

# The Reconstruction and Reflection of Artificial Intelligence on Commercial Animation Industry

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**Abstract:** With the maturity of technology, artificial intelligence technology is gradually moving towards the application stage. Based on the development and application status of artificial intelligence technology, this article puts forward the idea of applying artificial intelligence technology to commercial animation production. The application of artificial intelligence can run through the entire process of commercial animation production, improve production efficiency, and reshape the relationship between creators and consumers. In addition, the introduction of artificial intelligence will reduce the demand for labor for labor-intensive work in enterprises, and increase the demand for labor and capital for intellectually-intensive work in technological activities. It will help technology giants and industry leaders with large amounts of capital continue to dominate the development of the industry and seize more market share. However, we must use artificial intelligence technology rationally to find a balance between the economic and social and cultural attributes of commercial animation.

## 1. Introduction

In recent years, with the maturity of artificial intelligence technology, artificial intelligence technology has gradually entered the application stage. Artificial intelligence related to many disciplines, including linguistics, biological sciences, computer science, etc., all of which serve the development of artificial intelligence technology. The application of artificial intelligence technology can realize the imitation of human behavior, and can also quantify human behavior and emotions, and even exceed human thinking and behavioral abilities. Artificial intelligence belongs to the branch of computer science, and algorithm technology is also a part of artificial intelligence technology. The basis of algorithm technology is big data, that is, information technology. Big data is essentially a collection of certain types of data. Under the business logic, the needs of various industries are self-interested, that is, to obtain more economic benefits. At present, artificial intelligence technology has demonstrated its value in marketing, medical care, finance, education and other industries, and the application of artificial intelligence technology in the media industry has also begun to attract attention. In the media industry, artificial intelligence algorithm technology is the most commonly used, and the most discussed is the news industry, which is mainly used in news editing and personalized recommendations. Research and discussion on the application of artificial intelligence to the media field are also mainly concentrated in the field of journalism (eg: Jiang & Lu [1], 2017; Yu & Chen, 2018 [2]; Carlson & Zhang, 2018 [3], etc.). At the same time, in the animation and film industries, some companies have used artificial intelligence to analyze and write scripts. In the future, algorithm technology is likely to be widely used in a wider range of fields, such as commercial animation production. This article will focus on the impact of the introduction of artificial intelligence technology in the production of commercial animation on traditional commercial animation production, and put forward reflections on commercial animation production that rely on algorithm technology.

## **2. Features and production process of commercial animation**

At present, mainstream animation can be roughly divided into experimental animation and commercial animation. Among them, experimental animation refers to the exploration and experimentation in the form of sound and picture, audiovisual language, such as abstract animation, pioneer animation, etc. which the theme and plot of the film can be ignored. Experimental animation is based on the will of the director, and the animation used to express the director's style, aesthetics, and ideas, which is not for profit. So it is not restricted and constrained by the commercial production model. Contrary to experimental animation, commercial animation is aimed at the mass market for profit. Therefore, in the initial stage of commercial animation planning, it is necessary to consider the characteristics of the audience and expand the audience as much as possible. The emergence of artificial intelligence technology can provide a basis for initial planning and reduce uncertainty.

From the perspective of animation product production, animation production can be summarized into three parts, pre-production, mid-term production and post-production (Su, 2006[4]). Among them, the pre-production of animation includes the positioning and planning of animation projects, the setting of characters, the writing of scripts, and the design of scenes and sub-shots, etc., which belong to intelligence-intensive production. The mid-term production is the process of making each lens based on the preliminary design (Wang, 2018[5]). Compared with the preliminary production, it is a labor-intensive production. Post-production is the process of synthesizing the shots completed in the mid-term production and outputting them into a film. Post-production includes synthesis, sound production, picture editing and output, etc. Su(2006)[4] believes that post-production is similar to general film post-production, not only requires high-tech human resources, but also requires complex technology and strong capital, which is a capital-intensive production.

## **3. Application of artificial intelligence technology in commercial animation production**

The application of artificial intelligence can run through the entire process of commercial animation production. Among them, the pre-production requires the project team to create characters and scripts based on the positioning and planning of the animation project, and then conceive scenes and splits according to the needs of the script. Animated characters are the core of commercial animation and are related to the profitability of commercial animation. In the past, it was difficult to judge consumers' preferences, so creations were often based on past experience or a limited number of consumer research data. However, limited market experience is difficult to assist practitioners in capturing deeper consumer demand. Thus, there is a huge uncertainty about whether the designed character will be liked by the audience. Since artificial intelligence technology is a combination of biotechnology and information technology, the development of biotechnology indicates that human emotions will be easily captured by machines, and machines will be easier to detect the deeper human preferences and needs. The development of information technology provides a basis for the large amount of information collected by machine processing. Therefore, artificial intelligence can calculate what kind of characters can be loved by more audiences through experience learning and analysis of human needs and preference information.

In addition, whether an animated character is popular depends not only on the character's image, but also on the role played by the animated storyline. In a sense, the story serves the role. In the traditional production mode, the material of the script is generally derived from the IP of literary works, comics, or does not rely on the existing IP, but is created by the animation creation team. With the development of language technology, it is possible for computers to be competent in writing scripts based on literary works, comics or conceived story frames. Language technology is an important branch of artificial intelligence systems, in which natural language generation and natural language processing will help script writing. At present, the natural language generation system can organize some simple languages by itself, and with the upgrading of technology, the number and scale of its organization languages are getting larger and larger. In addition, there is a certain logic in the writing of the script. The programmer can also control the rhythm of the story by writing the corresponding

algorithm. The artificial intelligence will also learn to find the contradictory points of the story and where the climax points appear, which can more arouse the emotions of the audience. To make the story more fascinating. Natural language processing can understand the text and find the connection between the context. The application of natural language processing in script writing can involve reading a large number of works, and selecting IP suitable for adaptation from them, saving the time of reading processing. In addition, artificial intelligence can balance the storyline and picture quality when the project time and funds are limited, and maximize the efficiency of resource utilization.

Interim animation production is the production of animation shots, that is, drawing pictures and making scenes according to the sub-shot script. At present, artificial intelligence has been used in the generation of basic animations. In addition, the computer vision technology included in artificial intelligence technology can help correct unnatural parts of the scene. In the post-production process, the voice conversion technology in the language technology can convert the monologues in the script into speech and synthesize virtual sounds, thereby saving time for dubbing and sound production.

## **4. The reconstruction of the commercial animation industry by artificial intelligence**

### **4.1 Restructuring of industrial talent and capital demand**

The introduction of artificial intelligence will greatly reduce the labor demand of commercial animation production companies for labor-intensive work, and increase the demand for labor for intelligence-intensive work. This kind of intelligence-intensive work is mainly program technicians who master artificial intelligence technology. The primary task of artificial intelligence is to participate in cumbersome primary tasks and free animation creators to engage in more complex and higher-quality creations. Artificial intelligence can help animation production teams analyze audience data and verify patterns and trends. Artificial intelligence can also help screenwriters process a large number of files, select works suitable for adaptation, transform literary works into scripts with special format requirements and writing rules, and transform text descriptions of sounds into audio; understand emotions and analyze things. The objective environment transforms the dialogue text of the script into emotional human voice. These functions will greatly reduce the primary labor time of the creator. It should be noted that although artificial intelligence can provide creators with a basis for creation in the creative process, it cannot completely replace the work of creators at present. The relationship between artificial intelligence and creators is basically a cooperative relationship, that is, creators can create according to the suggestions put forward by artificial intelligence. Therefore, commercial animation production agencies will no longer need too many employees to engage in labor-intensive tasks such as drawing, but need to retain the intellectual-intensive tasks performed by the vast majority of employees, and there is an urgent need for artificial intelligence-related technical personnel. In addition, acquiring artificial intelligence technology requires high capital costs. This has increased the demand for capital for commercial animation production companies. Although the amount of funds for the introduction of artificial intelligence technology may be much higher than the amount of funds for hiring labor, the increased work efficiency and reduced business uncertainty of artificial intelligence will become factors that attract relevant companies to introduce artificial intelligence technology.

### **4.2 Restructuring of the industrial structure**

At present, the development of artificial intelligence presents a pattern that technology giants dominate R&D and application, professional technology companies lead to provide paid technical services. Considering that the key technology of artificial intelligence lies in the competitiveness of technology giants such as Amazon and Google, it is impossible for technology giants to open source the use of key artificial intelligence technologies. The introduction of artificial intelligence requires higher costs. These costs are mainly reflected in three aspects: the research and development or purchase of tools, the training of employees, the maintenance and upgrade of tools. For small and medium-sized animation production companies, there is a lot of economic pressure to bear these costs. Therefore, whether it is buying technology or self-developed, it is not a small challenge for small and

medium-sized companies. Capital and technology will become the most important barriers to entry into the industry. From this perspective, mature and reliable artificial intelligence technology is likely to be monopolized by technology giants, and large animation production companies with sufficient funds will be more likely to obtain this technology than small and medium animation production companies. Animation production companies that have obtained artificial intelligence technology will produce commercial animations more efficiently, suppress most companies that do not have artificial intelligence technology in terms of the quantity and quality of animation products, and seize more market share.

#### **4.3 Reconstruction of the relationship between production and consumption**

In addition, artificial intelligence technology has reshaped the relationship between commercial animation creators and consumers. The direct relationship of traditional commercial animation "creator-audience" will be transformed into the "creator-artificial intelligence-audience" relationship. In addition, consumers' consumption of commercial animation will be affected by the information provided by the algorithm. Artificial intelligence will be designed according to the characteristics and needs of consumers. Once the program is set, the created animation products and related derivatives are the results of artificial intelligence calculations. Consumers' consumption and evaluation of animation products and their derivatives will be the first feedback of consumer data to artificial intelligence. Artificial intelligence will further integrate and analyze the data, and form reports or suggestions to be fed back to creators, which provide a basis for a round of commercial animation creation.

#### **5. Reflections on the use of artificial intelligence technology**

As a media product, commercial animation products have multiple social attributes. First of all, the main goal of commercial animation is to obtain commercial profits, and there is no doubt about it has the commercial attributes. But at the same time, commercial animation products are important medium for the spread of social and cultural values, and have social and cultural attributes. The economic attributes require the commercial animation products operate based on business logic to help companies maximize their profits, that is, to grasp consumer preferences and make commercial animations based on their consumption preferences. However, just as many scholars are discussing the problems of introducing artificial intelligence into journalism, artificial intelligence algorithms can capture what consumer's want, why they are willing to spend time and money, and make commercial products based on consumer preferences. There is no consideration of what commercial products consumers really need, that is, there is a certain contradiction with the social and cultural attributes of commercial animation.

Secondly, the prejudice of artificial intelligence algorithms will also affect the social and cultural attributes of commercial animation. The objective neutrality of algorithms is not realistic. Objective neutrality is also inevitably affected by its own growth environment, educational background, knowledge structure and values. The limitation of the underlying data on which the algorithm is created can also lead to algorithm bias. Yu Ting and Chen Shi (2018)[2] pointed out that algorithms may preemptively acquiesce in certain value judgments on issues related to socio-economic, religious and ethnic divisions. And if a certain value deviating from the universal value can help commercial animation obtain considerable economic benefits, how to choose between the economic value of commercial animation and social cultural value may become a major problem.

Finally, unlike the application of artificial intelligence in the news industry, the cost of commercial animation production will be much higher, and it is more difficult to achieve personalized production. And if the goal of commercial animation production is to maximize the number of people in the target consumer market, it is necessary to extract the common points of their preferences from consumer information, which may also lead to a large number of homogenized products on the market, which is not conducive to the entire industry. Develop.

## 6. Conclusions

Based on the development and application status of artificial intelligence technology, this article puts forward the idea of applying artificial intelligence technology to commercial animation production. This article believes that artificial intelligence can be mainly used in the production of characters, scripts, shots, and sound in commercial animation production. The introduction of artificial intelligence will change the demand for talents and capital of enterprises: the demand for labor for labor-intensive work will decrease, the demand for labor for intellectually-intensive work in technological activities will increase, and the demand for capital will also increase. Secondly, the introduction of artificial intelligence will reshape the industrial structure. Tech giants and industry leaders with large amounts of capital will continue to dominate the development of the industry and seize more market share. Finally, the introduction of artificial intelligence has also changed the relationship between traditional production and consumption. Artificial intelligence technology will become a bridge between creators and consumers, helping creators create commercial animations that are more popular with consumers.

However, the introduction of artificial intelligence technology will also lead to some problems. The main contradiction lies in balancing the economic, social and cultural attributes of commercial animation. In response to this problem, the author of this article believes that artificial intelligence technology can be used by humans, which means that the subject of artificial intelligence technology is still human. Although artificial intelligence technology can help creators improve efficiency, liberate from low-level manual labor, and reduce market uncertainty, the "adoration" or "superstition" of artificial intelligence technology is not feasible and still requires gatekeepers to control the quality of commercial animation, especially when artificial intelligence technology is not yet mature. However, creators do not have to reject artificial intelligence technology. The creative suggestions provided by artificial intelligence technology may help creators open up the blind spots of creation and achieve more efficient creation.

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