Research on the Application of Computer Digital Animation Technology in Film and Television

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Abstract. With the iterative progress of computer tech, its application in animation, film and television art is more and more in-depth, and greatly promotes the significant improvement of film and television audio-visual experience, thus greatly improving the audience's viewing experience. Based on this, this paper first analyses the role and value of computer digital animation tech, then studies the key tech of computer digital animation, and finally gives the utilization of computer digital animation tech in film and television.

Keywords: Computer, Digital Animation, Film and Television

1. Introduction

With the iterative maturity and progress of computer tech, it has been widely studied and popularized in many fields, especially in the field of film and television, which greatly promotes the development of film and television culture represented by digital animation tech. On the other hand, the iterative growth of social economy promotes the significant growth of film and television culture and art represented by animation. The maturity of computer digital animation tech greatly promotes the animation film and television creation techniques and the production level of animation language. The effective integration of digital images generated by computer digital animation tech and computer software and hardware can effectively promote the refinement and connotation of character image, landscape and related content modeling in animation.

On the one hand, computer digital tech can improve the display effect of animation film and television, so as to strengthen the sensory impact on the audience; on the other hand, with the deepening of the utilization of computer digital media tech, the animation film and television industry has ushered in the development opportunity of transformation and upgrading. With the help of computer digital tech, the animation industry is transforming from children oriented group to all age group, and the display form is constantly optimized and upgraded from two-dimensional display to
three-dimensional display [1]. As the language of animation dynamic picture, lens has an important position and value in animation works. It can significantly promote the evolution of animation plot, so as to realize the dynamic development of animation language.

In addition, the utilization of computer digital animation tech in film and television can effectively promote the maturity of film and television works, and further strengthen the audience's film and television appreciation level and film and television production ability. Animation, film and television art with the blessing of digital computer can be significantly improved in the creative language, techniques and technical means. In the audio-visual language level of animation film and television art, computer digital tech can significantly improve the audio-visual experience, thus greatly improving the audience's viewing experience.

In short, the utilization of computer digital tech in animation film and television promotes the real-time, intuitive and accurate shaping progress of animation pictures [2]. And the computer digital tech can make the animation film and television narrative mode to the spectacle image mode evolution, with the help of the visual impact of the screen to enhance the animation pleasure effect. With the help of computer digital tech to generate animation special effects lens helps to further deepen the spirit of the work, enhance the artistic and practical animation film and television works. Therefore, the research on the utilization of computer digital animation tech in film and television has important practical value.

2. The function and value of computer digital animation tech

2.1. Classification of computer digital animation

Computer animation works as a kind of active picture art endowed with certain vitality, in addition to the utilization in the field of film and television, it is also widely used in several aspects as shown in Figure 1. Computer animation is not only an art form, but also a technical expression. It is an animation form generated by modern computer image tech.

![Figure 1. Utilization fields of computer digital animation](image)

In the production process of computer animation, the computer is a production tool, mainly used to generate a series of dynamic images for real-time playback [3]. Computer tech can produce two-dimensional animation can also produce three-dimensional animation, and according to the difference of classification can be divided into realistic animation, abstract animation, freehand animation and other different types and forms. In addition, according to the differences of audio-visual language, computer animation can be divided into lens language style and sound effect style.
2.2. The production process of computer digital animation

The production process of computer digital animation mainly includes script creation, modeling design, script design, background and sound recording. At the script creation level, the plot design is realized with the help of computer tech [4]. Secondly, in the modeling design level, with the help of computer to achieve the design of animation character form. In addition, in the animation story script design level, with the help of computer tech to realize the story script shot design, so as to realize the dynamic description of the script shot. In the process of animation background design, it mainly uses computer tech to achieve the design of the lens. In the sound recording level of animation, the matching of animation action and sound production is realized.

2.3. The function of computer animation tech

The utilization of computer image and graphics processing tech in animation is mainly through programming or animation software to produce animation scenes. Among them, the frame processing of animation image shows dynamic effect in the form of continuous playing [5]. The key of computer animation tech is mainly reflected in the animation software and hardware level. Compared with the traditional animation design, computer animation tech has the advantages of flexibility, easy control and realistic effect. It can be seen that computer digital animation tech has a strong function and value in animation creation. It can not only preview the effect of animation in real time, but also intelligently generate the animation space.

3. Key tech of computer digital animation

3.1. Key frame tech

In the creation process of animation film and television, in order to achieve the dynamic display effect of the picture, we need to connect the animation frames effectively, so that the static picture shows the dynamic effect. Secondly, with the help of the key screen in the continuous action, the effective control of the action which has a great influence on the action change is realized. Key frame tech creates graphics in animation design, which can play animation images frame by frame over time, so that the audience can see the connected animation works [6]. Placing the graphics in the key frame of the layer can display the graphics dynamically.

3.2. Process animation

With the help of the process of computer digital animation to describe the motion or deformation of objects in animation, in the computer digital animation, the object deformation is controlled by computer software [7]. In the production process, the animation model is mainly generated through physical deformation or geometric deformation to control the process of particles and groups. In the particle system, the shape parameters of particles are controlled by animation script to achieve the close of group members. In cloth animation and water wave simulation dynamics, it mainly uses various decorations to realize the authenticity simulation of animation effect, and uses sine wave to realize the organic simulation of water wave amplitude and phase.

3.3. 3D animation tech
Computer 3D animation tech is a tech that comprehensively utilizes the knowledge of several disciplines and fields as shown in Figure 2 below. It generates continuous virtual reality pictures with the help of computer [8]. First of all, the realistic scene model is established, and the appropriate materials and maps are selected to build a realistic animation scene, and combined with different light sources to achieve a comprehensive simulation of the scene effect. Secondly, the use of computer multimedia software, animation image production and editing, as well as image rendering and motion matching.

![Diagram](image)

**Figure 2.** Computer 3D animation tech related fields

In addition, in the animation film and television special effects production level, with the help of computer software, it could realize the production and rendering of architectural renderings and architectural animation for the first time.

4. **Utilization of computer digital animation tech in film and television**

4.1. **Utilization of digital special effects tech in film and television**

The traditional film and television creation is mainly about the sequence of the beginning and the end of the film, and editing them. With the maturity of computer digital tech represented by digital special effects, the utilization of this tech significantly improves the efficiency of video production, and realizes the efficient combination of background and scene. Secondly, digital special effects tech makes the production process of film and television more flexible, and can realize the organic integration of film and television content [9]. In addition, computer graphics production, modification and digital synthesis tech can significantly improve the artistic effect and aesthetic value of film and television works. Through the organic integration of digital tech, culture and creator's emotion, the connotation and cultural heritage of film and television works can be significantly improved.

4.2. **The organic combination of computer animation tech and film and television**

The organic combination of computer animation tech and film and television is mainly reflected in the form and content, film and television style and the material of real shot. Among them, in the unified level of form and content, the expression of computer animation tech also has a unified theme. While computer tech improves the form of film and television expression, it also puts forward higher requirements for the artistic promotion of its content [10]. Secondly, in the aspect of film and television stylization, visual image tech is used to deal with the style of film and television works, so as to unify the overall style. In the material level of lens, the utilization of computer synthesis software makes the later stage of film and television has a very rich means to realize the visual image redesign.
In addition, the utilization of computer animation tech makes the film and television from emotional communication to the optimization and unification of visual effect and content, the film and television synthesis means from complex and uncertain factors to more accurate and intuitive, and the film and television style from emphasis on virtuality to realize the positive unity of fantasy and verisimilitude.

4.3. Utilization prospect of computer animation tech in film and television

With the iterative progress of computer animation tech, its utilization in film and television first focuses on enhancing the visual effect of film and television animation, so that the creation of film and television works will be more abundant. Secondly, the comprehensive development of the animation production industry, the demand for animation stunt production of applied tech compound talents is also expanding.

In addition, as a product of the development of science and tech, computer digital animation tech has an irreplaceable role and influence on the progress and development of the film and television industry. It can show a more powerful boost effect in the style of film and television works of art, the plot of the picture, rendering and other aspects. Computer digital animation tech has greatly enhanced the connotation of film and television works of art, and its organic integration with film and television shooting techniques, art skills and cultural heritage will help the film and television industry go further and further.

5. Conclusion

In summary, the utilization of computer digital animation tech in film and television promotes the improvement of film and television works in terms of creative language, techniques and technical means. In the audio-visual language level of animation film and television art, computer digital tech can significantly improve the audio-visual experience, thus greatly improving the audience's viewing experience. This paper analyzes the classification and utilization value of computer digital animation through the research on the role and value of computer digital animation tech. Through the analysis of the key tech of computer digital animation, the key frame tech and 3D animation tech are studied. Through the research on the utilization of computer digital animation tech in film and television, this paper analyzes the utilization status and utilization prospect of digital special effects tech in film and television, as well as the organic combination of computer animation tech and film and television.

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