

# Research of Digital Media Art based on Virtual Reality on Animation Design

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**Abstract.** With the improvement of science and technology, virtual reality technology, a new high-tech, has gradually entered people's lives. At present, the application of virtual reality technology has extended to the field of digital media art. The rapid development of digital media art has brought more creative space to animation design and production, making animation design and production more diversified and closer to people's real life. So that the experienter can really participate in the whole process of interaction. The dynamic images that originally exist on the screen have a form of artistic experience that can interact with the viewer. The role of the audience has also changed from viewers to participants and experiencers. The related creation of digital media technology is no longer a one-way process, but a process of human-computer interaction, a process in which artists and computers jointly complete works and applications. It is obvious that a series of digital media art that has been formed has been visually represented by computer technology, and the influence on animation design is particularly prominent. The combination of digital media art and modern animation design can further enrich the connotation of modern animation design and enhance the quality of design. At the same time, it can promote the development and improvement of digital media art to a certain extent and achieve common improvement.

**Keywords:** Virtual Reality, Digital Media, Animation Design.

## 1. Introduction

The rapid development of digital media art has greatly enriched the content and form of the modern information industry [1]. For a time, mobile media, digital television, mobile TV, interactive games, blogs, micro-blogs, micro-letters and so on have rapidly occupied all channels of people's access to information by virtue of their rapid transmission speed and wide range of dissemination [2]. After the emergence of digital media technology, the real scene can be digitized with the help of relevant software, and then the digitized image can be modeled in three dimensions. This way can greatly shorten the creative time and improve the creative efficiency [3]. And the beginning of simple movements, and then create the outer contours that give life to the non-living lines and the abstract lines as the image. With digital media technology, people's fantasy and reality are closely intertwined, thus creating a strong, wonderful and an unexpected visual image. The information service industry and entertainment industry involved in digital art include painting, advertising, exhibitions [4]. The combination of digital technology and cultural content is forming a much larger digital content industry. As a result, the designer realized time-space, multi-level, multi-field cooperation and exchange, realized rapid communication and feedback, and realized resource sharing. This fast and shared artistic expression makes the design colorful. In addition, virtual reality technology has strong interactivity, and can directly communicate and interact with others in the constructed virtual scene by using corresponding external devices, greatly enhancing the authenticity of the virtual scene [5].

Digital media technology shows strong information inclusiveness and innovation in the processing, interpretation and comprehensive expression of information. Art, as a new product of the combination of digital media technology and common art forms, not only retains the aesthetic element of traditional art, but also relies on innovative digital media technology to innovate, so it is widely welcomed and loved [6]. By synthesizing various means of expression, such as text, picture, animation, sound and video, we can express the design intention from all directions and angles, so as to make the animation design achieve the design effect of combining graphics, text, sound and image [7]. Digital media technology has revolutionized animation, two-dimensional animation has lost market, and three-dimensional animation and virtual reality have replaced previous two-dimensional animation. The current 3D animation can more vividly present the shape of the character, enriching

the expression of the character, and more movies are also mixed with the corresponding animation elements [8]. In terms of styling, because the "line" has strong plasticity and flexibility, it is easy to shape, which makes the shape of the animated character formed by the line have considerable freedom and structure [9]. Under its support, new media forms have emerged, which greatly enriched the language and expression of works of art, enhanced the appeal of the works, and made the viewer feel a real experience in the illusion. The ideal virtual reality technology is able to imitate all human perceptions and achieve a high degree of simulation, so that users are completely immersed in the built virtual environment [10].

## 2. Materials and Methods

The infrared tracker in the artist's creation space environment can capture human's actions in an all-round way, while the display and handle worn on the artist can complete active tracking. The virtual scene created by using digital art expression technology, with its exquisite degree and super-reality, brings the audience unprecedented fresh feeling and visual stimulation. The scenes and atmosphere represented by animation, as well as the subjective creation of the emotions and keynote of the content of the novel, express a magical aesthetic experience. The key point that distinguishes digital media art from other art forms is that its form of expression or creative process must use digital technology partly or wholly. Animation production is moving towards diversified media software production, realizing multi-dimensional combination, expanding the aesthetic scope of traditional animation, and introducing the characteristics of personal visual symbols into animation by evolving special production methods and personalized artistic styles. Through the "gathering", "upgrading", "close-up" and other means to comprehensively drive the overall viewing experience of the video screen. It can be seen that animation uses digital media technology to develop a set of performance techniques with its own characteristics and strong application. Following certain design principles, through careful analysis of product requirements, reasonable increase in the form and content of visual communication design, expand the product's more possibilities.

Throughout the development of human art, in the process of creating works of art, people have been trying to make viewers feel the artistic information transmitted by works of art in various ways. Create a space between reality and illusion, so that the viewer has a mood as if he were in his own situation. When using digital media technology to create animation, whether it is planning, creativity, design activities or graphics, text, color, charts, we should select information scientifically, and convey information of goods and services and consumption concept to the public on the premise of standardizing the system. After the emergence of digital media art, TV workers applied these means to animation and developed their application methods. For example, the audience will be left with fantasy through the fixed format. Generally speaking, straight line has the characteristics of sharp, bold, thick, fast, bright and neat. The oblique line, which emphasizes the movement of an object in the picture, can better reflect the structure of things with the change of the application of the oblique line as the animated object is drawn. Creativity and attraction prove that science and technology are the truth of the first productive force. The development of digital media technology has made animation production more and more diverse, and has also led to continuous changes in animation production. It is synthesized by related technologies such as virtual reality simulation images, showing virtual graphics and image effects, and has virtual aesthetic features. The characteristics of virtual reality are shown in Table 1 and Figure 1. The work can be a single frame of static picture, or it can be a change in color and graphics. In this process, the entire virtual space acts as a canvas, and the artist adjusts the VR controller according to his actual creative needs, and selects the brush and color, which can draw different styles and types of objects in the virtual space.

Table 1. Virtual reality has characteristics

	Simulation	Relation
Interactivity	10.80	11.34
Immersion degree	9.18	11.62

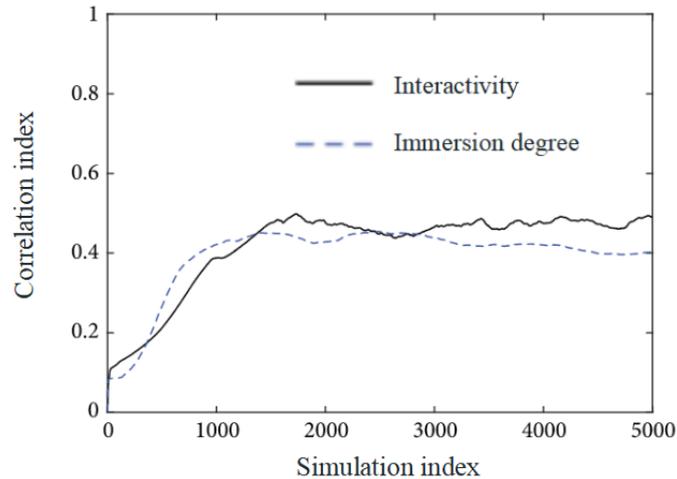


Fig. 1 Virtual reality has characteristics

In the virtual reality constructed by digital media art, users are required to operate objects in the simulated environment, interact with the interactive requirements in virtual space according to their own experience needs, and the audience will get corresponding feedback from the virtual environment while operating the objects. As far as modern animation design is concerned, digital media art makes animation works present diversified ways, which not only has more exquisite audio and pictures, but also improves the quality of works and has new vitality. Through a series of techniques, such as the fixed expression of animated characters, the exchange and insertion of perspectives, and the pursuit of paper airplane perspectives, the animated short films show a variety of feelings implied, suggesting that the emotional development between the male and female protagonists has a full sense of modern art. Line trajectory occupies a certain amount of space. It is not as flexible and light as point and line, but it can produce a strong sense of space through perspective and overlap. It can be said that the scenes that people imagined can be expressed through today's digital media technology. Digital media technology has greatly enriched the animation design and production, making animation design and production into the real life. The design of technology-led art must be a flash in the pan, and it is easy to forget it. It can be seen that the language expression of art and its appeal are the first elements of the survival and development of digital media art design. The digital media paintings drawn by technology are more stereoscopic and dynamic, realizing the three-dimensional painting in the true sense, inspiring and presenting the creator's imagination and creative desire, enhancing the visual impact and expressive power of the painting. Has a very important role.

### 3. Result Analysis and Discussion

In dynamic animation design, the application of digital media art adds a new expression language to it. In addition to high-quality pictures, high-definition audio, and high-saturation color, it provides designers with a broader creative space and further enriches the design and production methods. By manipulating the handle, the creator can adjust the size, height and width of things in the virtual space according to his actual creation needs, and provide the corresponding additional material for the objects. The jump of the curve can make the picture lively. With the fluctuation of its height, it can better reflect the rich rhythm of the picture. Therefore, in the creation of animated images, even if only the outline line, still can clearly and positively distinguish the quality of the image created. Use the animated characters in-picture allegations to ask questions to the audience, etc., to form a viewing experience of reality and virtual blending. Whether it is the style of hodgepodge, or the hodgepodge of elements, or the hodgepodge of viewing angles, it has an extraordinary significance for the field of animation design that needs innovation. Appreciator's aesthetic re-creation and externalization has become another form of art work, a kind of art work that exists in the real world. This transformation

blurs the line between the artist and the experiencer. The identity of the artist has changed from a complete master to a promoter of the entire work of art. The artist and the experiencer have completed the work of art.

In the virtual environment constructed, there are a lot of digital information. The computer interface and style of these digital information have changed the original aesthetic experience. This yearning and intoxication will inevitably change people's aesthetic experience. For example, due to the rapid development of online games and movie animation, a new animation culture has come along. The non-linear editing technology in digital media art can add the elements needed for the whole animation in post-production, and even concentrate the background and transition of the characters into the unified realization in the later stage. It not only saves a lot of shooting time, but also provides sufficient creative space for designers, and adds color to the rhythm of the whole animation work. The enhancement of animation expressiveness can also be analyzed from the perspective of the overlay of the animation using elements. In the animated mirror, the increasingly complex and varied perspectives and styles brought by digital media are important reasons for the current visual aesthetics of animation. In the character image animation composed of lines, the production process does not require too much detail; the basic motion law of the character is unchanged, and only the outer contour can enable the viewer to directly perceive the character's attributes with its unique posture. Digital media art is also the most vital part of the current art design and field. The outstanding performance of digital media art is "digital painting art" or "computer art." Its application forms include other visual arts or designs created with digital technology or digital media.

Artists can draw in full 3D in a virtual space. By wearing a special virtual reality display on their heads and using the VR control handle as a brush, they can intuitively see handwriting in a three-dimensional space in the virtual reality display worn on their heads. Technology and art are always a pair of factors that influence and promote each other. The technicalization of art and artistic expression of technology have always been two aspects that need coordination and transformation between art and technology. It truly reproduces the spectacular scenes of animation, which cannot be expressed in traditional animation design. Now, it can be realized very easily through digital media art. In order to improve the audience's impression of the character, and use the effect of squeezing and stretching, exaggerated body movements, or to speed up or slow down movements to express the character's emotions and reactions, thus making it easier to understand and master the language of motion in animation. Another example is an animated short film based on technology and history that combines recorded physical scenes and animated characters made by digital media technology in the same picture to provide an entertaining display and introduction for young viewers. In line with the designer's constantly improving creative thinking, not only has a more vivid color contrast, but also enriches the form of expression, whether it is a qualitative leap in the image building, atmosphere, virtual reality, time and space illusion replacement, perfect display the artistic charm of animation works.

#### **4. Conclusion**

In this paper, the digital media art of virtual reality is studied on animation design. Digital media art creation under virtual reality technology provides a good platform for enriching and developing people's imagination and creativity. Digital media technology can improve some emotional needs of artistic expression in the artist's creative process, and can enable art to find new strategies in this new direction of development. The continuous evolution of science, technology and technology, as well as the continuous integration and evolution with the cultures of various countries, has formed a unique simple, abstract, novel and interesting plastic arts system in animation art production, and also inherited the unique artistic spirit of Chinese folk culture, such as paper-cut, shadow-play, origami, puppet and so on. Further optimize the various visual elements in the animation design to bring a more intuitive and profound visual impact to the audience. Only through such a process can we produce high-quality animation design works with the help of digital media art. As the art that is best at absorbing the strengths of other art categories, animation will surely achieve longer-term and stable

development under the overall trend of rapid development of digital media. Make animation design and production more diverse and closer to people's real life.

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