

# *Scenarios, empathy and interaction: the application innovation and prospect of virtual anchors*

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**Keywords:** Virtual anchors; Scene Communication; Empathy Communication; Interactive Ceremony

**Abstract:** AIGC marks the 1.0 era into the 2.0 era, now. A rich AIGC industrial chain has been formed in China. Among them, virtual anchor, as the "soul" endowed by AIGC, is a new thing jointly constructed by digital media technology and Internet thinking. It has brought changes in production, communication, innovation and other aspects to the entire media field, highlighting the great charm of generative artificial intelligence AIGC technology in the development of the media industry. On the basis of clarifying the concept and characteristics of "virtual anchor", this paper analyzes the innovation of the application of virtual anchor in scene narrative, empathic communication and interactive ceremony. Virtual anchors play a huge influence in the media convergence and transformation. With the continuous development and deepening of the universe, the virtual anchor industry will expand the user group and market scale. Under the promotion of the concept of "meta-universe", supporting technologies and related industry norms, virtual anchors have a huge space for development in the future.

## 1. Introduction

The major breakthrough of artificial intelligence indicates the arrival of a new era<sup>[1]</sup>. The wide application of artificial intelligence is having a profound impact on every aspect of the production and life of human society. In the context of artificial intelligence, virtual anchors, a new type of anchors created by using digital technology, show a dual compound effect in terms of personality and appearance, injecting new strength into the deep integration and transformation of the media, and opening up a new development pattern in the media industry.

At the end of 2016, the world's first virtual anchor "TriLove" was launched on YouTube, the character image was designed by Mori Cang Yuan, the 3D model was produced by Tda, and love pioneered the concept of virtual anchor. Such anchors are also known as Vtuber, also known as Virtual YouTuber, because of their live broadcast activities on YouTube platform, marking the establishment of Vtuber concept and the opening of culture. The emergence of tripping love reflects the quality and high improvement of the production quality, efficiency and experience of virtual anchors. At the same time, Bilibili began to appear. By the end of 2018, the number of virtual anchors in the world has exceeded 6,000, which has been widely accepted by the market. In 2018, Xinhua launched the world's first AI synthetic virtual anchor "Kang Xiaohui", marking the first attempt at real-time audio and video fusion in the news field<sup>[2]</sup>.

With their advantages of time-saving and efficiency, virtual anchors have become a powerful way to leverage the transformation and upgrading of traditional media and help the development of media integration. Mainstream media have actively introduced a number of innovative virtual anchor technologies in major news events such as the NPC and CPPCC sessions. These virtual anchors not only have a high degree of anthropomorphic characteristics, but also their realism with the passage of time. Especially during the 2022 Winter Olympics, CCTV News is leading the industry, adopting advanced AI technology and launching virtual sign language anchors. This innovative measure not only ensures the accuracy and timeliness of the live broadcast, but also reflects the unremitting pursuit of mainstream media in technological innovation and serving the society. After the development of recent years, with the support of AIGC technology, virtual anchors continue to evolve, the image is more and more realistic, the application scope of intelligence is more and more wide, and the commercial value is getting bigger and bigger. Under the background of the development of new technologies and new concepts such as "yuan-universe", virtual anchors show certain development and limitations.

## 2. Characterization of virtual anchors

### 2.1 Overview of virtual anchors

Virtual anchor is a collection of high-tech frontier technologies integrating artificial intelligence AIGC, three-dimensional modeling technology and cloud computing<sup>[3]</sup>. It is a new form of anchor. Virtual anchor based on graphic rendering, action and expression capture technology and speech synthesis technology, relying on similar to human characteristics of animation image on the video website activities, provide users with content creation and services, virtual idol and live the characteristics of the host, and the audience games, chat, real-time linkage live activities. So far, the concept of virtual anchor has not formed a unified expression, and the boundary is relatively vague, but from the degree of development, it can be divided into three stages from germination, exploration to continuous maturity. In the early stage of development, relying on mobile Internet technology, virtual anchors realized the transformation from 2D to 3D virtual image, and the first generation of virtual anchors represented by Luo Tianyi were recognized by the market. "Luo Tianyi" is inspired by the "born with one water" in the national intangible cultural heritage "Hetu Luo Shu", representing "Hua Xia charm, Luo Shui Tianyi". Its image design is mainly blue, symbolizing the color of the sky and water. Luo Tianyi combines the appearance design with the characteristics of the Chinese nation, bringing the user a dual impact on the sense and cognition, winning the audience's favor with the national style, narrowing the distance between the virtual anchor and the audience.

During the exploration period, generative artificial intelligence AIGC began to be applied to various fields. The technology of virtual anchor continues to mature, and the technical level in image synthesis, perception recognition and expression and interaction has been greatly improved. Major leading Internet companies have invested in the virtual anchor industry. In 2016, virtual anchors on Chinese platform Bilibili began to appear. These virtual anchors are generally known as virtual UP masters appear like bamboo shoots after a rain, and virtual anchors are highly recognized by the market. Among them, the representative in March 2019 CCTV Network Spring Festival Gala launched virtual anchor "Little sa", which realized the interaction with real people in the real environment. The 2019 CCTV Network Spring Festival Gala set off the trend of virtual anchors, and the development and application of virtual anchors ushered in the peak. Nowadays, with the rise of the concept of meta-universe and the deepening of media convergence, as well as the continuous development of virtual reality technology, the commercial map of virtual anchors is showing a trend of expansion. With their advantages of time-saving efficiency, virtual anchors have

become a powerful way to leverage the transformation and upgrading of traditional media and help the development of media integration. Domestic mainstream media have also launched a number of virtual anchors in important news occasions such as the national Two sessions. The application of virtual anchors is more common, and the application mode is developing towards a more intelligent and personalized direction, and the development prospect is broader<sup>[4]</sup>.

## **2.2 The "anthropomorphic" character of virtual anchors**

With the continuous improvement of artificial intelligence personification technology, the personification degree of virtual anchors is also getting higher and higher. The anthropomorphic characteristics of virtual anchors affect the effect of human-machine emotional interaction, and the anthropomorphic design enables it to have more positive interaction with human beings. The "anthropomorphic" of virtual anchors is mainly reflected in the realism of their visual image and the real-time interaction of voice. First of all, visual synthesis technology and 3 D modeling technology provide strong technical support for the realistic appearance of virtual anchors infinitely close to real people. With the help of 3 D modeling, the appearance and image of virtual anchors can be carefully designed and customized. From each hair to the clothing style, it can be customized and transformed according to the needs. In addition, the deep learning model can generate high-resolution virtual character images, and through animation generation and control, render the facial expressions and movements of the characters in real time to simulate the facial expressions and body movements of real people. Second, speech synthesis technology through deep learning algorithm, not only can set good text into natural fluent voice, can also generate realistic sound, make virtual anchor in the process of live and entertainment more attractive and interactive, make virtual anchor to real-time dialogue with the audience, real-time response to the audience's questions and comments, at the same time show rich emotion, provide the audience with more vivid personalized interactive experience.

The "anthropomorphic" of virtual anchors creates the space of real and virtual interaction through the presence of virtual images, realizing the symbiosis of virtual and real, and immersive social interaction in front of and behind the scenes. Compared with the single expression of traditional network anchors, virtual anchors carry out strong interaction with the audience in different circles and fields, which breaks through the gap of the dimensional wall and improves the sense of participation and interaction between man and machine. The audience experiences immersive social interaction on the virtual symbiotic digital social platform, and obtains high-energy emotional interaction and companionship. The virtual anchor and the audience finally stimulate emotional empathy and emotional carnival<sup>[5]</sup>.

## **3. Application and innovation of virtual anchors**

### **3.1 Focus on scene communication and create an immersive narrative**

The essence of scene communication is the scene-based service, that is, the perception of the scene and the adaptation of information (service). Scene becomes another core element of media after content, form, and social interaction<sup>[6]</sup>. Virtual anchor is a virtual scene with particularity, which is different from similar media activities such as real anchor, real idols, virtual idols, social media and even VR virtual social networking. According to the scene theory, Zhang Ruoyu believes that the interaction between virtual anchors and the audience and the interaction between virtual anchor audiences have instant interaction, such as live barrage and real-time comments, which have similar characteristics with real network anchors. The application of virtual anchors on live broadcasting platforms is becoming more and more popular, which can conduct various types of

live broadcasting, including music performance, live game broadcast, interactive questions and answers, and entertainment programs. They connect with the audience through real-time interaction, who can make comments, ask questions and give gifts to support the virtual anchor. Virtual anchors create personalized virtual images, interact with audiences in real time, share the details of life, and participate in social interaction. These virtual characters often have large numbers of loyal fans and build close connections with them, thus becoming powerful social media influencers, able to spread messages, entertain audiences, and interact with them.

At the 2022 Grand New Year's Eve gala of Jiangsu Satellite TV, a unique performance attracted wide attention. Based on the late music legend Teresa Teng, the virtual person had a cross-time chorus with the live singer Zhou Shen. Together, they sang a number of classic songs, such as "Big Fish", "A Small Town Story" and "Walking on the Road of Life", bringing an audio-visual feast to the audience. It is worth mentioning that Teresa Teng's virtual image showed a high fidelity in this performance. This is not the first time for Teresa Teng's avatar, but it has reached an unprecedented level. This image is carefully created by Digital Kingdom Group Co., Ltd. Through advanced virtual human technology, Teresa Teng's image and voice are perfectly integrated. Compared with the past, the virtual Teresa Teng has been significantly improved in realism and clarity. This is thanks to the advanced rendering system "Mystique Live" supported by machine learning, which provides strong technical support for the real texture of virtual Teresa Teng. In the performance, Teresa Teng's virtual image action expression is natural and smooth, the light and shadow effect is lifelike, very emotional expression. In addition, the virtual Teresa Teng also interacted with the audience in real time, making the audience feel as if they were in a real music scene. This immersive experience makes the audience travel through time and meet Teresa Teng, a musical legend, and nostalgia pouring out. The whole performance not only shows the strong potential of virtual human technology, but also brings an unforgettable artistic enjoyment to the audience<sup>[7]</sup>.

### **3.2 Promote the spread of empathy and realize the emotional value**

The combination of augmented reality, virtual reality and mixed reality technology has brought about changes in digital technology, triggering an emotional shift in the field of communication<sup>[8]</sup>. Virtual anchors can break through the limitations of time and space, and make each audience become a witness of the event by virtue of their emotional interaction. It can make the audience have a sense of immersive reality, establish an intimate emotional connection with the audience, and bring the audience an immersive sense of substitution, belonging and emotional experience. This is the empathic narrative of the virtual anchor. Emotion is highly inflammatory and guiding, so emotion communication drives the fan economy to become the focus of the virtual anchor industry. In the virtual live broadcast, the audience is attracted by the personality charm of the virtual anchors, thus forming a specific fan community, and the emotional connection between the virtual anchors makes them gain spiritual and emotional satisfaction.

For example, the virtual anchor "Liu Youxi" uses the appearance of Oriental elements and IP short videos with social significance, reflecting the audience's emotional dependence on the virtual anchor. Liu Yexi's personal Tiktok account attracts audiences with IP stories. For example, tell the story of empty nesters alone on a holiday, depict the story of a mother to save her daughter, tell the story of a dog self-sacrifice... These IP stories express their concerns about social hot issues and contemporary people's emotional conditions through emotional narration. By extending the interaction between the audience and the virtual idol, the audience's emotional experience is deepened, and the audience's emotional value recognition of Liu Yaxi's social role is deepened. The sense of reality and emotional three-dimensional sense of social roles are two important elements to attract the audience. With the continuous improvement of the deep shaping of the social role of

virtual anchors, the social role of virtual anchors will have a wider expression space to a certain extent, and attract the audience to have the interactive experience of emotional resonance.

### 3.3 Realize the interactive communication and enhance the identity value

From the perspective of communication, interaction is communication<sup>[9]</sup>. Human interaction takes place in a certain situation, and it is a ritual chain extended by the continuous contact between people. Virtual anchors drive the audience, which will enhance the emotional stickiness with the audience, thus forming an "interactive ritual chain". With the continuous progress and evolution of AI virtual reality technology, the role positioning of virtual anchors is no longer limited to the simple category of "objects", but has been gradually given the subject status. This change marks the increasingly important role of virtual anchors in the field of social communication, and they are endowed with profound social attributes. Nowadays, virtual anchors can not only realize real-time interaction with the audience, but also effectively transmit information. This interactive communication mode greatly enhances the audience's sense of participation and identity, thus enhancing the audience's identity value.

For example, "VIVI Zihan" appeared in JD's "Double 11" and interacted with the audience in VR scenes on live streaming, which attracted the attention of many netizens. His interpretation of the goods gave people a feeling of being immersive. On the one hand, 3D virtual anchors enable users to obtain immersive experience; on the other hand, virtual anchors can broadcast 24 hours a day, interact with customers through the live broadcast platform, increase the company time and service time, and improve the brand activity and exposure. "VIVI Zihan" followed the real person to live broadcast, and its "natural" idol image attracted a large number of fans, bringing hot spots and traffic to the live broadcast. Holographic projection stage and whole-body motion capture, the movement connection of "VIVI Zihan" is very smooth and natural, bringing consumers more sense of reality, providing more interactive and entertaining live broadcast content, attracting more audiences to participate, and causing resonance in the broad audience. The reason why virtual anchor live broadcast can form an "interactive ceremony chain" with the audience is, on the one hand, that the live broadcast platform has strong real-time interaction, and the live broadcast platform encourages emotional communication and interaction between the interactive sides. On the other hand, in the live broadcast of anchors, the audience can easily be infected by the emotions of the whole group. The reason why the audience will choose to watch virtual anchors is that on the one hand, virtual anchors are different from real anchors; On the other hand, virtual anchors create human design through live video, and promote self-improvement according to audience interaction, so as to realize value recognition in the interaction.

## 4. Outlook and reflection

As artificial intelligence technology gradually matures, virtual anchors are also constantly iterating and upgrading. Through deep learning, virtual anchors evolve from simple information transmission to more personalized and real-time interactivity. Virtual anchors have better visual effects, better immersion experience and more emotional interaction. As a bridge between the virtual world and the real world, virtual anchor shows its unique advantages in many fields, and its application scenarios are more and more extensive. The virtual anchor industry will enter a period of accelerated development with the rapid development of the meta-universe. In the future society, as a new virtual world beyond the reality, virtual anchors will become the normal state of the future industrial development. But at the same time, we can not ignore the ethical challenges and threats brought by the highly imitation technology of virtual anchors as the communication subject.

At present, China has not issued clear management measures and governance measures for



virtual anchors, and the industry is not clear enough about the copyright awareness of virtual anchors and lack of boundaries, which is easy to produce infringement behavior. In addition, virtual subjects are easy to be manipulated, and become a means and tool to control the public's concept and ideology, bringing challenges to social and network governance. In this regard, improving laws and regulations is the premise and foundation for the long-term development of the virtual anchor industry. Only in this way can we promote the better and more long-term development of virtual anchors in the future. Opportunities and risks coexist in the virtual anchor industry. In the future scene depicted by virtual reality technology, the influence and acceptance of virtual anchors are constantly improving, while the potential risks are looming. The ethical issues of real and virtual, physical presence and departure urgently need to be further explored by future scholars.

## Acknowledgements

Funded by: This thesis is the result of the 2023 Henan Provincial Philosophy and Social Science Planning Project, "Research on Cooperative Governance of Online Audiovisual Corporate Social Responsibility Based on Public Perception", Project No. 2023BXW006.

## References

- [1] Yang Deqiang. *Scenario, empathy and interaction: the innovative path of new media TV large-screen theme publicity* [J]. *China Radio, Film and Television*, 2023, (20): 74-77.
- [2] Jiang Zhongqi. *Key technologies and application scenarios of virtual anchors* [J]. *TV Technology*, 2023, 47 (09): 172-174.
- [3] Zheng Zirui, Sun Hao. *Platform practice, technical interpretation and ethical review of AI anchors* [J]. *China Radio and Television Journal*, 2023, (09): 75-78.
- [4] Zhang Luyuan, Liang Yuetong. *Application and innovation of virtual anchors in the new mainstream media in the era of intelligent communication* [J]. *Modern Audiovisual*, 2023, (05): 12-17.
- [5] Yu Guoming, Yang Mingyi. *New media landscape in the meta-cosmic era: an embodied study of digital virtual human live broadcasting* [J]. *Contemporary Communication*, 2023, (01): 32-36 + 48.
- [6] Zhao Yu, Li Mengqian. *Virtual anchor practice and human-machine emotional interaction under the anthropomorphic trend* [J]. *Modern Communication (Journal of Communication University of China)*, 2023, 45 (01): 110-116.
- [7] Guo Quanzhong. *The status quo, key points and future of the development of virtual digital people* [J]. *News and Writing*, 2022, (07): 56-64.
- [8] Chen Zhaoyu, Xue Long. *Review of the current situation of domestic virtual anchor research* [J]. *Omnimedia Exploration*, 2021, (01): 108-109.
- [9] Li Yan, Tang Qu, Wu Wenjing. *Empathy sharing and coordination of the mechanism of interaction between audience and virtual idols under the perspective of—media equivalence theory* [J]. *China TV*, 2023, (05): 101-106.