The Study of the Developmental Situation and Trend of Computer-Assisted Design Technology

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Abstract. The computer-assisted design has been applied to all fields of life, especially the industrial design, architectural design and all kinds of art design, which can't be achieved without computer-assisted design technology. In recent years, as the development of computers and the improvement of Internet information, the Internet design occurs in the field of computer-assisted technology, which improves the efficiency of design. The passage focuses on the conception of the computer-assisted design and the applicable situation and gives a further study of the future development trend of computer-assisted technology.

Introduction

In last century, the computer-assisted technology has occurred. With the development of computer graphic technique and multi-media, the computer-assisted technology has been applied to all industries, from industrial and mechanical design to aerospace, to automobiles and electronics, and to architectural design. But the so-called computer-assisted technology refers to the recreation activity in the field of art and other fields based on computer technology. The core technology includes two aspects, one is computer technology and the other is design innovation ability. You can proficiently control the design technique of the assisted design software through continuous study to improve the efficiency of the designers and help them complete the bigger and specific design. However, all these should be built on the design abilities of the designers, including the art ideas, the mechanical graphic ability and three-dimensional modeling ability. So, the computer-assisted technology is an integrated technology, including computer technology, graphics and all kinds of virtual technology.

The analysis of the advantages and disadvantages of the computer-assisted technology

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The computer-assisted technology at first was mainly applied to art design. In the early 90s of last century, we have had the art design, which later became an important design tool, and the computer-assisted design courses began. In fact, the computer-assisted software is an important tool to help people to achieve fast and accurate design. The main assisted software includes two-dimensional PHOTOSHOP, CORELDRAW and later famous AutoCad. And the CAD, which has the similar function is widely used in China, which starts the trend of design localization of two-dimensional design. Besides, it also includes three-dimensional assisted software, such as, 3DS, MAX,PROE, DG, etc, which can be applied to all fields, for example, mechanical design, industrial design, architectural design, environmental design, landscape design, and the final rendering after design, which can be completed by the virtualization of computer to help the leaders to decide. The two-dimensional and three-dimensional modeling can imitate the object in reality and the effect is real. Many 3G animation in Hollywood, which looks like real are achieved through computer assisted technology. From that, we can see the almighty function of the computer assisted technology, which can solve the problems that can't be solved by designers before.

The disadvantages of the computer-assisted technology

The computer assisted technology is opposite to the traditional hand drawing. Hand drawing is less efficient than computer technology and in the industrial design, hand drawing can only shows the design of products. However, in proportion and accurate statistics, hand drawing can never achieve

the level of computer design. But it doesn't mean the hand drawing has no advantages. In some aspects, the effect of computer-assisted design is worse than that of hand drawing, such as the computer-assisted design can hardly create the unique landscape painting or figure painting. Furthermore, the long-time use of computer-assisted technology can bind the innovative ideas of the designers, although the rendering technology can make it look real, which can bring the attic shock sometimes. In addition, many animations watched by children are made through hand drawing, from which, we can know the computer-assisted technology is not almighty. But with computer-assisted technology, we can change many things. Taking animation as an example, the designs are mainly completed by hand drawing combined with computer-assisted technology. Now, the designs are generally combing hand drawing with computer-assisted technology. The designers draw the model, then they adjust the color and refine it by using computer-assisted software, or make it animation. Now, many designers begin to regard hand drawing and computer-assisted technology as their study contents, to further improve their integral strength.

Analysis of the development of the technology of computer aided design

At present, the computer-assisted technology mainly includes two-dimensional and three - dimensional designs. I give an analysis of the development situation of the two kinds of designs.

the development situation of two-dimensional design

Now the two-dimensional design is widely used, involving all aspects of our life, from costumes to business and photography, from industrial creation to building design, from electronic elements to city garden design, in which the two-dimensional design plays an important part. The software like Photoshop, autocad and coredraw can achieve the reproduction of art. It can't be completed without the two-dimensional assisted design from the promotion of business to all kinds of advertisement. I especially talk about the occurrence of autocad, which changes the orientation of the computer-assisted design, which achieving the industrial-assisted design, also including costumes, mechanical elements, electronic elements and other accurate designs, which effectively improves the efficiency of industrial designers, pushing forward the development of modern industry.

The development situation of three-dimensional design

The scope of applicability of three-dimensional design is wide, whose development has caught up with that of two-dimensional design. Now, the fields of three-dimensional designs include stage design, industrial design, architecture, models, environment and art. We can imitate the object which needs designed, such as the PROE, 3DSMAX, UG, etc. These three-dimensional models can design though details and render the nearly real object through enlarging or reducing, including the stage effect and the product itself, etc. It can make the virtual scene as real through three-dimensional animation also known as 3D technology, which makes the characters in the movie more real. Furthermore, with the increase in speed of computer, the time of three-dimensional rendering is shortened, which all give hardware support for three-dimensional development. The key point is to make the hand-drawn document become the 3D design through three-dimensional technology, further improve the perfect performance on image of the designers.

The development trend of computer-assisted technology

The development orientation of modern industrial and art design

In the technological era, any invention and art can't develop without economic basis. With the development of global economy, the industrial level and art design are destined to develop fast. In industrial design, it shows the high accuracy, complexity and design ability with high demand, which motivates the accuracy of the computer assisted design and the increase in speed. The development in art design not only satisfies the simple applicability and attractive appearance, but also shows from the point of innovation and individualism. So the modern art design must be under the support of computer-assisted technology to show its individualism, which needs a closer combination of contemporary virtual technology, animation technology and internet technology to help the designers

to complete the work more easily. In the future, what we need is to depend on the creation of the designers, while the computer assisted technology is to achieve virtualization of the creation of designers through computers to free the designers from the work, which needs the artificial intelligence technology. The hero of Hollywood movie “Ironman” imitated the future industrial design mode when he made his armature. The designers just need to speak out their ideas, and then computers can help complete and produce.

The present problems of the computer-assisted technology

The problems in the development process of computer-assisted technology shows in the following three aspects, firstly, the design lacks innovation. If the designers depend on the computer-assisted technology in the long term, they will lack innovation. As a result, it requires a further study of the exploration of the designers’ innovative ability to improve the innovative ability of computer-assisted ability in conception and free the designers from the complicated operation. As long as the designers speak out the idea, the computer can achieve their conception.

Secondly, the artificial intelligence technology has a bottleneck. Though related scientists have studied out the neural network, they effectively improve the intelligence of computers. But there are still some difficulties to achieve what the designers want. It also needs Automatic Speech Recognition, image recognition technique and the development of other intelligent technology to solve the development bottleneck of intelligent design at present.

Thirdly, there are some problems in the internet integrated technology. Many computer-assisted design software support internet design through dividing a project into many modules, which can be completed by a team and finally through integration by the computer-assisted design software, completing a huge project, and then the technique is achieved. But in reality, there are some difficulties in operation, which not only shows in the designers, such as the different quality between them, causing the mess in the connection of the models and affecting the design effect. On the other hand, there may be computing mistakes in integrating many models with the internet speed and the technique of the operators, causing the bad design effect. So it is important to establish an integral model network.

The future development trend of computer-assisted design technology

With the development of intelligent technology and internet design technology with the other comprehensive subjects integrating into the computer-assisted design, the computer-assisted design technology may utterly change the situation where the intelligent level is low. With the improvement of intelligent level, it enables the entity of designers’ idea, making the design simpler and more creative. Furthermore, with the improvement of molecular and 3D typing technology, through the computer-assisted design technology, it even enables the printing of human organs, stem cells. These are not only the category of design, but also achieve the brand-new design mode, that is computer-assisted design technology can make what you think become true. The change is of epoch-making significance. But now the 3D printing technology has occurred, whose core lies in the three-dimensional design technology and for some ordinary objects, 3D can make it.

The computer-assisted design technology can’t exist without the development of computer. And with the development of artificial intelligent technology, the computer will better combine with the intelligent technology. At that time, the assisted technology is not only conducted by assisted designers, but also can achieve the self-design. From that, we can see the development of computer-assisted design can change to an important partner of designers from the initial designers’ assistant, even can take place of the designers, achieving the intelligent design of computers. while, we humans just need to tell computers what we think, then all designs and production can be completed.

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