely this unattainable perfection that attracts me (P 3)." Another observed, "Hyper-realistic virtual influencers represent a pursuit of beauty and embody an ideal of perfection (P 6)". The "generative structure"(Treem & Leonardi, 2013) of hyper-realistic virtual influencers also grants them unparalleled safety and control. “Virtual humans give me a sense of security because real celebrities might fall from grace, but virtual humans won’t. After all, there are so many scandals with celebrities nowadays—you don’t have to worry about that with virtual humans” (P 21). Unlike real-life celebrities, who often exhibit differences between their "frontstage" and "backstage" personas, virtual influencers embody a unique "virtual authenticity."” One respondent explained, “Compared to real people, virtual humans might actually seem more ‘real.’ There’s no risk of scandals or negative press. Real idols always have some element of ‘acting,’ but virtual humans don’t” (P 2). Another stated, “Humans are complex—they show one side of themselves, but you can never truly know them. However, with virtual humans, I can confidently say they are exactly what they appear to be, which feels very reassuring” (P

20). The carefully crafted and stable personas of virtual influencers eliminate human flaws and remain unaffected by external factors like environment, emotions, or physical limitations. They consistently maintain their perfection, free from betrayals or scandals, making them highly reliable objects of attachment. This “what-you-see-is-what-you-get” reliability fosters a deeper interactive relationship between virtual influencers and their audiences. Using digital technologies as tools, humans maintain complete control over virtual influencers, channeling their ideals and values into the creation of hyper-realistic virtual influencers. This process marks a shift from “seeking idols” to “customizing idols,” offering a convenient emotional connection that transcends physical desires and prioritizes spiritual resonance.

#### 4.3. Emotional Attachment: Psychological Comfort Through Parasocial Interaction

Although hyper-realistic virtual influencers are fundamentally artificial symbols and current technology cannot yet endow them with independent consciousness or the ability to exist independently of human creators, their relationship with humans has already transcended the ontological divide between subject and object. Hyper-realistic virtual influencers do not merely play an instrumental role as tools manipulated by human operators but instead act as “social actors” that connect with and interact with people. On social media platforms, hyper-realistic virtual influencers have become communicative agents capable of providing audiences with psychological comfort. They offer a virtual sense of “psychological closeness” while serving as objects of “real-world compensation,” fulfilling individuals’ emotional projections of an idealized self and providing much-needed social connections. Hyper-realistic virtual influencers, embodying humanity’s aspirations for an ideal self, amplify their “charismatic personas” through parasocial interactions such as posting updates, replying to comments, and livestreaming on social media. These interactions facilitate a profound dialogue between individuals and their ideal selves. As one respondent (P 10) observed: “I think virtual influencers are designed as an extension of human imagination, creating an emotional anchor. No one can be perfect; we all have shortcomings, untapped areas, and skills we lack. But we still want to be better versions of ourselves, and virtual humans fulfill our expectations and fantasies of what we could achieve.” Human “self-communication,” a dialogue between the “I” and the “Me,” often requires intermediaries. Virtual humans serve as vessels for humanity’s pursuit of an idealized self. One of the reasons hyper-realistic virtual

influencers captivate audiences is their alignment with psychological needs, reflecting people's deep-seated aspirations. "Virtual influencers have unique settings but also possess the 'blank spaces'. To some extent, fans can imagine their own preferred attributes for these virtual personas, which makes them more liberating than real people" (P 3). Moreover, hyper-realistic virtual influencers maintain their social relationships with fans through either behind-the-scenes operational teams or intelligent technologies. They interact with fans on social media by responding to comments, liking user-generated content, or sending gifts. Such empathetic interactions provide audiences with a form of compensatory "emotional healing." While these emotional rewards remain mechanical, the "blank spaces" in their personas and behaviors create opportunities for users to project their emotions. American scholar Sherry Turkle highlights three desires fulfilled by mobile devices: first, that our words will always be heard; second, allowing us to focus attention wherever we want; and third, that we will never have to be alone. The technological affordances of hyper-realistic virtual influencers far exceed those of traditional mobile devices, effortlessly fulfilling these three desires. First, virtual influencers serve as exceptional listeners. In interactions with virtual humans, people can express themselves and release emotions without restraint, making these exchanges more unrestrained and liberating compared to real-life interpersonal communication. "Real-life interactions require more caution, but with virtual humans, I feel more comfortable expressing myself without concerns" (P 27). Second, in a deeply "mediated society," where individuals increasingly rely on media to the point of addiction, they become isolated islands, distanced from reality. This isolation and vulnerability drive the need for connection. Hyper-realistic virtual influencers, with their strong performative and creative characteristics, can be shaped into any desired role to meet individuals' social connection needs. The interviews reveal that people readily project their desires and behaviors onto virtual humans, who act as otherworldly friends, life mentors, or even companions, providing varying degrees of companionship. "Some virtual humans can chat and interact with people, making it feel like you really have a friend, which enriches people's lives" (P 31). Hyper-realistic virtual influencers not only fulfill the human desire for interaction through parasocial engagement but also serve as cost-effective, non-demanding "angel friends." Humans can freely choose whether to reciprocate emotionally and can withdraw their attention at any time. This makes the emotional projection toward virtual influencers a voluntary, controllable process. As Sherry Turkle aptly noted, "We are accompanied, but without the obligations of friendship."

## 5. THE DILEMMA OF RELATIONSHIPS: WEAK ATTACHMENT, SUPERFICIALITY, AND RESERVEDNESS

As technological artifacts, hyper-realistic virtual influencers "Affordances are both functional and relational: functional in that they enable (and also constrain) the engagement in some activity; they shape the conditions of possibility associated with an action. Relational, in that they may differ for one object in different contexts, or between different species (Hutchby, 2014). This implies an intrinsic relationship between the subject and the artifact. Artifact present opportunities for connection with the subject through their attributes, but cannot create action options for humans under a framework of technological determinism. Humans retain significant autonomy to interact with virtual humans, actively engaging with or disengaging from them. While the novelty, perfection, and controllability of hyper-realistic virtual influencers satisfy aesthetic needs and psychological desires, sparking public curiosity and attention, the interviews reveal significant variability in the audience's sustained attention, depth of engagement, and level of trust. Compared to human idols, users exhibit lower attachment to hyper-realistic virtual influencers and lack intense emotional fervor. Additionally, compared to some anime virtual idols, audiences are less likely to become addicted or invest substantial time, energy, and money in hyper-realistic virtual influencers. Why do relationships with hyper-realistic virtual influencers tend to be more rational and controllable? What psychological states and interaction patterns underlie these relationships? How do these dynamics ultimately affect the communication effectiveness of virtual influencers? These questions require an in-depth examination of how individuals present relationships through their actions.

### 5.1. Disposable Attention: Lack of Meaning Leads to Brief Engagement

The debut of hyper-realistic virtual influencers often comes with perfect appearances, trendy outfits, novel scenarios, and stunning visual effects, capturing the audience's attention. This initial connection serves as a critical starting point for human-machine communication. However, the appeal generated by technological attributes and aesthetic appeal cannot guarantee sustained attention or deeper emotional engagement. Once the initial novelty fades, or if the content fails to maintain a high frequency of updates, audience attention tends to wane. As a result, relationships with hyper-realistic virtual influencers lack stickiness, with audiences checking

updates sporadically but not maintaining consistent engagement. "I usually check for updates or event news, but I don't look at them frequently. I'll check when I have time" (P 22). Another respondent noted, "The production cost of hyperreal virtual humans is too high, so they rarely release new content or create long episodic series. This makes them visually appealing but ultimately boring" (P 5). Behind the technologically perfected appearances lies the need for compelling and engaging stories to sustain interest. Most hyper-realistic virtual influencers' operating teams fail to continuously build rich stories and experiences for them, failing to imbue them with new meanings. The lack of unique personalities and lively personas makes many virtual influencers feel like empty symbols. "In recent years, many companies have launched digital humans, but most lack storytelling, leading to hollow character images that fail to resonate with people" (P 29). The homogeneity of high-appearance "modeled faces" and content that primarily showcases perfect aesthetics and fashion tastes easily leads to aesthetic fatigue. Individuality is a key characteristic that differentiates one person from another. However, the content and image outputs of hyper-realistic virtual influencers on social media rarely involve emotional, opinions, or attitudinal expressions, failing to convey vibrant, lifelike personalities or clear value orientations. Consequently, deep emotional connections and sustained spiritual resonance with audiences are difficult to achieve. Once the novelty wears off, audience attention and attachment gradually decline. Furthermore, hyper-realistic virtual influencers lack the construction of "social presence," which further limits the duration of attention they can capture. "Social presence refers to the sense of "human warmth"—what we might call the "warmth of life" or "human touch." It's the feeling of seeing, hearing, or sensing others engaging in the same ordinary actions that we do. and a strong sense of social presence fosters mediated interactions between people. While current technologies can customize lifelike forms for virtual humans and create multi-sensory immersive experiences through VR headsets, holographic projections, and tactile gloves, interactions between humans and virtual influencers still heavily rely on deep entanglement with media. The audience's desire for interaction is often constrained by technological limitations, leaving their attempts at embodied engagement with hyper-realistic virtual influencers incomplete. Media serve as an indispensable tool for their communication but also act as a barrier, an emotional divide that prevents genuine connection between the two.



## 5.2. Surface Immersion: Low-Cost Engagement in Isolated Communities

Unlike the fans of human idols or anime virtual idols, who often exhibit "active fanaticism" through activities like promotion, fan-created content, counteracting negative publicity, and voting, fans of hyper-realistic virtual influencers generally demonstrate weaker participation and involvement. From both material and emotional perspectives, these fans engage with hyper-realistic virtual influencers at a low cost, maintaining control over the relationship. Firstly, fans of hyper-realistic virtual influencers demonstrate a low willingness to actively promote them, exhibiting a stronger tendency toward "Self-contained fan culture" compared to fan communities of live-action or anime subcultures. The concept of a "circle" signifies "a new paradigm of cultural formation and communication model in the digital era," characterized by highly active horizontal interactions within the circle. However, this also creates barriers between different circles, making public dialogue challenging. As products of emerging technologies, hyper-realistic virtual influencers currently possess a limited audience base and relatively small fan communities. The lack of understanding from the general public outside these circles further deepens the divide between insiders and outsiders. Consequently, fans are more inclined to find satisfaction in internal connections within the circle and actively restrict the scope of their sharing to avoid the risk of being misunderstood by outsiders. For example, Interviewee P 6 stated, "I join some interest groups and often discuss with them. But overall, I think this is quite a niche community, so I wouldn't bring it up on mainstream platforms." Similarly, Interviewee P 17 noted, "I've talked to friends about it, and they know Imma, but they're not interested. I can't force it on them. I don't post about it on my social media Moments. If I did, people might think something's wrong with me. No one appreciates it anyway, so I just enjoy it privately." Second, there is a low degree of "Textual Poachers" and weak fan creativity within the community. "Fan-created content" refers to fans appropriating official content and visual materials to construct their own narratives, driven by personal imagination and desires. This process represents fans' emotional intensity toward idols and serves as a crucial tool for sustaining the vitality and longevity of community relationships. In the realm of anime virtual idols, fan-generated content derived from textual poaching is both diverse and influential, significantly contributing to the growth and popularity of these idols. However, interviews revealed that fan-created contents related to hyper-realistic virtual influencers are relatively scarce. For instance, a respondent (P 15), who is a fan of both two-dimensional idols and hyper-realistic virtual influencers, noted: "For

two-dimensional streamers, I watch a lot of fan-created content. Fans edit the highlights and effects into something fun, which fits the fast-paced entertainment of today. But for hyper-realistic virtual influencers, I haven't come across much fan-created content—mostly just photos, which you look at once and move on." Many respondents also displayed low enthusiasm for creating fan content themselves. As one respondent (P 6) shared, "When it comes to fan-created contents, I probably wouldn't participate." Finally, fans demonstrate low investment in both time and money. In human idols communities, the synergy between internet technology and fandom culture has fueled an intense fan economy, with fans dedicating significant time and effort to "data labor" and exhibiting high consumption motivation. In contrast, fans of hyper-realistic virtual influencers display low levels of engagement, activity, and spending. "I haven't spent any money, just watched their content. I wouldn't buy anything specifically for a virtual influencer unless I really needed it" (P 18). Another respondent noted, "I haven't purchased any related merchandise or endorsed products, and I probably wouldn't buy anything just to support a virtual influencer" (P 20). Under the framework of affordance, relationships are built based on the "demonstrated potential" of artificial objects, meaning that non-human agents reveal their possibilities to humans. However, due to technological limitations, hyper-realistic virtual influencers currently fail to provide sufficient affordances for creativity and participation in their content production, dissemination, and interaction processes. This inadequacy is a primary reason for fans' low engagement and willingness to invest. On one hand, the operational costs of hyper-realistic virtual influencers are exceedingly high. The production cycle for high-quality video content is long, and the frequency of updates is low. Most daily posts consist of static text and images, lacking sufficient storytelling and richness. As a result, the quantity and variety of raw materials that fans can appropriate for fan-created contents are extremely limited, making it difficult to inspire enthusiasm for further dissemination and creative production. On the other hand, unlike anime virtual idols, which operate within a regenerative textual ecosystem that allows fans to project their inner needs and create personalized symbolic representations, hyper-realistic virtual influencers are often designed by their operational teams with highly specific and detailed personas, identities, and behaviors. This approach aims to make them more human-like and socially engaging but leaves relatively little "blank space" for fans to shape their characters through engagement. Consequently, audiences are more likely to remain passive observers rather than active participants who continuously imbue

virtual influencers with "soul" and meaning, thereby deepening their relational connections. The lack of opportunities for fans to integrate their own experiences and schemas into the virtual influencers further weakens their level of involvement and engagement. Additionally, the high technological barriers prevent hyper-realistic virtual influencers from leveraging tools like "actors behind the scenes" (e.g., performers behind the characters) or motion-capture technologies to facilitate real-time interactive livestreaming, as seen with anime virtual idols like Kizuna AI or A-Soul. This limitation hinders the creation of ritualistic spaces where fans and virtual influencers coexist simultaneously, thereby failing to construct collective memories and shared emotions that could foster a stronger sense of group identity(Xue, 2022).

### 5.3. Limited Trust: Reserved and Rational Support

As Michael Hardt observed, the focus of the entertainment and cultural industries is to create and manipulate emotions. In the realm of human idols, emotional and social connections act as catalysts for self-aware, passionate, and collective emotional consumption(Qi, 2020). Similarly, the "star-making" mechanisms of hyper-realistic virtual influencers aim to construct an emotional economy, with the ultimate goal of cultivating sustained consumer affection that transcends rational loyalty. However, the same tendencies that result in fleeting attention and low engagement also contribute to weaker emotional connections and motivational drive. The relationships between fans and hyper-realistic virtual influencers lack intimacy and loyalty, exhibiting a form of reserved trust and rational support. Interviews revealed that some respondents perceive their emotional expressions toward virtual influencers as one-sided. They even sense a degree of intentionality and manipulation in the interaction signals sent by the virtual influencers, viewing the experience as a "media-constructed reality."As a result, their proactive engagement and expectations for interaction remain low. For instance, respondent P 20 stated, "Commenting is just a way to express my emotions. Once I've expressed myself, I don't feel much anymore, so I don't really expect any replies." Moreover, users believe that hyper-realistic virtual influencers primarily offer surface-level sensory enjoyment. While appreciating photos and videos may provide emotional satisfaction, their impact on deeper value pursuits, spiritual aspirations, and motivation is minimal. As respondents P 6 and P 10 noted, "Virtual influencers only bring me happiness. For now, they can't give me any significant impact in real life." Another added, " Virtual influencers don't give me any motivation to strive

for something " Moreover, when it comes to commercial endorsements, users adopt a more rational and cautious attitude. They avoid blindly chasing "idol-endorsed products" and base their purchasing decisions on personal needs, contrasting sharply with the high levels of consumer enthusiasm found in human idols. "I wouldn't follow a brand or product just because a virtual influencer endorsed it. Whether I buy it depends on the product's quality. After all, a virtual influencer is just a fictional character. When it comes to products, I focus more on the product itself" (P 9). One reason for this rational and reserved relationship is the lack of agency and influence fans have in the operations of hyper-realistic virtual influencers. This low sense of self-efficacy restricts the development of deeper support behaviors. In human idol fandoms, fans are the creators of their idols' meaning and value. Their emotional intensity and "data labor" directly determine the idols' commercial value, motivating fans to purchase endorsements and generate data with a sense of mission. This dynamic turns fans into significant assets and loyal consumer groups for idols. " Spending money on a human idol feels meaningful because it actually does something for them in the real world." (P 18). In contrast, the operations of hyper-realistic virtual influencers are primarily controlled by developers and operational teams due to the high cost and complexity of technological implementation. There is little space for user participation, and the lack of frequent livestream interactions further hinders the establishment of emotional stickiness and depth, failing to generate sufficient relational intimacy and motivational drive. Additionally, the absence of a "material body" serves as a double-edged sword. While it grants hyper-realistic virtual influencers "superhuman" affordances, it also creates an invisible barrier in their relationships with humans. Life experiences are among the most unique aspects of a person, forming the basis for empathy in interpersonal interactions. "To a large extent, a person's experiences shape their emotions, attitudes, and even values. " Hyper-realistic virtual influencers, lacking material bodies, cannot "compute" experiences through artificial intelligence or share a common experiential foundation with humans. The dualistic separation between body and soul renders virtual influencers incomplete in human perception. Emotional connections with them often feel suspended, as humans struggle to achieve mutual empathy, leading them to withhold emotional investment as a form of self-protection. Furthermore, the inability of virtual influencers to express personalized opinions or possess independent consciousness undermines trust. Current technology cannot achieve "technological transparency," and the visible presence of operational teams consistently reminds audiences that hyper-

realistic virtual influencers are merely manipulated digital images. This makes it difficult for audiences to develop lasting, passionate, and intimate emotional relationships. As one respondent (P 20) explained, "When I interact with a real person, it feels authentic—I'm directly communicating with them. But when it's a virtual influencer, I think about the team behind them, and it feels like I'm interacting with the team instead." Some respondents even expressed aversion to the idea of virtual influencers being used as vehicles for team opinions. (Rashid & Khan, 2024) "When I realize that the opinions expressed by a virtual influencer are actually those of the team behind them, I feel disgusted. It feels like a misuse of public influence for private purposes" (P 21). This phenomenon aligns with the concept of the "curse of knowledge," where audiences, once aware of the operational mechanics behind a virtual influencer, cannot return to a state of unawareness. They will always watch digital virtual influencers with the awareness of their creators, making it difficult to trust them fully. When users realize that the object of their emotional investment lacks self-awareness and acts as a mere "mouthpiece," they lose interest and struggle to trust the virtual influencer. "When endorsing products that require personal experience, the identity of a 'virtual influencer' inherently weakens their credibility. Saying a product tastes great or works well holds little value—fans don't believe it, let alone other people" (P 22). As Simmel noted, trust is the foundational condition for social interactions and exchanges. The lack of a strong trust foundation in hyper-realistic virtual influencers makes it difficult to inspire users to develop a strong desire for support, resulting in relationships that remain reserved and conditional.

## 6. CONCLUSION AND DISCUSSION

The "virtual authenticity" of hyper-realistic virtual influencers creates unique affordances. Their "hyperreal" resemblance to real humans arouses curiosity and closeness, while their "virtual" nature allows them to transcend the limitations of a physical body and deliver customizable perfection. By showcasing rich social cues and engaging in interactive communication, they establish genuine emotional connections with audiences in the virtual cyberspace. Although hyper-realistic virtual influencers are fictional constructs, they provide authentic aesthetic enjoyment and social experiences. Due to the absence of a "backstage" in their self-presentation, they offer a "what-you-see-is-what-you-get" completeness, which, in some ways, makes them more "real" than the

"frontstage" performances of human Influencers. This gives fans greater agency and control in their relationships with hyper-realistic virtual influencers, providing them with a unique sense of security and satisfaction. As one respondent explained, it is precisely the combination of their virtual essence and hyper-realistic design that defines their unique charm. The ambiguity between virtual and real provides more possibilities for relationships, making them easier and more convenient to establish. However, the depth and longevity of such relationships face numerous challenges. The core of being called a "human" lies in "humanity." While most virtual influencers already exhibit "hyperreal" characteristics in their appearances, behaviors, and personas, their inner "humanity" has yet to be fully realized. High technological barriers mean that their self-presentation and interactions on social platforms remain reliant on operational teams, with low frequency, limited forms, and hollow content. The lack of independent personality and autonomy reduces hyper-realistic virtual influencers to beautiful yet lifeless marionettes, incapable of converting the fleeting heat of novelty into sustained attention, deep emotional investment, or lasting loyalty and trust. That said, the relationship between hyper-realistic virtual influencers and humans will not remain static. These challenges may be overcome with the rapid development of artificial intelligence, virtual reality, and other digital technologies, as well as increased exposure to and interaction with hyperreal virtual humans in various social contexts. With the "finishing touch" provided by AI, hyper-realistic virtual influencers could evolve from "digital shells" to "intelligent beings" with vivid, distinct, and unique personalities and autonomous awareness (Walther, 2024). They could offer personalized communication, assistance, and companionship anytime and anywhere. Advances in VR, AR, and MR technologies could allow hyper-realistic virtual influencers to step beyond the confines of screens and engage in comprehensive interactions with humans through sensory modalities like touch and smell. At that point, hyper-realistic virtual influencers would possess richer and more diverse social cues, integrate more deeply into human life, and establish a stronger sense of social presence, becoming intimate and reliable companions available on demand. When human intelligence and artificial intelligence jointly participate in communication activities, it will mark the greatest transformation of the intelligent communication era. (Alraih et al., 2022) In the future, as more aspects of human social life transition from offline physical spaces to online virtual cyberspaces, hyper-realistic virtual influencers, leveraging their "native" advantage in the Metaverse, will play increasingly significant roles across diverse application scenarios. They will

establish upgraded relationships with humans, enabling their affordances to take on entirely new dimensions.

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