

The Development and Application of Digital Media Interaction in Artistic Experience

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Abstract: In this era of scientific and technological progress, digital media has made great contributions to the world and modern art and design works. The Internet has helped many artists make their work more visible and accessible to audiences around the world. Advanced technology has also enabled artists to transform and manipulate their work, thus becoming an important artistic medium. This paper summarizes the characteristics of interactive technology and new media, and analyzes the development and application of new media interactive art in experience.

1. Introduction

Interaction design is a kind of new media design for interactive products. In this kind of design, the designer's concern should include not only the product in development, but also the way users interact with the product and experience the effect. Therefore, interaction design needs to pay close attention to the user's needs, limitations, and environment. The background of the information age promotes the rapid development of new media interactive art. New media interactive art combines modern photography with the Internet and other technologies. The emergence of new art interacting with media not only reflects the progress and development of media technology, but also reflects the great progress of media art, which provides more ways for the development of art and is conducive to improving the diversity of people's artistic and cultural activities.^[1] Interactive art is a virtual space that provides interactive experiences for artists and engineers through technology platforms. Interaction takes place in different areas, leading people to create it in different ways. This form of embodiment can not only be applied to many commercial fields in modern society, as an important means of dissemination of traditional culture in the cultural field, but also can bring people a sense of life experience full of science and technology.

Young people's entertainment programs can often reflect the development trend of new media in today's society. The three most popular new media experiential entertainment items among young people in the 21st century are games, animated generation, and virtual wear. These three main entertainment items can not only provide people with a variety of virtual experiences, can let people follow their daily life, but also can bring a lot of convenience to life.^[2]

2. Interactive game experience

2.1. Introduction

Interaction design determines how people interact with computers and communications. It determines the value of the media to the user and the quality of the experience the user will have when using it. Young people love and even become addicted to games not only because of the relaxing animation and interesting mechanics, but also because of the sense of unlimited freedom gained in games. The eleven key game design factors include game goals, game mechanics, game fantasy, game value, interaction, freedom, narrative, feel, challenge, sociability, and mystery; Interaction design should consider all the above factors and combine them effectively.^[3]

2.2. Research Status

Highly interactive games have many of the same complexities as the real world, while allowing us as researchers to conduct tightly controlled scientific research. Because games are fundamentally an interactive medium, we see them as tools for studying people, cognitive processes, decision-making, and behavior. We seek to understand how people behave in games, how the actions they take in games relate to cognitive and behavioral processes, and how players' personal characteristics influence the games they choose to play (and how they play). Much of the work in this area draws on concepts from social and cognitive psychology as inspiration, but our main tools are still AI and ML techniques.^[4]

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In addition, because games are a low-cost approach to behavioral research, and because the analytical data collected in games is often very extensive, there is a unique opportunity to apply machine learning and data mining tools. As the number of players reaches 100,000 or more, commercial game companies can collect vast amounts of data that describe the player experience. One of the ways we do research in this area is to use these massive data sets to gain insight into how players behave in games. To this end, we design new data mining and machine learning techniques. These algorithms can provide automated reasoning tools. Recently, we developed a "semantically interpretable" technique that not only makes accurate inferences about players, but also provides insight into why those inferences are made. This semantic interpretability can help us understand the game qualities that make a player unique, that predict cognitive processes, or that explain player motivation.^[4]

2.3. Typical Case Analysis

On the basis of in-depth analysis and research of the key features of motion sensing game and Flash AS programming technology, the designer team has developed a motion sensing game based on camera sensing. They use the camera to accurately capture the user's body movements, collision detection, control functions, scoring functions and exit mechanisms. During the game, users can get rid of the limitations of mouse, gamepad and keyboard, operate the game through their body movements, and interact with the game content in an immersive way. It's a technology that allows players to use their bodies, free of gamepads and all the extra finishing tools, to have a fully immersive experience. The technology and principle of the system are respectively using the camera to obtain the user's body action part through the use of Flash AS file to realize the interaction between the camera and the user's body action, for the camera video motion detection and other related processing can be created accurately.^[5]

2.4. Application Value

The combination of game design and interaction design generally changes in two ways. The first is convenience: whether the player knows how to play the game, whether it takes too long to wait, whether the game mechanics are hard to learn, or whether the game objects are awkward to use are crucial to the experience. The second is accessibility: can the player understand the content of the cutscene, or can they hear the sounds of other characters interacting (for example, can a hearing-impaired person feel the sound of footsteps creeping up behind them during the experience), Or whether the game supports the use of specific input devices (such as some one-handed controllers or joysticks that allow players with severe physical disabilities to play). In order to improve the user experience, the highly interactive motion-sensing games have come into being and attracted more and more attention. Whereas traditional games are played with a mouse, gamepad, or keyboard, motion-sensing games

with interactive design interact with the game through the user's body movements. This not only breaks through the traditional interaction mode, but also creates a new form of game based on the development of interaction technology. The realization method is to capture the user's body movement through the camera to complete the motion control of the game. It gets rid of the traditional interaction mode, and gives the player a new interactive experience. For the user, this category of motion-sensing games not only improves the efficiency of interaction in the game, but also greatly improves the immersion of the game. This is a very attractive point for modern young people.^[6]

3. Animation image generation

3.1. Introduction

Functional animation is a subtle animation that has a clear logical purpose. It reduces cognitive load, prevents change blindness, and builds better recall of spatial relationships. This animation technique brings the user interface to life. In the profession, it is an art form capable of telling stories and conveying multiple emotions and messages. Animation is used almost everywhere: from advertising to movies to games. There are many different types and styles of animation generation :2D, 3D, motion graphics, visual effects. Each category may have multiple workers using their own special skills to make the final product.^[7]

3.2. Research Status

Animation generation has developed as early as the last century. The first 2D animation was created by Emil Cole in 1908 and was called Fantasy Orie. According to Kieran Kane's lecture "The History of Animation", the animated film is 70 seconds, 700 images, 24 frames per second to make the ending. In 1928, Walt Disney created the first Mickey Mouse cartoon, Steamboat Willie, in 2D animation. It was also the first animated film to feature History as its soundtrack.^[8]

3.3. Typical Case Analysis

The most famous character in animation must be Walt Disney's Mickey Mouse. As the opening animation of many movies today, Disney's Steamboat Willie is a landmark in the history of animation. It was the first film about the character Mickey Mouse, and the first animated feature with synchronized sound. It made silent animation obsolete and ushered in a whole new era of empire. The film opened at the Colonial Theater in New York City on November 18, 1928, which became known as Mickey Mouse's birthday. The earliest technology was not enough to make animation smooth; Instead, a short film is made by designing the movements of an animated character frame by frame.^[8]

3.4. Application Value

Animation is important because it allows us to tell stories and communicate emotions and ideas in a unique, palpable way that both children and adults can understand. Animation helps connect people around the world in a way that no other field can. Nowadays, anyone can pick up a drawing board and present their ideas to the world, or have machines produce their own images. Characters can have a variety of styles to make the audience feel more comfortable. As an animated character, this character feels like their own existence.^[8]

4. Virtual Wear (VR)

4.1. Introduction

As the diversity of interaction design changes, there has been a flurry of controversy on the Internet about virtual wear. Virtual wear, as the name implies, is to use online digital design and 3D technology to create some goods to meet some people's imagination of the future. Artists will sell their futuristic garments and trade them across platforms; Users who buy them are then given a stylish virtual "look". Virtual fashion is the new trend, and it goes beyond the online fashion shows that quickly became the norm during the pandemic. Virtual fashion is not physically created streaming content -- including fashion shows, interviews and the clothes themselves -- but emanates from the digital space.

4.2. Research Status

Fashion design is about planning, thinking, and planning. It also includes graphics, drawing, and modeling. Virtual clothing design is to use the combination of computer technology and mathematical engineering. It is a wide range of fringe disciplines, and literature, art, history, philosophy, religion, aesthetics, psychology, physiology, ergonomics and other social and natural sciences are closely related.^[8]

4.3. Typical Case Analysis

The most famous virtual clothing stores will be Carlings and The Fabricant. The Norwegian fashion house Carlings is the most advanced fashion brand among them. In November 2018, when virtual fashion was first gaining popularity online, the company launched and sold a fully virtual collection called "Neo X". The collection contains 19 fashionable clothing and the cost only ranges between \$9 and \$30. Their imaginative designs have been warmly welcomed by fashion lovers and Internet celebrities alike. Founded in 2018, The Fabricant is another important frontrunner in The virtual fashion space. Although the price is much more expensive. However, of the creative design and outstanding concept, it is still very popular among young people. The brand gained recognition in May 2019 when it sold its rainbow-colored dress for \$9,500. Since then, the brand has gone from strength to strength through

successful partnerships with industry giants such as Tommy Hilfiger and Soorty.^[9]

4.4. Application Value

Virtual fashion is a trend these days. Many wealthy people choose to pay modelers to design their own virtual fashion. But beyond that, virtual fashion gives people a new way to choose clothes. In the apparel industry as a whole, electronic tailoring is bound to take off because it's hard to find clothes that fit you on the shelf. However, nowadays, many clothing stores on the online platform provide more and more limited services to people. It is difficult for consumers to buy clothes that fit them, and the situation of returning goods is even more serious. So many consumers still prefer to buy clothes in physical stores; If we can use the virtual reality environment of 3 d garment design, consumers can online clothing stores the freedom to choose their favorite clothes and try it on, and then select the dress according to the size of the virtual human body model of consumers consider recommending dress, size, let the consumer can choose the more suitable for their own clothes.^[9]

5. Conclusion

The biggest difference between interaction design and the general design profession is that it is more focused on the external elements of outcome, environment, action, and delivery of a specified message. The main purpose of interaction design is first to plan and specify how information will work, and then to provide effective ways and methods to facilitate the public. From the perspective of the experiencer, interaction design is a project to facilitate and understand the user's goals. It's a much more user-friendly, comfortable technology.

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