Functionality and Artistry in 3d Animation Scene Design

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Abstract. The design of 3d animation scene includes functionality and artistry. The functionality includes explaining the spatial relationship of film and television animation, creating atmosphere, highlighting roles, scene scheduling within the scene, and enhancing visual impact. Artistry means creating an atmosphere with composition, models, materials and lighting. Both complement each other, be short of one cannot, functional sex contains artistic quality, artistic quality promotes functional sex function. Therefore, they are two indispensable factors in 3d animation scene design. This article combines own graduation creation experience to talk about oneself to above question understanding and understanding.

Keywords: 3D Animation, Scene Design, Functional, Artistic Quality, Combining

1. The Role of 3D Scenes in Animation
In 3D animation, the scene not only reflects a specific place, environment, atmosphere and historical period, but also serves as a foil to the characters in the animation. The scene plays an important role in shaping the typical environment, rendering the atmosphere of the picture, setting off the characters, highlighting the theme and increasing the artistic appeal of the lens, just like the stage setting of a drama. The design of 3d animation scene contains both functionality and artistry. After determining the theme of the plot, it is first necessary to make clear and familiar with the dependent background of the designed object and its components. To reflect the background and basis of the story [1-2].

Computer to enter the film industry, led to a revolution in film technology, computer graphics, have shown the power of near-omnipotent, the film can show the world the human dream. As early as 1962, computer graphics will have its own theoretical basis. 70 In the early 20th century, people began to explore painting, the new computer works. The late 70s, the birth of micro-computer, computer graphics that makes the gradual penetration into a wide variety of areas and to create a lot of new industries, such as graphic design, industrial product design, fashion design, architecture decoration design [3]. To the 80's, computer graphics technology with the maturity and popularity of personal computers, computer graphics technology has undergone an unprecedented development [4]. 90 years, almost every major Hollywood movie after all contain some scenes of the computer processed. Some movies not only is the virtual scene, actors are also virtual, these are the computer's contribution to post-synthesis technology. With the post-synthesis technology, we can see the sci-fi film "Jurassic Park" in modeling realistic, brutal ferocious dinosaurs, deep fear of the audience, but also see the "Terminator II" in the code-named "The Terminator -- No. -1000, "the liquid metal robot in the
manipulation of electronic computer, it has been able to be separated from the flow, change their shape, stunned the audience [5].

In some more complex scenes, 3d models are widely used. Nowadays, what we call digital virtual image technology mostly refers to the scene, things, characters and even various kinds of weather constructed by 3d virtual. The application of three-dimensional, relatively real, and late synthesis complement each other, and even to the point of passing the real fish into the pearl. Many large action films, disaster films, horror films, suspense films, science fiction films and so on basically make use of THREE-DIMENSIONAL models. Many things that do not exist in reality can be easily created with three-dimensional technology, and they are real enough. This method basically USES 3DMax, Maya, ZBrush, Poser, Silo, Mirai and other 3D software [6-10].

2. Function of 3D Animation Scene

2.1 Explain the Spatial Relationship

Three-dimensional scene space is composed of internal space and external space, which can also be described as indoor and outdoor space. Outdoor space mainly refers to the natural environment, such as mountains, forests, fields, grasslands, etc., as well as the outdoor part of buildings. The interior space includes the interior space of the building and artificial environment. Whether it is indoors or outdoors, in 3D animation, the spatial environment of characters plays an important role in expressing the content of spatial relations. For example, when the plot takes place indoors, an indoor scene should be designed; when the plot takes place outdoors, an outdoor scene should be designed.

2.2 Atmosphere Creation

Atmosphere is a feeling factor, a form of expression of emotion, a space foil for characters' emotion and plot, which helps the audience to understand the sequence and content of plot time. Environment atmosphere is created in 3d scene, producers can use scene structure, model, shape, material, lighting and other means to show atmosphere, make the animated characters in the role of emotion and scene lies in their environment, in the scene, although silent, but it can express emotions, it is with exotic scenery image, therefore, can make the look and feel content base, produce a consistent view. For example, in the scene of Nemo and his father going to school together in Finding Nemo, a variety of colors are used to decorate the picture to create a colorful atmosphere. But when Nemo disobeyed and insisted on leaving home to venture to the beach, the background suddenly turned into dark blue water, which made the audience's heart tremble. The dark blue water and the black bottom of the boat showed an indescribable danger.

2.3 Highlight the Role

The concept of the role, originally derived from the Latin rotula, first appeared in academic literature in the 1920s in sociologist Geol Simmel's Essay on the Philosophy of performance, when he addressed the issue of role playing. But it wasn't until the 1930s that the word "role" was used specifically to talk about role problems. The character is a mirror of the animation environment, and the environment should be lifelike. To make the scene design Can play foil, describe the use of the character, the premise is to understand the relationship between the character and the environment. The relationship between the characters and the scene is complementary, and the environment should create appropriate and real objective conditions in line with the character's character to shape the real "this one" typical character.

2.4 Scene Control

The prominent aspect of 3d animation scene modeling means to depict characters is to provide modeling conditions for characters' movements and actions and play the role of action environment. Animation scene scheduling includes two scheduling: one is character scheduling, the other is scene, Angle of view, composition, motion and so on. Making 3d scenes in the computer makes the space of
the scene and the motion of the perspective composition become diversified. As the animation scene scheduling to show the content and artistic intention of the play, the space structure of the scene is the prerequisite for the realization of animation scheduling.

2.5 Enhance Visual Impact
Visual impact is the use of visual art, so that your visual senses are deeply affected, can leave a deep impression on you. His technique of expression can be shown through the shape, color, and so on, directly to the visual sense. Three-dimensional scenes have stronger visual impact, a stronger sense of space and flexibility of perspective changes than two-dimensional scenes. In the production of three-dimensional scenes, visual impact can be demonstrated through materials, lighting, fog effect and other special effects, so that the animation scene can attract the audience more, more shocking.

3. Artistic Quality of 3d Animation Scenes
The design elements in the 3D scene mainly include composition, model, material, lighting, etc. What the designer should consider is how to put them into the background "big canvas" in accordance with the form to be expressed in the shot in the animation. The application of computer 3D technology greatly enriches the artistic expression of the scene.

First is composition, producers should according to the requirement of the script and formed in the mind of the idea, through concrete image in the virtual space of computer performance, different model props, according to a different role in different space position, the design space relationship of them, and to use the most appropriate form of the conception of it, and can show prominent theme, foil the role of the subject.

Scenes in three-dimensional scenes are easy to be understood as dead objects. In fact, scenes also have vitality. They have a close relationship with human beings. The style of the scene, there are realistic, surreal, cartoon. The realistic style takes reality as the reference, and the space of virtual reality creates scenes close to reality. It has three characteristics: first, it has a strong sense of reality and affinity, which conforms to the taste and habits of most audiences; Second, the effect is exquisite, rich and full of texture, giving people an immersive feeling; Third, it meets the needs of conventional large-scale industrial production and is convenient for multiple designers to co-produce. Design those scenes grand, majestic sci-fi cartoons, if use realistic art design technique, can show a strong sense of reality to the audience and confront the feeling, the audience first arises from the vision illusionary sense of reality and affinity, and more believe the story itself, powerful enriched the authenticity of the story, to assist the plays, build the atmosphere. For example, the scene in Public Enemy Machine is to create a grand, magnificent and immersive sci-fi atmosphere in a realistic style. The surreal style is characterized by strong expressive force, strong visual impact and rich imagination. In the design of those mysterious surreal animation works, the use of surreal art design techniques, can let the audience experience the mysterious color, with more space for imagination. For example, the 3d scene in the Lord of the Rings: The Fellowship of the Ring is like a home for elves, full of artistic atmosphere, bringing the audience into a surreal atmosphere. Cartoon style works with strong children's color, just like finding Dory USES extremely strong and bright colors to show the wonderful coral reefs, fish and Marine life under the sea, creating a beautiful, colorful, safe, harmonious and active atmosphere.

When we pay attention to the texture color of an object, we will find that no object is a single color in the real world, and each object has a lot of details on the material. Over time, objects will degrade in color; metals will rust; pebbles will grow moss; wood will rot; weeds and mushrooms will grow nearby; If an object is put for a long time, it will become dirty and collect dust. There will be some dirt in the corner, and moss if it's damp. These details can be easily expressed through materials and lighting in 3d scene design and production, and can create some atmosphere, mystery, romance and so on that can't be seen in real life. Wind, rain, thunder, electricity, frost, snow, fog, hail, etc., is vent emotion, render atmosphere, foil the theme of the very good elements, should not be ignored.

In the scene design, light can best represent a specific atmosphere, which enhances the theme. For example, dim lighting can make the atmosphere of the scene quieter and more mysterious. Therefore,
in the design, attention should also be paid to the performance of various strong light, weak light, cold light and warm light. For example, cold light can show a dark and calm atmosphere, while warm light can more reflect a warm and lively atmosphere.

4. Unity of Functionality and Artistry in 3D Animation Scene Design

In 3D animation scene design, functionality and artistry complement each other. The pursuit of artistry puts forward new requirements and development direction for the functionality of 3D animation scene design. Although software tools capable of producing three-dimensional scenes were originally invented to create virtual spaces, with the continuous improvement of people's pursuit of beauty, the pursuit of artistry arises at the historical moment. With artistic creative thinking and creative way to guide the scene design, using the function of 3D animation scene design to achieve it. The relationship between the two is that artistry constantly puts forward new levels of requirements for the functionality of 3D animation scene design, while 3D animation scene design promotes the artistic expression of film and television works with the development of technology. In this way, the two complement each other and grow alternately.

Throughout the history of film, it can be said that it is also a history of technology. Every revolution of film is related to technology. From the beginning of sound to the present digital 3D technology, it has had a tremendous impact on film art. However, technology is always a double-edged sword. The more advanced the technology is, the more it is unrestrained and abused, and often it will deviate from people's good original intention. This is also the main reason why the essence of movies has been hit hardest by digital technology, and the fear that digital technology will destroy movies. Just like the movie Resident Evil, watching movies is different from playing games. Although visual experience is a motive for watching movies, what audiences pay more attention to is still the theme of the movie, what people think, think and feel. Away from the theme, the film is a body without a soul. The characters in the Resident Evil movie version are mostly computer generated. Although their shapes and actions are much more mature than before, the fatal flaw of lack of theme due to the pursuit of excessive and excessive digital synthesis effect has not been recognized by the audience at last.

In short, in three-dimensional scene design, artistry includes functionality, and functionality includes artistry. These two are contained in artistic works, which are indispensable in three-dimensional scene art design and complementary to each other. We should often evaluate and understand all kinds of excellent artistic works, absorb their aesthetic nutrition, and in the future independent creation, combine their own thinking for conception, to create works with connotation and high standard.

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