The Application and Development of Photoelectric Sensor

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Abstract

The traditional animation is quite different from the computer animation, not only from the aspect of connotation, but also from the denotation, and we can distinguish and analyze them from the aspects of production ages, production flows, visual effects and modes of transmission.

Keywords: traditional animation; computer animation; Three- Dimension; Two- Dimension; Differences.

1. Introduction

The traditional animation and computer animation are the two basic types in animation production, and the traditional animation refers to those created by the human beings through the hand- drawn and according to the production procedures and methods of the hand- drawn animation, while, the computer animation, on the other hand, is different from the animation of traditional sense, and this difference shall not be simply considered as the animations of the traditional sense are made out through computers, although it seems that the only thing that changes is the production tool on the surface, in fact, just this change that has brought a series of revolutionary changes to the animation field, and both from the connotation and denotation aspects, the traditional animation and computer animation are quite different from each other. They mainly embody in the following aspects:

2. Differences of Production Ages

The traditional animation also be known as hand- drawn animation, which is widely used before the computer age, and the traditional animation technology is to draw each picture by hand in the way of frame by frame, meanwhile, they are broadcasted continuously and thus form the animation. The traditional animation development has experienced several crucial development stages, in 1640, the Jesuit, Athanasius Kiecher invented “The Magic Lantern. And it can be said that this was not only the beginning of the animation, but also the beginning of all the films. Moreover, in ancient China, there were also a lot of exploration cases in the aspect of shadow, the trotting horse lamp--- a device which can let the shadow move appeared among civil areas of China. And through the constantly improvement to Magic Lantern, in 1898, the Humpty Dumpty made by the Graff Film Company in America, this was the first film which
made the lifeless image produce the illusion of activity by using single-frame photography technology., in 1900. J. Stuart Blackton made the first animation in the world as Charming Picture, since then, the animation industry in abroad has entered into the rapid development stage; in 1937, the Disney Company made the Snow White, which’s known as the first sound animation in the history; and in 1940, the Walt Disney Company produced the film Burden of Dreams, it’s the first animation that use the animation camera to produce the animation. When the abroad animation market was in its full blossom, the animation industry in our country awaked gradually, in 1924, The China Studio produced the animation The Dog’s Treat, and the Shanghai Tobacco Company produced the Celebrate New Year, the above two films are the earliest animations in China. In 1926, the Wan Brothers drew the Causing troubles at Studio, which has received great reflections in China, and it’s the embryo and exploration period of Chinese animation. In 1946, the Chinese animation entered the stable development stage, and during this period, the creation of the Chinese animation, as to the theme, was to use the fairy tales to serve the teenagers, such was the case as The Cat Goes Fishing(in 1952), while, as to the style, it’s walking on the nationalized road, such was the case as the produced animation Pride General (1956), still, as to the technology, it changed from the Black- and- White Film to the Color Film, and produced the first colorful and traditional animation Why is Crow Black (1955), the classic blockbuster Uproar in Heaven (two episodes, 1961,1964) came out later, which made the animation entered its flourishing period, and moreover it even formed the world renowned Chinese animation school.

Computer animation means adopting the processing technology of graphs and images to generate a series of scene pictures with the help of programming and animation production software. The current frame is the part of modifications of the previous frame, and the computer animator adopts the method of playing exquisite images continuously to produce the effects of the object actions. As for the development of the animation industry, the computer animation can be divided into three stages. Between 1963 and 1967 Ken Norton in the Bell Labs began to attempt to produce the animation with the computer and developed the two-dimensional animation system, which was two-dimensional computer aided animation stage (1963-1972). In the early days of 1970s E·catmull developed the first three-dimensional animation system, which was the starting stage of three-dimensional animation (1972-1985) and the mature as well as developmental stage of three-dimensional animation (1985-Present). The researches of computer three-dimensional animation focus on North America, Japan, Canada and Europe. In 1990s Disney and Pixar jointly released the full computer animation of Toy Story series which made the audiences gain the brand new visual experience, moreover in 2000 China presented the first full computer animation of Cosmos and Man, thus the computer animation was popularized worldwide. Computer animation is the product combining computer graphics (CG) with animation creation, which accomplishes the production procedures of traditional animation by the computer. The generation of the computer animation is a revolution in the realm of animation which opens up the new world for the animation development. In addition, the widely concerning two-dimensional animation form which is flash animation in the realm of the computer animation in recent years is just the product of the information digitization.

3.Differences of Production Processes and Methods

The traditional animation has a series of very complicated production process. A completely traditional animation is successfully completed by specialization and cooperation of over tens of procedures, including screenwriter, doctor, art direction, layout, original pictures, animation, scenic painting, tracing, coloring, revising, photography, film editing, composition, sound design, dubbing, scoring, mixage and printing through the artificial synthesis. Regarding the traditional animation, the key point and transition part of each action in the animation camera shall be designed firstly, that is to say, the original pictures shall be drew firstly, then the middle pictures (namely animation) shall be drew according to the original pictures, and then each pictures shall be traced and colored, and then it is shot and recorded one by one, one frame by one frame.

Computer animation is divided into two-dimensional computer animation and three-dimensional computer animation. The production software of two-dimensional computer animation commonly use flash and toon boom studio. Two-dimensional computer animation does not demand to draw all the contents of
static state frames one by one, and its characteristic is adopting the generating principles of Key Frame and using a unique transition and transformation technology. This technology in the animation production represents that it is required to design the first and end key frames in the frame sequence as for a certain section of animation, carry through the settings of the transition mode, simulate automatically the middle transition frame contents Flash with the smooth connecting pictures by using computer technology, and form a animation effect with continuous motions after rapidly playing the images one by one, which makes the production process of the animation simplify a lot and makes the director timely modify and solve the problems occurring in the process of the animation production. While the main production steps of three-dimensional computer animation are role modeling, scene creation, coloring, light targeting and camera addition, which are carried through directly in the computer. Three-dimensional computer animation can make the figures in the animation more authentic by the means of technology. Generally one can wear several hats in the computer animation, including directing, original painting, animated drawing, scenic painting, coloring, sound design, and composite etc. An entire animation can even be finished by one person and one computer. Compared with traditional animation, the best advantage of the computer animation is that it reduces the production cost of the animation and enhances the production efficiency of the animation.

4. Differences of Visual Effects

The traditional animation has concise and clear modeling as well as pure and warm colors, while the action not only is the conceptual motion rule, but also adds the personal action performing arts as well as lavish imaginations of original painters on the basis of the mechanics principles in the nature. Simplify and transform the fundamental action designs, process and handle the exaggerative arts including extreme stretch as well as compression, following as well as preparation actions, and major as well as minor actions, and also perform the complex mood and some mental changes of the role with the simplest and most complete actions. The traditional animation is supposed to be the designing foundation of all the animations, and includes plentiful animation techniques which cannot be surpassed by the computer animation. The pictures producing by the traditional animation are quite delicate with various styles and the traditional animation can finish many complex action effects with high challenges.

While three features are presented in the visual effect of computer animations: Firstly, simulation. By using computer technology especially 3-D animation techniques, it is available to obtain the visual perception which is almost similar to real people and background. In Titanic, thousands of people falling into the sea, the disruption of gigantic hull and the sinking process rendered people with intense shock and visual impact, and all of these are realized in the application process of computer animation. In addition, it has saved a good deal of manpower and material resources as well as production cost of the work. Secondly, virtual feature. One of the most fascinations of animation is to intoxicate the audience in a virtual world and adding computer animation makes it even better with amazing visual effects. Thirdly, interaction. FLASH animation expressed the interaction of computer animation with perfection. Interactive animation refers to the animated work controlled over the playing progress so that the interaction is realized with the audience which provide a way for them to join in and control the play of the work, turning them into proactive selection from passive acceptance.

5. Differences of Circulation Mode of Transmission

With more than 100 years of development history, traditional animation’s technological design process is improved constantly and an operation system is completely formatted with standards. From market survey, content planning, producing, broadcasting to derivatives’ design, development, marketing and then the funding of next project production, a uninterrupted virtuous cycle is come into being which carry out the transmission and circulating through TV and films, promoting sales of animation and relevant products worldwide through mature marketing methods and sales channel.
As an important branch of computer graphics, computer animation could be used broadly, not only in the mode of TV and film transmission, but also in scientific research, visual simulation, digital games, industrial design, teaching training, military simulation, process control, flat painting and architectural design etc. And as one of the applied area of computer technology, animation creation has facilitated the continual promotion of computer technology in return.

Although the animation process in China has got rapid development for a certain period of time, and each of the animation process company also has got outstanding economic benefits, but it won’t go on for long, the animation process in China has died down year by year in recent years, it’s mainly influenced by the following five aspects as:

5.1. The Domestic Out-of-Order Competition

Owning to the technology content problems exist nowhere, and more and more well-drawn and cheap animation companies appear in China, the animations with the average cost of ¥5 Yuan per piece are not acceptable, most buyers just offer ¥2 to 3 Yuan for one piece. Thus in order to win more customers, the random quote and vicious competition in the internal of the animation industry appear, thus it finally reduces the profit of the whole industry.

5.2. Fallen and Scattered About of the Talents

After the year of 1995, the former high quality animation producers who engaged in the animation process have already retreated from the specific work, because the animation process is a hard work, and the paying on the basis of the paper number as well as the pressing progress requirements make nearly every animation creator has the experience of constantly working for dozens of hours, meanwhile, the urban young men who can bear the hardships become less and less, moreover, many college students who dream for this industry may stay in the companies for a few days, then they are scared away by the heavy work. At this moment, the main force of the animation producers lean to the population from other places as well as rural areas. The mixed and disorderly of the later comers makes the animation industry takes on the temporary shortage situation. And the animation production quality has been constantly on the decrease, they are even made in a rough way, thus it damages the already gained animation industry image.

5.3. International Competitions

Generally speaking, with the development of Chinese economic strength and average consumption level, international animation processing business flowed into countries with cheaper labor force. Influenced the Bird Flu in 2003, some foreign animation companies were forced to transfer their animation processing to other Asian countries and regions such as Middle East, North Korea, Indonesia, India, Vietnam and Laos etc. And they have found out by chance that these countries are featured with even cheaper manpower costs and the personnel quality is not lower than their Chinese counterparts. Therefore the animation processing would not come back to China when the Bird Flu was over. Some domestic animation processing companies were bankrupted for this reason while other companies’ incentive was fading out as their employees’ earnings did not increase with enhancement of the total social income level.

5.4. Technological Innovations

It is mainly the rising of three-dimension in America, and the computer software replaces many manpower elements. The technology will finally emancipate the humans from the repetitive and trivial industrial flowing productions and the focus of work will gradually transfer to the core creation and technological research and development, which is also the development tendency of all the trades.
5.5. Difficulties of Transition

Facing with the powerful policy supports of the comic and animation industry by our country, the renaissance of Chinese animation seems to be tomorrow. However, when some well-capitalized investors excitedly aim for the trade, they discover it difficult to find out an animation company with the complete animation production chain, and at the moment the animation company turns to the original with various dangerous as well as difficulties.

The process animation cannot assist the original although it has good technological strength. Unlike Three Kinds of Capitals mode of automobiles and electrons, the process animation had never produced the products facing with the Chinese market fully. Although the process animation brings the management models of Europe, America and Japan, it is hard to say these shall be imitated directly. On one hand, working for Chinese bosses and foreign bosses mostly are different, and on other hand, it is not so easy to make them emptying. The management mode and production style really conforming to the national conditions need to grope in the practice equally.

- Classification of Computer Animation & Common Tools
  
  Classification of Computer Animation: two-dimensional animation and three-dimensional animation.
  
  Two dimension and three dimension of computer animation
  
  Two-dimensional Animation: the pictures on the flat surface. Paper, picture or computer screen displaying, no matter how strong third dimension of the picture has, it is just the simulative effect of the real three-dimensional space in the two-dimensional space.
  
  Three-dimensional Animation: The scenes of the painting have the front, side and reverse side. You can see different scenes through adjusting the view point of the three-dimensional space.
  
- Common Two-dimensional Animation Software

  Animation Studio— On the basis of Windows System, it is a multifunctional two-dimensional animation software, integrating with the animation production, image processing and music editor etc.

  Flash— It is an interactive animation production tool and applied in web production and multimedia education course.

  Retas— It is a computer two-dimensional animation software, which is produced in Japan.

  Pegs— It is a computer two-dimensional animation software, which is produced In France.

- Three-dimensional Animation Production

  The computer three-dimensional animation is generated inside of the computer in accordance with the data, but not a simply external inputting. Regarding the production of three-dimensional animation, firstly, the object models shall be built; secondly, let these objects spring into action in the space, such as moving, spinning, distortion and color changing, then to generate the living pictures by the lighting. The process of three-dimensional animation production includes modeling, animation and drawing.

  To sum up, although there are differences of various aspects between traditional and computer animation and each has its own characteristics, they have the same purpose which is to provide visual enjoyment for people so that they would develop together with interdependence.

References