# A Case Study on the Production and Distribution of Film and Television Content Driven by AI Technology Based on Big Data

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**Abstract:** In recent years, artificial intelligence technology and big data has been more and more applied to the field of video, including theme decision, user selection, video editing and special effects, virtual anchor, intelligent voice, promotion, and other aspects. The application of these advanced technologies can not only improve the production efficiency and service quality, but also create a variety of content forms to meet the needs of the new situation. This paper analyzes the advantages and disadvantages of AI technology based on big data driving video content production and distribution cases, and puts forward corresponding solutions and suggestions, to help us better understand the application of AI technology based on big data in the field of video.

**Keywords:** Artificial Intelligence Technology; Big Data; Video Content and Distribution

## 1. Introduction

In recent years, artificial intelligence technology has developed very rapidly in the video industry, and the application scope is becoming wider and wider. According to Ren Jie (2020), the main development direction of artificial intelligence technology in video included video intelligent processing technology, ultra-high clear image intelligence recognition and enhanced processing technology, image intelligence understanding analysis technology, artificial intelligence programming technology, etc. In this case, video intelligent processing technology referred to the advantages of combining artificial intelligence new algorithms, and the research of data fusion technology of hierarchical data, which was generated by image intelligence and image automation, complete the fusion and intelligent production of video data, namely video automation generation. The application and depth of artificial intelligence technology make video content production and distribution more and more favorable in terms of high quality, high efficiency, and personalized demand.

Big data can help enterprises analyze a large amount of data, further explore the market, and analyze it. It can improve the accuracy and timeliness of enterprise data, help enterprises to explore new market opportunities, help them formulate or adjust precision marketing strategies, help them improve decision-making level and reduce business risks. The development of big data, artificial intelligence and other technologies has promoted the development of media in the direction of intelligence. Tang Guowei (2020) believed that big data was changing the mechanism of media content production and information distribution, enabling all aspects of content production, content presentation and content distribution, such as "strategy, adoption, editing, distribution, reaction and evaluation". Through big data technology, massive internet information could be collected to bring more clues to the topic planners. Big data technology could collect users' comment data and conduct emotional propensity analysis, which could reflect the degree of internet users' recognition of clues. Big data acquisition technology could collect information from various channels, such as websites, WeChat, Weibo, clients, overseas media, etc. Internet content providers were already trying to incorporate big data analytics into their programming processes. The push mechanism with algorithm as the core met the needs of "thousands of faces" of users, and realized efficient sorting of massive content and personalized content selection. How to improve the quality of content itself, improve the efficiency of content production, and provide customized content at the production end were the main directions for the future development of the video industry (Zhang Wenjun, 2019).

# 2. Analysis of the issues

At present, artificial intelligence technology and big data are gradually applied to the whole process of video content production and distribution. The use of artificial intelligence technology and big data to drive video content decision-making, production, production, distribution, and promotion not only improves production efficiency and service quality, innovates a variety of content forms, but also saves a lot of manpower, material resources and financial resources. Two cases of AI technology and big data driving video content production and distribution will be listed here, and their advantages and disadvantages will be analyzed, to help us better understand the application of AI technology and big data in the video field.

## 2.1 Case 1: Every AI TV with Artificial Intelligence

On December 20, 2021, National Business News and Xiaobing Company jointly announced that "Every AI TV", the world's first live video TV program with the whole process driven by artificial intelligence technology, was officially launched on the whole network. In terms of technology, each AI TV comprehensively uses a lot of artificial intelligence technologies, such as AI virtual anchor generation drive, AI text and video generation, big data financial knowledge graph, to help users obtain financial market information in real time, and achieve professional output of financial information content, sustainable production, and diversity of communication. AI virtual host of N black and N small white are modelled based on the depth learning technology of the neural network, and support multiple fields of shooting scale, the application of posture, scene, height reduction human anchor scenarios. They can broadcast in Chinese, English, and other languages to ensure accurate and timely delivery of the latest financial information to users at home and abroad (Xiaoxiang Morning Post, 2021).

The birth of each AI TV, to some extent, makes the content production and output transmission of financial media enter the "unmanned" era. It is also the first innovative product in the world that has completed the complete AI production of the whole live broadcast chain from AI manuscript writing, virtual anchor video generation, AI video generation and video series broadcast. In addition to the audit and monitoring of broadcasting, every 24-hour uninterrupted content broadcast and transmission of AI TV does not require human participation (National Business Daily, 2022).

## 2.2 Case 2: House of Cards and Big Data

"House of Cards" was the first homemade series released by Netflix, the largest online movie rental provider in the United States, in early 2013. Based on a 1990 BBC miniseries of the same name, the series is set in present-day Washington, DC, and offers a fascinating look at the trade-off between politicians and human dilemmas.

Big data not only assisted the investment decision of the birth of "House of Cards", but also helped the staff to further clarify the existence of a large target audience group. Through data mining, the audience base of "House of Cards" was understood and the cast list of "House of Cards" was determined. Moreover, by data mining, the different preferred attributes of the different groups of the potential audiences were further clarified, and then targeted recommendation of the corresponding attributes could be made to maximize the viewing desires of the users (Li Bing & Qie Jinglin, 2015). Big data helped House of Cards become hugely successful and revolutionized the video industry.

## 2.3 The Advantages of Big Data-Driven Artificial Intelligence Technology in Film and Television Content Production and Distribution

From the above cases, it can be seen that big data and artificial intelligence have played a very important role in helping the video field:

(1) Assist content decision making. Big data analysis technology can mine data materials, summarize, and analyze existing videos, find out users' interest points and preferences, and understand their watching behavior rules, to help managers make more accurate decisions, which is conducive to the production of targeted program content.

(2) Expand information sources. Big data analysis and mining data, improve the ability of information collection, with the help of algorithms to identify content data, easy to find valuable content clues. The application of artificial intelligence can help find news clues by grasping and analyzing network hot spots, provide accurate and scientific basis for various decisions, and help enterprises save a lot of financial resources by predicting the overall trend of content.

(3) Assist creators in content production. AI can automatically transform graphic content into short videos, and the process from material selection to final video generation can be fully automated. At the same time, artificial intelligence can help automate the generation of secondary clips. For example, can be based on face recognition, object recognition, artificial intelligence video content understanding, and other functions to parse and understand the content of the film, automatic cutting and select video material, the resulting trailer, to save a lot of manpower, material resources and financial resources, can dig up the audience like creation mode, and

personal customized according to user preferences.

(4) Improve production efficiency. Driven by artificial intelligence technology, a series of work such as AI manuscript writing, video generation, editing, arrangement and export are carried out by simulating human work, which greatly improves the production efficiency of the program, innovates the content form of the program, enriches the production mode of the program, and saves a lot of manpower, material resources and financial resources.

(5) Rich content and form. Virtual anchors supported by artificial intelligence technology support the application of multi-scene, multi-pose, and multi-scene, and can simulate the real scene of human anchors. Relying on deep learning algorithms and powerful cloud computing background, it can provide users with detailed, accurate, diverse, and rich instant information all day long. These are the traditional film and television industry in the past cannot achieve, greatly enriched the content of the video field form.

(6) Realize personalized customization and distribution. The algorithm recommendation technology is used to achieve personalized distribution and meet the needs of different users. With the participation of machine learning technology, personalized recommendation system can capture effective information and filter redundant information more accurately, which improves the efficiency of distribution and acceptance.

## 2.4 Problems and Challenges

(1) The penetration rate of intelligent technology is low, and the technology still needs to be improved. At present, although big data and artificial intelligence technology has been applied to more and more industries and fields, the penetration rate of its intelligent technology is relatively low due to the high technical threshold, expensive equipment and facilities and professional elite talents. At the same time, these technologies are not perfect and need to be further developed and improved to meet the needs of more different users and scenarios.

(2) Copyright issues. In the process of deep learning related material information from a large database, the music created by artificial intelligence contains or imitates other music. The issue of who owns the copyright of creations created by artificial intelligence is also difficult to resolve.

(3) Lack of pluralistic thinking, emotion, and depth. Technologies such as big data and artificial intelligence have brought faster, flexible, efficient and low-consumption working modes. But video content, which is automatically produced and distributed by technology, often lacks human's rich emotions and thinking. At present, machine simulation cannot realize all the emotional expression of human beings. Many complex emotions of human beings are difficult to be realized by technology and algorithm, and many works created lack depth.

# 3. Recommended actions

In view of the above problems, this paper will adopt the following measures to promote the deep application of artificial intelligence technology based on big data in video content production and distribution, to promote the benign development of the industry.

## 3.1 Optimize Artificial Intelligence Algorithms and Promote Deep Integration of Technologies

Algorithm is the basis of artificial intelligence technology applied in the production and distribution of film and television content, which directly affects the production efficiency and effect of the program. A series of artificial intelligence algorithms such as BP neural network algorithm, genetic algorithm and particle swarm optimization algorithm should be continuously optimized (Wang Lixia, 2022). The depth and breadth of data volume and data types in media database should be strengthened as much as possible, so that media resource data can meet the automatic optimization requirements of artificial intelligence algorithms.

In addition to artificial intelligence, video content production and distribution also depend on the convergence of various technologies. Including big data technology, 5G communication technology, virtual reality technology, ultra-high-definition technology, Internet of things technology and so on. By promoting the deep integration of technologies, the application effect of artificial intelligence technology can be improved, and the whole chain of video content production and distribution can be reconstructed.

## 3.2 Strengthen Intellectual Property Protection of Artificial Intelligence

For AI and video content production processes to be closely integrated, it is necessary to strengthen AI intellectual property protection. At the legal level, need to relevant departments to formulate the perfect legal laws and regulations, clearly defined copy imitate infringement, safeguard by artificial intelligence study data in the database of the rights of the original author and the copyright of creation of artificial intelligence, avoid artificial intelligence copyright disputes between developers and users of artificial intelligence.

On the other hand, blockchain technology can be used to strengthen copyright protection. Blockchain technology can time stamp all the data, such as video, audio and pictures, in the content of movies and television programs, proving that the data existed before

the tag. At the same time, the data is packaged and stored, and the authorization is given to the original author. Therefore, blockchain technology has obvious advantages over artificial intelligence technology in copyright protection of works. The essence of blockchain technology is copyright protection from the source of works. The combination of artificial intelligence technology and blockchain technology will further promote the creation of film and television content, which will greatly enhance the knowledge copyright protection of works.

### 3.3 Adhere to People's Artistic Creation as the Core

In the final analysis, the creation of the content of film and television programs belongs to the category of artistic creation. Through television media as the carrier and audio-visual language art as the means, the main creative team members convey their own thoughts and feelings and values in the works. Since the development and application of artificial intelligence technology, humans and machines have always been in a symbiotic state. With the tide of new technology, it is inevitable for artificial intelligence to enter the whole process of production and distribution of film and television programs in an all-round way. AI has created more diverse content and gameplay for creators. However, no matter how advanced artificial intelligence technology is, it takes human artistic creation as the core starting point. We empower AI, but we don't empower AI. Artificial intelligence plays more of an auxiliary role, helping humans to explore more creative possibilities.

## 4. Conclusion

With the development of technology, the application of artificial intelligence technology and big data in the field of film and television media has entered a new stage. Artificial intelligence technology has optimized the production and distribution of film and television program content, making the program content better adapt to the personalized and diversified needs of users. In the future development, relevant personnel should continue to pay attention to the problems existing in the application of artificial intelligence technology and big data in video applications, eliminate potential obstacles, and actively promote the integration and application of various advanced technologies, so that artificial intelligence technology will become the key force to improve the quality of film and television programs.

## References:

[1] REN Jie. The development of artificial intelligence technology in video application -- A case study of the China Media Group [J]. Science and Technology for Performing Arts, 2020, (Z1):67-72.

[2] Tang Guowei. How can big data empower all stages of media production and implementation? https://www.jianshu.com/p/6023f8ee3c1b, retrieved on September 9, 2022.

[3] Zhang Wenjun. Artificial intelligence and film and television content production: Current situation and future [J]. Modern Television Technology, 2019(06):33.

[4] Daily Business News. With each AI television in 2021 China ten-year cases smart media. https://baijiahao.baidu.com/s?id=1729787332581445253&wfr=spider&for=pc, retrieved on September 14, 2022.

[5] Xiaoxiang Morning Post. Meijing and Xiaobing to create "Every AI TV": The world's first AI drive video live TV products online. https://baijiahao.baidu.com/s?id=1719647192980631837&wfr=spider&for=pc, retrieved on September 14, 2022.

[6] Li Bin, QIE Jinglin. Big Data, streaming Media and New Strategy of Video Content Production -- Inspiration from American TV series House of Cards [J]. Publication Wide Angle, 2015(03):89-91.

[7] Wang Lixia. Application of artificial intelligence technology in the field of integrated media [J]. Television Technology, 222,46(5):175-177.