Research on the Application of Digital Virtual Human Technology in E-Commerce Live Broadcasting

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Abstract: With the development of AI technology, 3D modeling and motion capture technology, digital virtual human has been rapidly developed and applied. How to apply this new digital technology to e-commerce live broadcast and promote the high-quality development of e-commerce live broadcast is the focus of this paper. Based on the development of e-commerce live broadcast, this paper analyzes the bottleneck problems in the industry, and then analyzes the application types and methods of virtual anchors according to the application value of digital virtual human, so as to explore the effective application path of virtual anchors technology.

Keywords: digital virtual human; E-commerce live broadcast; application research

1. Overview of the development of e-commerce live broadcast

With the technological revolution, network expansion, digital economy and consumption upgrading, e-commerce live broadcasting has developed rapidly. With the popularity of the live broadcasting e-commerce industry in recent years and the impact of the global epidemic, live broadcasting with goods has become an essential option for online marketing in various industries. The rapid development of live broadcast e-commerce has become the "new normal" of Chinese e-commerce: online celebrity live broadcast, brand live broadcast, wholesale live broadcast, B2B live broadcast and other new forms emerge in endlessly.

According to the data of iiMedia Research, the total scale of China's live broadcast e-commerce industry will reach 1201.2 billion yuan in 2021, and is expected to reach 2137.3 billion yuan by 2025. Live broadcast e-commerce will perform well in "June 18" in 2021. During "June 18", the sales of live broadcast e-commerce will reach 144.5 billion yuan, an increase of 124% year on year, and its proportion in the total sales of the whole network will rise to 21%.

It can be predicted that with the continuous support of the country for the digital economy and the innovative development of digital technology, the e-commerce delivery mode represented by live broadcast will develop rapidly. It brings consumers a more intuitive and vivid shopping experience, with high conversion rate and good marketing effect, and gradually becomes a new growth engine for e-commerce platforms and content platforms.

2. The bottleneck of e-commerce live broadcast

The earliest live broadcast e-commerce in China can be traced back to 2016, when the live broadcast e-commerce was born along with the live broadcast, and the original intention of development is very simple, just to improve the user's stay time on the platform. During this period, live broadcast was mainly used, and the private domain traffic of the host drove the sales of goods. With the development from 2016 to now, the live broadcast e-commerce has gone through the initial stage and rapid development period. In the process of the industry's development towards maturity, the personal ability, stability, live broadcast site, operation, etc. of the live broadcast anchor have become the constraints of its development.

2.1 High operation cost of live broadcast

In the live broadcast industry, the stability and professionalism of the anchor will directly affect the traffic and conversion rate of the live broadcast room. According to the CCTV Finance and Economics Report, businesses often have to pay high commissions to hire the head anchors. The commissions of anchors at different levels vary widely, ranging from hundreds of yuan to hundreds of thousands. Sometimes, the high cost does not bring the same level of single volume, and the live broadcast effect is far less than expected. For anchors with small traffic, low conversion rate is common.

2.2 The anchor collapses constantly

Relying too much on professional anchors to bring goods will make the brand vulnerable to negative news from anchors, and will also weaken its bargaining power. In the past year, many star anchors suffered huge negative impacts due to drug abuse, infidelity, tax evasion and other behaviors.

Sydney, Lin Shanshan and Weiya, the leading anchors with goods, were exposed to violations of laws and regulations in the regulatory storm, and fell down one after another, failing to escape the regulatory storm of the live broadcast e-commerce industry. 65553100 yuan, 27672500 yuan and 1341 million yuan, three times of overpayment of taxes and fines at skyrocketing prices, also made them permanently banned, and fans' pursuit, rewards and purchase were all torched.

2.3 The work intensity of live broadcast with goods is high

It can be seen from the live broadcast duration in the live broadcast cycle that the live broadcast duration is closely related to the health of the host. The customer is God, so is the live broadcast e-commerce. The anchors must arrange the live broadcast according to the time of the live broadcast users. As the peak time of watching the anchor users is in their leisure time, the work hours of the anchor are usually in the evening after the following shift. In terms of live broadcast duration, many professional anchors broadcast more than 8 hours a day. In addition, in order to facilitate fans' watching and develop their behavior habits, many anchors broadcast live at night or two to three times a day. When webcast was just emerging, many anchors could capture a large number of fans by virtue of their looks or simple skills. However, with the development of webcast industry and the aesthetic fatigue of live broadcast users, they put forward higher requirements for the live broadcast content of the anchors. In order to retain fans, content expansion, ideas and creation outside the live broadcast are also time-consuming and laborious.

2.4 High mobility of industry personnel

It is the consensus of the industry that the staff mobility of webmasters is high. When a platform develops to a certain period and users cannot digest enough anchors, medium and small anchors will inevitably flow to other platforms. Another objective fact is that due to the uneven quality of the anchors, some anchors may be just good-looking and have a sense of camera, and they can emerge quickly, but later they may have obvious changes in their literacy and comprehensive knowledge, so the mobility of live broadcast personnel is relatively large. The mobility of personnel will affect the precipitation and accumulation of consumers, thus affecting the sales performance of brand goods.

3. Application Value of Digital Virtual Human Hosts

With the development of AI technology, 3D modeling, and motion capture technology, the technology threshold is gradually lowered, providing a digital technology environment. The 5G new infrastructure has landed in the big environment. Commercial value and capital power have become important factors for the rapid development of digital virtual human.

3.1 Cultural and entertainment industry is the most important application scenario of current digital virtual human

The effect and liquidity of the virtual idol field have been verified by the market. Compared with traditional idols, virtual idols are not only less likely to collapse and easier to control, but also users are willing to pay for digital virtual human anchors. For example, Lewa Entertainment and Byte Beat launched the virtual idol group A-SOUL, which is composed of five members with different styles, Xiangwan, Bella, Jiale, Jiaran and Nerin. At present, many singles have been released. And members Jiaran and Bella have won the top 100 UP hosts of Station B respectively, and the first host in the digital virtual human host area to achieve 10000 ships. In addition, A-SOUL has successively reached cooperation with KFC, Keep, L'Oreal Men and other brands. It is precisely by virtue of A-SOUL's strong commercial liquidity that Lehua Entertainment's income in pan entertainment members will increase from 21.1 million yuan in 2020 to 37.9 million yuan in 2021, up 79.6%. In the future, the virtual digital human will be more integrated with the big cultural and entertainment industry and explore more application scenarios.

3.2 Live video with goods is the main application of digital virtual human in the marketing field

At present, the application of digital virtual human in the marketing field mainly includes: virtual live broadcast with goods, brand promotion and endorsement, which is also the future development trend. From the perspective of brand, the Z era (the generation born from 1995 to 2009) will be the main force in the next consumer market. But their consumption behavior has typical personal color. Focus on consumption experience, accept consumption symbols, and pursue a "visual life". And this unique life attitude and emotional needs are highly consistent with the value of virtual digital people. With the help of virtual digital people, the brand side can better reach the consumers in the Z era and save the promotion cost.

4. Application Types and Modes of Digital Virtual Human Hosts

4.1 Application Types of Digital Virtual Human Hosts

According to the technology driven route, virtual human anchors can be divided into two types, one is AI technology driven digital virtual human anchors, and the other is real human action driven digital virtual human anchors.

AI digital virtual human anchorman can realize 24-hour round robin live broadcast, digital virtual human anchorman can replace real person anchorman and other functions, but at present, AI virtual live broadcast does not have the ability to interact with users independently in real time; Capturing the live action driven digital virtual human anchor is to achieve the effect of the digital virtual human anchor after real-time live capture and rendering through voice dubbing and performance with the help of real people wearing live capture equipment.

The service providers have started to aim at the air outlet of virtual digital people live broadcasting with goods, which has spawned a new industrial chain. By inputting keywords such as "virtual character live broadcast" on various social platforms, it is found that a considerable number of platforms are already providing virtual digital person live broadcast technology support, teaching and IP proxy operation services, from simple virtual idol apps to deep customization of brand virtual people. These virtual virtual human live broadcast construction and special effect software basically provide the digital virtual human anchor that captures the real human action driven type, and boasts that it supports a variety of interactive play methods such as one button costume change, arbitrary switching between live broadcast rooms, and is suitable for the anchor crowd who do not want to show up, have camera fears, and want to create IP.

4.2 The way of digital virtual human live broadcast with goods

The virtual image independently developed by the Damo Institute's artificial intelligence technology in Taobao live broadcast room can be automatically broadcast. According to the specific situation of the live broadcast, real-time updates and changes can be made to make personalized recommendations, including pinching your face, changing your appearance, selecting your own voice, one click script generation and other methods, which can achieve 7 * 24 unmanned live broadcast.

There are two ways of delivering goods for live broadcast in Pinduoduo live broadcast room: one is that the digital virtual human anchor leaves the country with a high threshold for employment. One is the transfer from recorded broadcast to live broadcast. The online viewing traffic is higher than that of pure recorded broadcast, but the transaction conversion rate is not good.

Station B, which focuses on the secondary culture, is developing well in the field of virtual idols.

5. Application Status of Digital Virtual Human Hosts

Virtual digital human is an interactive virtual image with human appearance, behavior, thought and values through computer graphics, speech synthesis technology, deep learning, brain science and other technologies. As an important role in the world of the meta universe, virtual digital people will undoubtedly become the largest wind outlet in 2022. During the Winter Olympics, about 30 virtual digital people participated in activities related to the Winter Olympics. For example, digital editor "Xiaozheng", virtual idol "Linxi Group", Gu Ailing's digital avatar "meetgu", sign language anchor "Tingyu", and Winter Olympics propagandist "Dongdong". On the first day of the college entrance examination, Du Xiaoxiao's answer to the first volume of the National New College Entrance Examination was given a high score of 48 points by well-known Chinese teachers, and his performance surpassed 75% of the college entrance examination candidates. In 40 seconds, Du Xiaoxiao was able to create more than 40 articles according to the topic. In July, Sequoia China announced that virtual employee H ó ng was officially on duty as a China investment analyst. According to the introduction of Sequoia China, H ó ng can read nearly 100 business plans in 1s, but the salary is only 0.68 yuan/h.

During 618, Baidu and JD released the 618 Consumer Trend Insight Report, which was jointly interpreted by Jingmaimai, an AI experience officer of JD Cloud, and Du Xiaoxiao, an AI exploration officer of Baidu Apps. Jingmaimai and Du Xiaoxiao are not real hosts, but digital virtual human hosts launched by the two companies.

Compared with VR shopping, e-commerce live broadcast has rich experience in the application of virtual digital people. In recent years, Internet enterprises such as Taobao Tmall, JD, NetEase Yanxuan, Fasthand, and Byte Beat have launched virtual human anchors one after another, and preemptively registered the digital virtual human anchor trademark. The anchor of AYAYI digital virtual human, developed by the super realistic digital human design and incubation service provider Burning Mai Technology, has joined Alibaba and become the digital manager of Tmall Super Brand Day. At present, it has cooperated with Porsche, Disney and other international first-line brands.

At the quarterly meeting of Taobao Live MCN institutions held on April 14, Taobao announced three major directions for live marketing in 2022, of which the digital virtual human anchor and 3D scene became the driving force of the platform. On June 8, the world also welcomed the first share of virtual digital human, and the Japanese VTuber (digital virtual human anchor) company Anycolor was officially listed on the Tokyo Stock Exchange.

In addition to e-commerce platforms, many brands have also started to launch their own brand virtual spokespersons. On May 6, LVMH Group, an international luxury giant, announced Livi, the virtual spokesman of the competition, at the sixth LVMH Innovation Competition. Livi will be responsible for promoting LVMH's digital channel promotion group and its brand innovation projects.

According to the data released by Tianyan Research on January 13, 2022, there are more than 288000 enterprises related to "virtual people" and "digital people" in China. From 2016 to 2020, the compound growth rate of newly registered enterprises was nearly 60%; Nearly 90% of enterprises were established within 5 years, and 63.96% of enterprises were established within 1 year.

6. Overview

With the rapid development of technology, more and more digital virtual human anchors begin to appear. It is not difficult to find that more and more companies are using virtual people as their important employees, and even this year Vanke's annual outstanding employees were awarded to virtual people. According to the quantum bit calculation, by 2030, the overall market size of virtual human in China will reach 270 billion yuan. Under the huge market scale, it triggered the participation of many major Internet companies represented by

iFLYTEK, Baidu and Byte Beat, listed companies represented by Mango Hypermedia and BlueFocus, Sequoia Capital, GGV Jiyuan Capital, Fengrui Capital and other investment institutions.

Many people are worried that this kind of digital virtual human anchor will really replace our traditional anchor? In fact, this is also a trend of technological development, which is that after the current whole market develops to a certain stage, the role of digital virtual human anchors in the market will actually become more and more. Therefore, under such a background, digital virtual human anchors begin to become an important participant in many live broadcast platforms, and will also become the general trend of the whole market. There is no doubt about this, The digital virtual human anchor will play a very important role in the development of the market in the future, which is an inevitable trend of future development.

Secondly, we should understand that the advantages of digital virtual human anchors are as follows: First, they are cheap enough. For most enterprises, the cost of hiring an anchor is very high. Because in today's high labor costs, if an anchor can bring goods with him or her well, he or she often needs massive funds and distribution to really make him or her work for himself or herself. So in this case. The cost of anchors is getting higher and higher, so the cost of using digital virtual human anchors is often relatively fixed, which can effectively save the cost of enterprises. The second is the IP address of the digital virtual human anchor. Don't worry about problems. What we know is that when the physical anchor develops to a certain stage, it is often prone to a special phenomenon. This is that the physical anchor tends to separate from the enterprise after growing up, and finally operates independently. It is very common for the digital virtual human anchor to even become enemies with his old employer, while the digital virtual human anchor need not worry about this problem. The loyalty of the digital virtual human anchor will be beyond doubt. Third, because the digital virtual human anchor is generated by artificial intelligence, it can almost achieve 24-hour continuous rotation. Compared with the physical anchor, the live broadcast time is very limited, and different digital virtual human anchors can almost live around the clock. Therefore, in this case, a digital virtual human anchor can often play a great role.

Third, we can't ignore that although the digital virtual human anchor is good, the problem is also very clear. This is that the current digital virtual human anchor has not been able to achieve the level of "fake" by its own technology. The interaction of digital virtual human anchor is relatively poor, and many modeling is also more profound. Compared with the real anchor, the digital virtual human anchor can only be said to be a relatively intelligent toy, Compared with real anchors, especially those who can interact with the audience in real time to answer the audience's questions, and can basically achieve seamless connection with the audience, it will take a long time. Therefore, the current digital virtual human anchors are just a development direction. It may take a long time to completely replace the real ones.

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