

Research on the Application of Digital Media Art in Film and Television Animation

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Abstract: This paper aims to explore the application of digital media art in film and television animation. Through literature review method and case analysis method, the significance and practical application of digital media art in film and television animation creation are deeply analyzed. The research shows that digital media art provides a new form of expression and creative means for film and television animation creation, greatly enriches the visual presentation effect of film and television animation, and enhances the artistic value and commercial value of film and television animation. The integration of digital media art and film and television animation has promoted the rapid development of film and television animation industry, bringing more shocking and immersive visual experience to the audience.

Keywords: Digital media art; Film and television animation; Applied research

Introduction:

With the rapid development of digital technology, digital media art has been widely used in various fields, especially in the film and television animation industry plays an increasingly important role. The combination of digital media art and film and television animation creation can break through the limitations of traditional film and television animation creation, inject new creative inspiration and expression techniques into film and television animation, and enhance the artistic expression and commercial value of film and television animation. This paper will deeply discuss the application significance and practical cases of digital media art in film and television animation, analyze the current problems, and look forward to the future development trend, in order to provide theoretical reference and practical guidance for the application of digital media art in film and television animation.

1. The application significance of digital media art in film and television animation

1.1 Expand the expression forms and creative boundaries of film and television animation

The introduction of digital media art provides a new form of expression and creative means for the creation of film and television animation. The traditional film and television animation creation is limited by technology and cost, and the form of expression is relatively simple. By using digital technology, digital media art breaks through the limitations of time and space and can create virtual scenes, characters and special effects, which greatly expands the creative boundaries of film and television animation. Digital media art enables film and television animation to present a more diversified visual style, from realistic style to abstract style, from two-dimensional plane to three-dimensional, bringing a fresh and refreshing visual experience to the

1.2 Improve the visual presentation effect and artistic value of film and television animation

The application of digital media art has greatly improved the visual presentation effect and artistic value of film and television animation. The traditional film and television animation is limited by hand-drawing and production technology, and the picture quality and detail expression are limited. By using digital modeling, digital painting, digital synthesis and other technologies, digital media art can create fine and realistic characters, scenes and special effects, making the visual presentation effect of film and television animation more shocking and immersive ^[1]. Digital media art can also realize the precise control of light and shadow, material, movement and other effects in film and television animation, create a unique artistic style and atmosphere, and enhance the artistic expression of film and television animation.

1.3 Promote the rapid development and commercial transformation of film and television animation industry

The application of digital media art has injected new impetus into the development of film and television animation industry, and promoted the rapid development and commercial change of film and television animation industry. On the one hand, the application of digital media art improves the production efficiency and quality of film and television animation, reduces the production cost, shortens the production cycle of film and television animation, increases the output, and meets the market demand for film and television animation content. On the other hand, the application of digital media art also expands the commercial application field of film and television animation, such as film and television animation derivatives, theme parks, virtual reality experience, etc., creating new business models and profit points for the film and television animation industry.

2. The application of digital media art in film and television animation

2.1 Application of digital modeling and 3D animation technology

Digital modeling and 3D animation technology is one of the core technologies of digital media art in film and television animation creation. Digital modeling is the use of computer software, such as Maya, 3dsMax, etc., to create virtual three-dimensional models, including characters, scenes, props and so on. Through the fine design and shaping of the model's geometry, topology, and edge flow direction, combined with UV expansion, texture rendering, material property setting and other technologies, the model is endowed with real or artistic visual expression^[2]. 3D animation technology is based on digital modeling, through key frame animation, motion capture, bone binding, expression drive and other technologies, give the model with vivid movement and expression. Through the fine adjustment and editing of the animation curve, the time rhythm, intensity change and emotional expression of the animation are controlled, so that the characters' movements and expressions are more natural, smooth, full of tension and appeal. The application of digital modeling and three-dimensional animation technology breaks through the two-dimensional plane limitation of traditional film and television animation, realizes the three-dimensional presentation of film and television animation, and makes the characters and scenes more realistic, delicate and lifelike.

2.2 Application of digital synthesis and special effects technology

Digital synthesis and special effect technology is an indispensable part of digital media art in film and television animation post production. Digital synthesis is the use of computer software, such as AfterEffects, Nuke, etc., a number of different sources of video clips, image materials, three-dimensional models, etc., layer overlay, mask, color correction, dynamic tracking and other processing, and finally synthesized into a visual coherence, artistic unity of the film and television animation shot. Through digital synthesis technology, real-shot images can be seamlessly combined with virtual 3D animation scenes to create a visual spectacle that combines virtual-real and difficult to distinguish between true and false^[3]. At the same time, digital synthesis can also be used to tone and stylize the color, atmosphere, light and shadow of film and television animation as a whole, creating a unique visual aesthetics and artistic style. Special effects technology is the use of computer generated images (CGI), particle systems, fluid dynamics, cloth simulation and other algorithms to create realistic and shocking visual effects in film and television animation, such as explosions, water, smoke, fire, hair, cloth and so on.

2.3 Application of digital painting and mapping technology

Digital painting and mapping technology is an important means of digital media art in the visual design and performance of film and television animation. Digital painting is the use of digital board, drawing software and other digital tools, concept design, character design, scene design, shooting drawing and other artistic creation. Compared with traditional manual painting, digital painting has the advantages of more convenient, efficient and flexible, which can realize rapid modification, adjustment and iteration. Through digital painting, artists can give full play to their imagination and creativity, explore a variety of visual styles and artistic expression techniques, and lay the foundation for the overall visual design of film and television animation. The mapping technology is to attach the image created by digital painting or the real photo material to the surface of the three-dimensional model as a texture, giving the model a real or artistic sense of material and details. Through seamless mapping, programmed mapping, UV mapping and other technologies, a rich variety of texture effects can be presented on the surface of the three-dimensional model, such as cracks, scratches, wrinkles, hair, etc., making the characters and scenes more real, delicate and rich texture. At the same time, mapping technology can also simulate fine geometric details and light and shadow changes without increasing the complexity of the model through Alpha channels, normal mapping, etc., to improve the overall quality of film and television animation and visual expression.

2.4 Application of digital photography and motion capture technology

Digital photography and motion capture technology is one of the important applications of digital media art in film and television animation creation. Digital photography is the use of digital imaging equipment, such as digital SLR cameras, digital cameras, etc., to capture and record images of the real world. In the creation of film and television animation, digital photography technology is often used in the shooting of real scenes, the collection of reference materials, the creation of image assets and other links. Through digital photography, you can obtain high-definition, high-color fidelity of the real image material, for film and television animation scene construction, material mapping, lighting rendering and so on to provide a real and credible visual reference. At the same time, digital photography can also be combined with three-dimensional animation technology to achieve seamless synthesis of real images and virtual scenes, creating a virtual and real interwoven, realistic and natural visual effect. Motion capture technology uses special equipment and sensors, such as optical motion capture system and inertial motion capture system, to record and sample the movement of real actors or objects in real time^[4]. By attaching markers or sensors to actors, actors' movements, expressions, gestures and other data can be accurately captured, and then applied to the animation of virtual characters, making the actions and performances of virtual characters more natural and smooth, full of vitality and expression. Motion capture technology has greatly improved the efficiency and quality of animation production, reduced the workload of manual key frame animation, and also provided greater play space and creative freedom for actors.

Conclusion:

The integration of digital media art and film and television animation is the trend of The Times, which brings unprecedented opportunities and challenges to the creation of film and television animation. Digital media art not only expands the expression forms and creative means of film and television animation, but also enhances the artistic value and commercial value of film and television animation, and promotes the vigorous development of film and television animation industry. In the future, there is still a lot of room for exploration in the application of digital media art in film and television animation, and people in the industry need to continue to carry out theoretical research and practical innovation, deepen the integration of digital media art and film and television animation, create more popular excellent works, and bring more shocking and immersive audio-visual feast to the audience.

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