International Journal for Housing Science and Its Applications
Publish August 10, 2025. Volume 46, Issue 4 Pages 1460-1469

https://doi.org/10.70517/ijhsa464132

# Research on the automatic generation and interaction technology of film and television characters based on image recognition and AI algorithm

**Zhenyao Jin[1,*] and Lei Yang[1]**
[1] School of Design and Art, Shandong Huayu University of Technology, Dezhou, Shandong, 253034, China
Corresponding authors: (e-mail: 17662091101@163.com).

**Abstract** With the rapid development of science and technology, the film and television industry is facing renewal and technological revolution, and as an indispensable part of the film and television industry, its creation form and spiritual connotation need to further adapt to the development of The Times. In this paper, through the research of automatic generation and interaction technology of film and television characters based on image recognition and AI algorithm, the 3 D pixel distribution survey of character characters is established, and with the help of the automatic generation and interaction technology model, the statistical table of spatial vector and modeling weight is established. With the calculation of the Wasserstein distance of spatial pixels, the weight of role parameters in the spatial position, and the weight distribution role effect weight is 30%, the modeling efficiency is 10%, the system performance is 20%, the accuracy is 10%, the recommendation degree is 10%, the theoretical risk is 10%, and the algorithm deviation is 10%. Through the test and regulation of model parameters, the parameter regulation between the three variables of AI algorithm and interaction technology meets the requirements of model modeling. The average value of the satisfaction index was 94.37%, the average value of the motivation survey index was 95.11%, and the average value of the interaction survey index was 93.59%, which shows that the model of the image recognition and AI algorithm can effectively improve the audience. In terms of user satisfaction, the scores are between 1 and 5, relatively scattered, and the activity dimension spans 3-8. The fraction on reciprocity of interaction feedback fluctuates between 3 and 5 with relatively small dispersion. Therefore, it can be found that although the technology has realized the automatic generation and interaction of film and television roles to a certain extent, the experience of different user groups is obvious, so as to improve the overall experience of all users in the process of automatic generation and interaction of film and television roles, and promote the wide application of the technology in the film and television industry.

**Index Terms** image recognition, AI algorithm, film and television role, interaction technology

## I. Introduction

With the rapid development of science and technology, the film and television industry is facing upgrading and technological revolution, and film and television role as an indispensable part of the film and television industry, its creation present form and spiritual connotation need to further adapt to the development of The Times, such as the film and television role automatically generation and the rise of interactive technology, for the industry brought new creative ideas and experience mode. Compared with the traditional creation mode of film and television characters, from the simple role modeling in the early stage to the current realization of highly realistic character generation and real-time interaction, the development process of this technology has not only witnessed the progress of science and technology, but also reshaped the future trend of the film and television industry, as shown in Figure 1. Character building in Toy Story movies needs to rely on physical models and makeup techniques, and it is highly dependent on artificial design and real physical models, which only uses digital technologies, such as 3D modeling techniques, to some extent. But there is still a lack of interaction with audiences in this early technology [1]. And with the innovation and breakthrough of artificial intelligence technology, the role of automation generation and interaction technology upgrade more and more frequently, such as AI technology in character modeling, animation manufacturing and virtual AR technology complement each other, greatly improve the efficiency of the film and television creation, and the figure, the emergence of the video model, make the creator only input text description, can quickly generate character image and scene. The use of Ai technology can promote the rise of film and television interaction, role interaction, improve and enhance the audience's sense of participation and immersion [2].

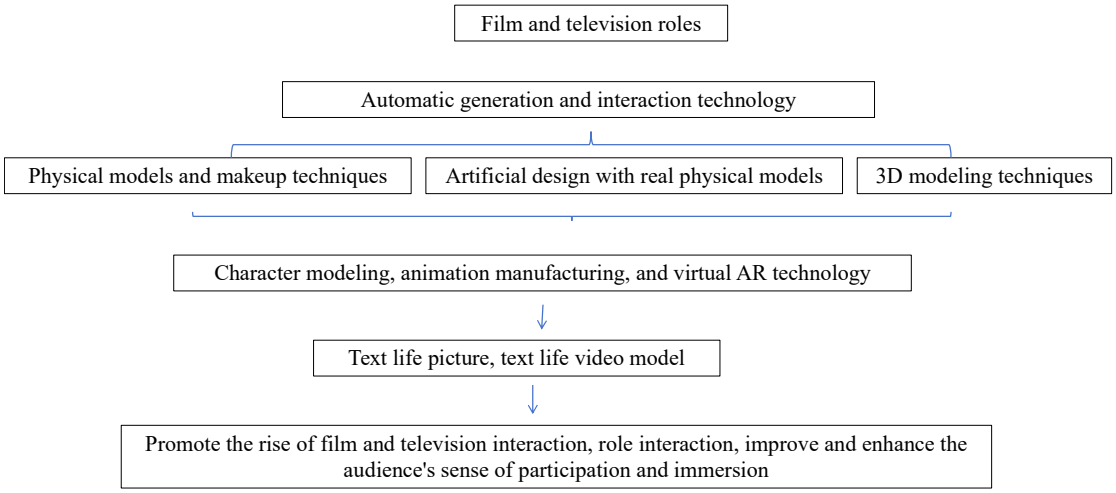


Figure 1: The development process of automatic character generation and interaction technology

In the research of automatic generation and interaction technology of film and television characters, the new character creation mode has the characteristics of high efficiency, intelligence and personalization. The automatic generation technology can effectively improve the creation speed of the role of film and television, such as Ai generate film and television role, creators only need simple instructions can effectively design a variety of styles of model to meet the needs of the designer, without tedious modeling process, especially the scene design and group, large-scale reuse, etc. At the same time, with the help of Ai, the collection and sorting of big data, such as statistical analysis of the character, emotion and behavior of film and television characters, so as to facilitate the audience to understand the plot and realize intelligent interaction and personalized movie watching experience.As shown in Figure 2, the characteristics and basis of personalized film and television character design are shown. It can be found that in the design of personalized film and television characters, the deep learning system is needed, which is the core of automatic interaction technology. Through the classification and processing of a large number of images, the characters have stronger generation ability, which can rely on the deep learning model of antagonistic network and variational autoencoder. Such as the generator and discriminant confrontation training, can generate realistic character images and videos. Natural language processing can enrich the feasibility of the interaction between the audience and the movie characters. Through semantic understanding and emotional analysis, AI characters can accurately understand the audience's intention and make responses in line with the character setting. Computer graphics can provide certain technical support for movie character modeling, rendering and animation, such as 3D scene construction with the help of neural radiation technology, and animation technology based on physical simulation to improve the fluency of character movements. By using automatic generation and interaction technology to reduce production costs and dependence on real actors and physical scenes, a variety of ways to achieve their own innovation and creativity. It can also improve the creative efficiency of creators, quickly generate role models, and the mental outlook and connotation of actions and roles, and shorten the preparation cycle. At the same time, it can also increase the interaction degree between the characters of the film personnel and the audience, and increase the automatic generation and interaction technology. But it also has a large deficiency, such as the lack of the unique emotion and creativity of human artists. When dealing with complex emotional expression and deep themes, the works generated by AI often appear blunt and unappealing, and may also appear understanding bias and communication barriers.

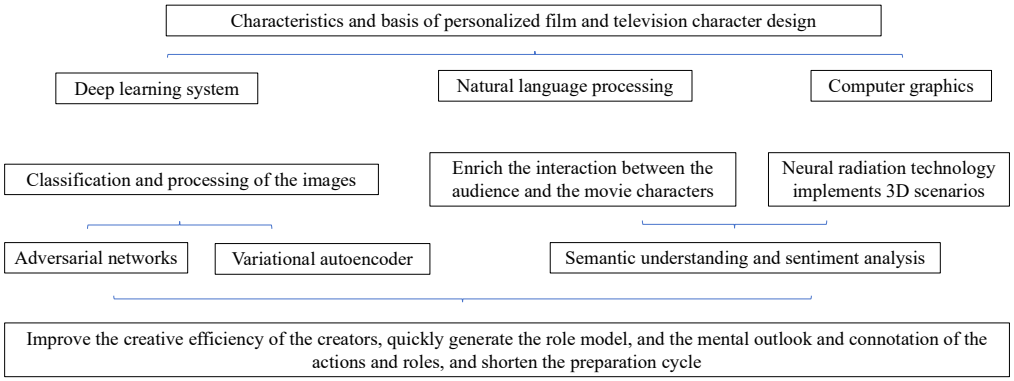


Figure 2: Characteristics and basis of personalized film and television character design

Image recognition and AI algorithm application2. Image recognition and AI algorithm application.

The joint use of image recognition and AI algorithm can solve the above problems to a certain extent. Image recognition and AI algorithm can greatly simplify the process of film and television character design, analyze and learn massive image data, and quickly generate a variety of character design drafts, providing a rich source of inspiration [3]. The combination of image recognition and AI algorithm can identify and deconstruct the images of real scenes, and rebuild the virtual scenes based on the algorithm, and quickly generate realistic large scenes such as urban landscape and natural environment. It not only reduces the cost of scene construction, but also enables the creators to easily create a variety of fantasy scenes that are difficult to shoot in real life. Audiences can interact with AI characters in real time with the help of image recognition devices. The AI recognizes the audience's facial expressions and action images, understands the audience's emotions and intentions, and responds accordingly. At the same time, it can also accurately analyze the audience's preferences. Therefore, the emergence of this technology has expanded the boundaries of the film and television industry and given birth to new business models. From innovating the creation process to improving the audience experience, from reducing the production cost to expanding the industrial boundary, creating new commercial value has injected new impetus into the diversified development of the film and television industry [4]. Figure 3 shows a general survey of the automatic generation and interaction technology of traditional film and television characters, and on the satisfaction, interactivity and personalized survey of different groups of people. It can be found that the population satisfaction between age 6 and 18 years is 70.58%, The interactive motivation was 67.80%, Personalized needs were 72.12%, Population satisfaction rate between 19 and 35 years in the age group was 63.49%, The interaction motivation was 63.68%, Personalized needs are 64.08%; The population satisfaction between the age group 36 – 55 years was 66.11%, The interactive motivation was 65.80%, Personalized needs are 65.45%; Population satisfaction rate between 56 and 80 years in the age group was 69.44%, The interaction motivation was 69.63%, Personalized needs were 68.75%. This shows that different groups of people have different needs of film satisfaction, interaction and individualization, and the satisfaction, participation rate and interaction of all the surveyed people are less than 75%, which shows that there is more room for progress. Technological innovation, role optimization and other technologies, such as image recognition and AI algorithm, can greatly simplify the design process of film and television character design, improve the creative efficiency of creators, quickly generate the role model, the mental outlook and connotation of actions and roles, and shorten the preparation cycle. At the same time, it can also increase the interaction degree between the characters of the film personnel and the audience, and increase the automatic generation and interaction technology [5].

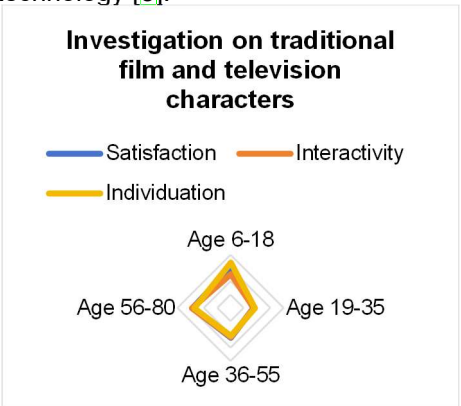


Figure 3: Investigation on the automatic generation and interaction technology of traditional film and television characters

Table 1 for image recognition and AI algorithm in the role of application and score, can be found in the mainstream movie Chinese film number is less but high quality, using technology including not limited to artificial

intelligence, virtual reality, digital sensing, AI leading production, AI test as the core of the plot setting, with the help of AI to build science fiction adventure scene in the fields of technology. In terms of production countries, the United States is a major producer of AI technology films, with nine out of the 15 films coming from the United States. AI is also used to construct human-machine emotional interaction, explore ethical dilemmas, and create virtual characters, which greatly enriches the narrative mode and artistic expression of the film. In terms of film style and theme, most of these works are about science fiction themes, to build the future world through AI technology, and to explore the relationship between people and technology [6]. This table reveals the huge potential of AI technology in the field of film and television, which not only brings new possibilities for film creation, but also brings a richer and more diversified viewing experience to the audience. With the help of Ai, big data can be collected and organized, such as statistical analysis of the character, emotions and behaviors of film and television characters, so as to facilitate the audience to understand the plot and realize intelligent interaction and personalized movie-watching experience.

Table 1: Application and scoring of image recognition and AI algorithm in movie characters

| Serial Number | Movie Title | Country | Abbreviation of Applied Technologies | Douban Rating |
|---|---|---|---|---|
| 1 | Nezha 2 | China | AI Special Effects | 9.9 |
| 2 | Our T2 Remake | USA | AI-Driven Production | 9.6 |
| 3 | AI Infinite Film (AI-IF) | Collaboratively created by multiple teams, not a single producing country | Deep Learning Algorithms | 9.4 |
| 4 | Intelligent Bionic Film Reincarnation | Concept proposed by China | Integration of technologies from multiple fields such as artificial intelligence, virtual reality, and digital sensing | 9.3 |
| 5 | Bicentennial Man | USA | Exploration of human-machine emotional interaction through AI | 9.1 |
| 6 | A.I. Artificial Intelligence | USA | Construction of a future sci-fi world and exploration of ethical dilemmas through AI | 9.0 |
| 7 | Her | USA | Creation of a virtual character for a human-machine romance through AI | 8.8 |
| 8 | Ex Machina | UK | Plot centered around AI testing | 8.7 |
| 9 | Westworld (Strictly a TV series, but the plot heavily involves AI) | USA | Enabling robots to develop self-awareness based on AI | 8.5 |
| 10 | Blade Runner 2049 | USA | Exploration of the boundaries between replicants and humans through AI | 8.3 |
| 11 | The Creator | Participated by multiple production parties, no clear single country | Creation of characters and scenes in a future world through AI | 8.2 |
| 12 | I Am Mother | Australia | Creation of a self-aware robot character through AI | 8.1 |
| 13 | Deadly AI | UK | Creation of a thrilling atmosphere and plot conflicts through AI | 8.0 |
| 14 | Alien Adventure | USA | Creation of a sci-fi adventure scene through AI | 7.9 |
| 15 | Upgrade | USA | Achievement of the protagonist's body upgrade and adventure through AI | 7.5 |

## II. Establishment and application of automatic and television role generation and interactive technology model

### *II. A.Automatic role generation and interaction technical model establishment*

Film character creation began in the script stage, such as I am not in the movie, writers from the prototype of real life and social phenomenon, create a mercenary traders, using simple scene description and real character selection and feelings, outline the basic outline of the role, including the character characteristics, appearance, background story and role in the development of the plot [7]. The next is the specific shaping of roles. With the support and help of various technologies, it can realize the concise establishment and modeling of simple

environment and shaping. For example, the large model of the national style clothing can be built based on the knowledge of the clothing and the modern aesthetics of the historical dynasties, combined with the specific positioning and design of the model characters, so as to create a costume modeling in line with different dynasties and styles. In the specific use process, it can realize simple operation and rapid screening through the analysis and matching of text and image. Specifically, designers only need to input the corresponding keywords or reference pictures, and AI can quickly generate a variety of design schemes for people to choose from [8]. It can also be divided to the fine granularity, the color, dark lines, fabric texture and other fine adjustment. In terms of character modeling of specific characters, different technologies can overcome the complicated traditional 3D character production process, which needs to go through multiple links such as model carving, material mapping, hair making, binding and animation. The automatic generation of the character model uses Ai to avoid a lot of time needed by manual drawing and save time and the cost of painting. However, the specific details and charm of the character model still need artificial modification, so as to highlight the spiritual connotation and performance tension of the characters [9] (Figure 4).

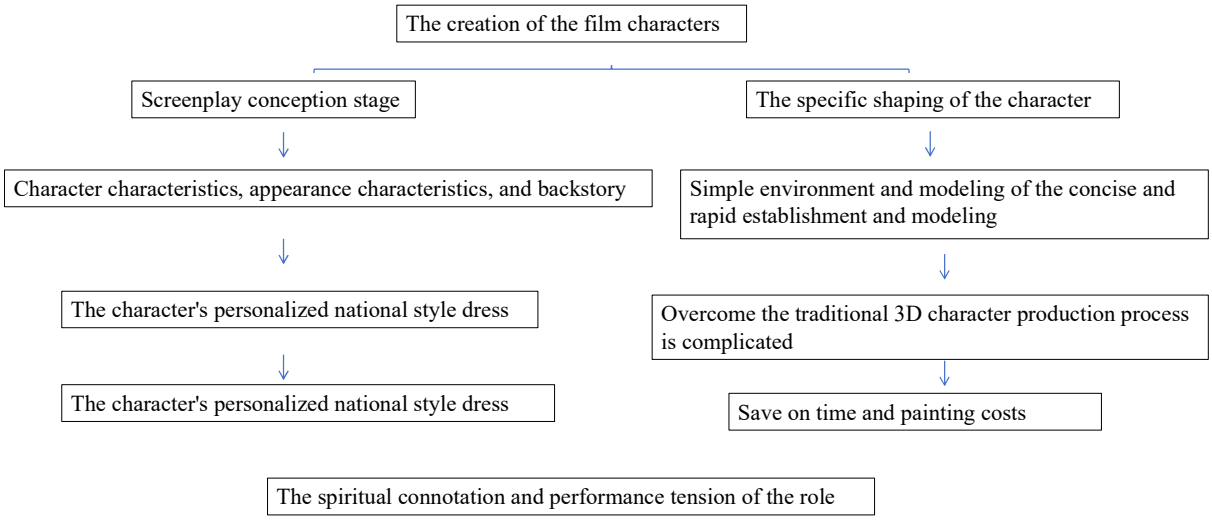


Figure 4: Automatic generation of film and television characters and interactive technology model establishment

In the process of automatic generation and interactive technical model of film and television characters, it is necessary to ensure that every element of each position in the input sequence in the model can be queried and represented.

$$q^i = W^q x^i \quad (1)$$

$$k^i = W^k x^i \quad (2)$$

$$v^i = W^v x^i \quad (3)$$

where Wq, Wk, and Wv are the matrix vectors of the corresponding proportional positions.For each pair of qi and ki, one can compute its positional element e, as in the following below:

$$e = \frac{k^i q^i}{\sqrt{d_k}} \quad (4)$$

where dk represents the dimension of the data and dk represents the multiplication of q and k.The calculation for a requires normalization to make the weight analysis more accurate, and the normalization model is as follows:

$$a = \mathrm{softmax}(e) \quad (5)$$

The above data are then weighted to weight the values to obtain the output function Attention:

$$\mathrm{Attention}(x) = \sum_{j=1}^{n} a v^i \quad (6)$$

The whole process is matricized:

$$\mathrm{Attention}(q, k, v) = \mathrm{softmax} \sum_{j=1}^{n} a v^i \quad (7)$$

Table 2 shows the proportion of the influence of matrix vector position on role scoring and personalized design in the above films. Can be found in the role score, personalized design of spatial location factor e present certain three-dimensional spatial distribution rule, can be found for the spatial location factor of personalized design relative to the role score more discrete, its distribution is more widely, this will lead to in the process of computing modeling need more calculation time for modeling model. In the modeling process, how to optimize the spatial pixel distribution of roles to ensure the accuracy and characteristics of role images is the key to model optimization. The spatial coordinates of the pixels represent the coordinates of x, y, and z, respectively. The role score, a weight

analysis of personalized design can find that pixel locations have different weight factors for different samples, which is related to spatial position represents a certain dispersion between the data. In general, the average weight of personalized design is higher than the average weight of role score. The determination of weight factor can indicate the difficulty of role construction and modeling at different pixel positions. The higher the weight factor, the higher the need for accurate modeling at that position. This can selectively optimize the role modeling process and save modeling time and energy [10].

Table 2: Movie role shaping spatial vector and modeling weight statistics

| | Character score | | Personalized design | |
|---|---|---|---|---|
| k | a | e | a | e |
| 1 | 0.26 | (1,1,0) | 0.25 | (1,1,0) |
| 2 | 0.27 | (1,2,1) | 0.22 | (1,2,1) |
| 3 | 0.3 | (2,3,2) | 0.15 | (2,3,2) |
| 4 | 0.31 | (2,1,3) | 0.23 | (2,1,3) |
| 5 | 0.13 | (3,2,4) | 0.2 | (3,2,4) |
| 6 | 0.24 | (3,3,0) | 0.29 | (3,3,5) |
| 7 | 0.16 | (4,1,1) | 0.13 | (4,1,6) |
| 8 | 0.21 | (4,2,2) | 0.14 | (4,2,7) |
| 9 | 0.17 | (4,3,0) | 0.15 | (4,3,8) |
| 10 | 0.27 | (5,1,1) | 0.29 | (5,1,9) |
| 11 | 0.3 | (5,2,2) | 0.32 | (5,2,10) |
| 12 | 0.22 | (5,3,1) | 0.29 | (5,3,11) |
| 13 | 0.2 | (6,1,2) | 0.19 | (6,1,12) |
| 14 | 0.23 | (6,2,3) | 0.29 | (6,2,13) |
| 15 | 0.2 | (6,3,4) | 0.15 | (6,3,14) |

### *II. B.Calculation of the Wasserstein distances for the spatial pixels*

Wasserstein is a measure of the distance between two probability distributions. In this paper, it can be used to determine the distance between the positions of role pixels. It can be used to replace the traditional GAN distribution measure similarity index to enhance the position extraction ability of inconvenient features in the domain [11]. The specific calculation procedure can be expressed as:

$$\mathrm{Wasserstein}(\mathrm{P},\mathrm{Q}) = \inf\|\mathrm{x}-\mathrm{y}\| \tag{8}$$

Where P, Q represent two different data distributions, and x-y represents the maximum distance expectation in sampling. To calculation can use the Sinkhon constraint algorithm:

$$\mathrm{S_m} = \{\mathrm{D}^1, \mathrm{D}^2, \mathrm{D}^3, \cdots \mathrm{D}^{\mathrm{m}}\} \tag{9}$$

$$\mathrm{C_m} = \{\mathrm{D}^{\mathrm{i}}, \mathrm{D}^{\mathrm{j}}\} \tag{10}$$

Cm is the m th new set formed from any taking the number of 2 groups in the n group data set Sm.

$$\mathrm{MMD} = \sum_{\mathrm{m}=1}^{\mathrm{m}} \mathrm{kS_m}\|\mathrm{C}\| \tag{11}$$

The MMD is the maximum mean difference, and the k is the multi-kernel Gaussian coefficient.Optimize the weight of the role parameters in the spatial position, so a set of standard weight analysis tables is needed to better count and visualize the location characteristics and interaction transportation of the image recognition and AI algorithm [12]. Table 3 is the weight output table of the movie character data visualization model. It can be found that the role effect weight is 30%, the modeling efficiency is 10%, the system performance is 20%, the accuracy is 10%, the recommendation degree is 10%, the theoretical risk is 10%, and the algorithm deviation is 10%. This part of the weight needs to be further optimized.

Table 3: Weight output of the movie character data visualization model

| Dimension | Metric | Weight |
|---|---|---|
| Role effectiveness | Project response theory (IRT) knowledge mastery accuracy | 30% |
| Modeling efficiency (time / progress ratio) | The Learning Management System (LMS) | 10% |
| System performance | Application Programming Interface (API) response delay | 20% |
| Recommended accuracy (cofiltered F1 score) | Personalized engine | 10% |
| Precise degree | The gap between urban and rural performance has been narrowed | 10% |
| Ethical risk | The incidence of data leakage | 10% |
| Algorithm deviation index (difference index DI value) | | 10% |

### *II. C. Test and regulation of the model parameters*

To further regulate the parameters during model running, the variables of the model are tested to avoid cross-relationships between different independent variables [13]. Thus the universal detection function is:

$$F(x) = P(X \le x) \tag{12}$$

$$q(a) = \inf\{x: F(x) \ge a\} \tag{13}$$

$$F_{n(x)} = n^{-1} \sum_{i=1}^{n} I(X_i \le x) \tag{14}$$

$$q_{n(a)} = \inf\{x: F(x) \ge a\} \tag{15}$$

Then F is the independence coefficient and P is the independence judgment function, where I is the independent variable and q is the independence criterion.

Since this paper is a study on the automatic role generation and interaction technology based on image recognition and AI algorithm, it is necessary to calculate the nonlinear relationship between the independent variable sample data, so the new optimization model is:

$$Q(a) = \sum_{k=1}^{K} \sum_{b=0}^{1} \frac{[P(Y=k)[P(Z(a)=b)] - (C(a)=b)(Z(a)=b)]}{[P(Y=k)]P(Z(a)=b)} \tag{16}$$

$$Z(a) = I\{X - qx(a) > 0\} \tag{17}$$

$$q_x(a) = \inf\{x: n^{-1} \sum_{i=1}^{n} I(x_i < x)\} \tag{18}$$

$$Z_i(a) = I\{x_i > q_x(a)\} \tag{19}$$

$$P(Z(a) = b) = n^{-1} \sum_{i=1}^{n} I(Z(a) = b) \tag{20}$$

$$P(Y = k) = n^{-1} \sum_{i=1}^{n} I(k) \tag{21}$$

$$C(Z(a) = b) = n^{-1} \sum_{i=1}^{n} I(Z(a) = b) \tag{22}$$

$$C(Y = k) = n^{-1} \sum_{i=1}^{n} I(k) \tag{23}$$

The regulation parameters of Q variable stipulate that when Q is less than 3%, the regulation between parameters meets the requirements. The k is the data sample, P and C separate variables, b represents the pixel position weight of the sample, and Z represents the judgment function. In the independence judgment, the AI algorithm and the parameters, and the results are shown in Table 4. It can be found that in image recognition, the Q value of AI algorithm and interaction technology is less than 3%, which shows that the parameter regulation between the three variables of AI algorithm and interaction technology meets the requirements of model modeling, which shows that the parameter modeling of the pixel regulation of the movie role accurately meets the needs of the audience. However, the data between different samples show a certain amount of discrete distribution, which indicates that the pixels of the model show irregular changes in space. For different samples, the weight of interaction technology is basically more than 50%, accounting for more than half, while the weight range of image recognition and AI algorithm is basically the same, which shows that interaction technology is more important for the audience experience.

Table 4: Statistics of regulatory parameters and pixel weight factors

| | Image recognition | | AI algorithm | | Interactive technique | |
|---|---|---|---|---|---|---|
| k | Q | b | Q | b | Q | b |
| 1 | 2.00% | 0.28 | 1.48% | 0.18 | 2.83% | 0.54 |
| 2 | 1.57% | 0.3 | 1.20% | 0.24 | 1.51% | 0.46 |
| 3 | 1.64% | 0.14 | 1.86% | 0.21 | 1.39% | 0.65 |
| 4 | 1.00% | 0.2 | 2.02% | 0.21 | 1.02% | 0.59 |
| 5 | 1.08% | 0.31 | 2.74% | 0.24 | 2.26% | 0.45 |
| 6 | 1.18% | 0.29 | 2.70% | 0.22 | 1.50% | 0.49 |
| 7 | 2.09% | 0.19 | 1.93% | 0.23 | 2.18% | 0.58 |
| 8 | 1.40% | 0.32 | 1.24% | 0.16 | 2.18% | 0.52 |
| 9 | 2.16% | 0.19 | 2.33% | 0.19 | 1.09% | 0.62 |
| 10 | 2.52% | 0.2 | 0.99% | 0.32 | 1.16% | 0.48 |
| 11 | 2.44% | 0.21 | 0.96% | 0.28 | 2.74% | 0.51 |
| 12 | 2.12% | 0.28 | 1.22% | 0.25 | 2.62% | 0.47 |
| 13 | 1.04% | 0.16 | 2.24% | 0.2 | 2.62% | 0.64 |
| 14 | 2.31% | 0.18 | 2.24% | 0.14 | 2.66% | 0.68 |
| 15 | 2.68% | 0.32 | 0.93% | 0.16 | 2.52% | 0.52 |

## III. Results and discussion

Figure 5 shows the survey of the automatic generation and interaction technology of film and television characters after using image recognition and AI algorithm technology. We took the satisfaction, enthusiasm and interactivity as indicators. It can be found that all the optimized role indicators increased significantly, and the overall user satisfaction dimension was maintained at a high level, with the fluctuation range between 90.64% to 98.62%. In terms of activity, the data were also considerable, with the fluctuation range of 90.61% to 98.61%, and the reciprocity of interactive feedback, the score of 89.44% to 98.62%. The user experience may vary under different scenarios or functional modules. Satisfaction index averaged 94.37%, the average of 95.11%, enthusiasm survey interaction survey index average of 93.59%, it shows that again used image recognition and AI algorithm technology for movie role building model can effectively improve the movie role for the impression of the audience, enrich the image characteristics of the movie role, deepen the interactive role and the audience. Follow-up research should focus on optimizing the algorithm, reduce performance fluctuations, improve the stability of the system, further enhance users' experience in the automatic generation and interaction process of film and television roles, and provide more solid technical support for digital innovation in the film and television industry.

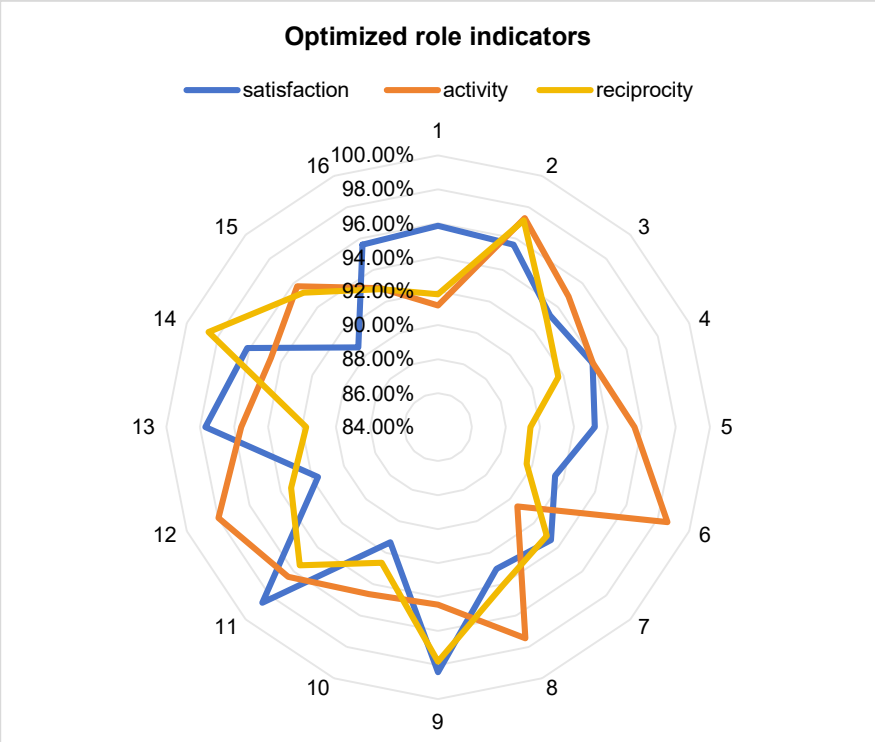


Figure 5: The optimized role indicator survey

Figure 6 shows the discrete type distribution of the above scoring indicators. In terms of user satisfaction, the score is between 1 and 5, which is relatively scattered, and some users give high evaluation, while others have low satisfaction, which may be related to personal preferences and the fit of the generated role and expectations. The score span of the activity dimension is 3-8, and the large span of the data indicates that the enthusiasm of users to participate in the interactive activities of film and television roles is uneven. The survey of the dispersion can reflect the authenticity and reliability of the survey data to some extent, while the selection of the dispersion index should be based on the real situation and reference factors of the model and the survey object. In this paper, the above satisfaction, interactivity and activity as the survey index are selected to be consistent with the above population survey, and also with the parameter regulation data, which requires that the data should be consistent in the discrete survey. However, the score of reciprocity of interactive feedback fluctuates between 3 and 5, and the dispersion is relatively small, which means that most users get good feedback consistency when interacting with film and television roles, and most users can get more reasonable interactive responses. The high dispersion of satisfaction and activity data reflect the shortcomings of the system in meeting the diverse needs of users. Subsequent research needs to optimize the algorithm to improve the personalized level of role generation, simplify the interaction operation process, enhance the interaction interest, and reduce the dispersion degree of data in each dimension.

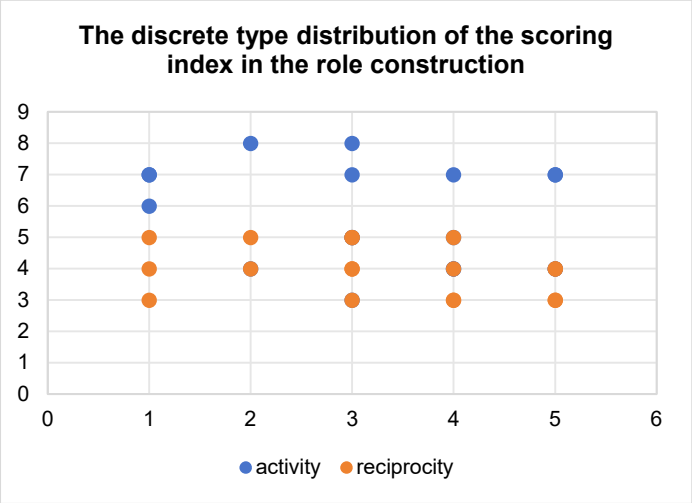


Figure 6: Discrete type distribution of scoring indicators in role construction

## IV. Conclusion

In this paper, through the research of automatic generation and interaction technology of film and television characters based on image recognition and AI algorithm, the 3 D pixel distribution survey of character characters is established, and with the help of the automatic generation and interaction technology model, the statistical table of spatial vector and modeling weight is established. With the calculation of the Wasserstein distance of spatial pixels, the weight of role parameters in the spatial position, and the weight distribution role effect weight is 30%, the modeling efficiency is 10%, the system performance is 20%, the accuracy is 10%, the recommendation degree is 10%, the theoretical risk is 10%, and the algorithm deviation is 10%. Through the test and regulation of model parameters, the parameter regulation between the three variables of AI algorithm and interaction technology meets the requirements of model modeling. The average value of the satisfaction index was 94.37%, the average value of the motivation survey index was 95.11%, and the average value of the interaction survey index was 93.59%, which shows that the model of the image recognition and AI algorithm can effectively improve the audience. In terms of user satisfaction, the scores are between 1 and 5, relatively scattered, and the activity dimension spans 3-8. The fraction on reciprocity of interaction feedback fluctuates between 3 and 5 with relatively small dispersion. Therefore, it can be found that although the technology has realized the automatic generation and interaction of film and television roles to a certain extent, the experience of different user groups is obvious, so as to improve the overall experience of all users in the process of automatic generation and interaction of film and television roles, and promote the wide application of the technology in the film and television industry.

## Reference

[1] Geng, J.; Chai, C.S.; Jong, M.S.Y.; Luk, E.T.H. Understanding the pedagogical potential of Interactive Spherical Video-based Virtual Reality from the teachers' perspective through the ACE framework. Interact. Learn. Environ. 2019, 1–16.
[2] Yang, J.R.; Tan, F.H. Classroom Education Using Animation and Virtual Reality of the Great Wall of China in Jinshanling: Human Subject Testing. In Didactics of Smart Pedagogy; Springer: Cham, Switzerland, 2019; pp. 415–431.
[3] Yang, J.R.; Tan, F.H. Classroom Education Using Animation and Virtual Reality of the Great Wall of China in Jinshanling: Human Subject Testing. In Didactics of Smart Pedagogy; Springer: Cham, Switzerland, 2019; pp. 415–431.
[4] Shen, C.-W.; Min, C.; Wang, C.-C. Analyzing the trend of O2O commerce by bilingual text mining on social media. Comput. Hum. Behav. 2019, 101, 474–483.
[5] Hull, L., Mandy, W., Lai, M. C., . Development and validation of the Camouflaging Autistic Traits Questionnaire (CAT-Q). Journal of Autism and Developmental Disorders, 2019.49, 819–833.
[6] Choe, N.; Zhao, H.; Qiu, S.; So, Y. A sensor-to-segment calibration method for motion capture system based on low cost MIMU. Measurement 2019, 131, 490–500.
[7] Hudson, S.; Matson-Barkat, S.; Pallamin, N.; Jegou, G. With or without you? Interaction and immersion in a virtual reality experience. J. Bus. Res. 2019, 100, 459–468.
[8] Conn, R., & Bhugra, D. The portrayal of autism in Hollywood films. International Journal of Culture and Mental Health, 2012.5(1), 54–62.
[9] Jones, S.; Dawkins, S. The sensorama revisited: Evaluating the application of multi-sensory input on the sense of presence in 360-degree immersive film in virtual reality. Augment. Real. Virtual Real. 2018, 7, 183–197.
[10] Harstad, E., Huntington, N., Bacic, J., & Barbaresi, W. Disparity of care for children with parent-reported autism spectrum disorders. Academic Pediatrics, 2013.13, 334–339.
[11] Yu, J. A light-field journey to virtual reality. IEEE Multimed. 2017, 24, 104–112.
[12] Protopapadakis, E.; Voulodimos, A.; Doulamis, A.; Camarinopoulos, S.; Doulamis, N.; Miaoulis, G. Dance pose identification from motion capture data: A comparison of classifiers. Technologies 2018, 6, 31.

[13] Jensen, Michael C., and William H. Meckling. Theory of the firm: Managerial behavior, agency costs and ownership structure. In Corporate Governance. Farnham: Gower, 2019.77–132.