The Application of Computer Cartography in Interior Design

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Abstract. With the continuous development of science and technology, computer software and network information technology are also developing, computer graphics technology has been widely used in various fields. With the continuous improvement of people's living standard, all kinds of interior design emerge in endlessly, and the quality requirements of interior design have gradually changed. More and more design institutions use computer technology to improve the contents of interior design, so as to continuously improve the quality and efficiency of interior design, and make interior design more standardized and scientific and technological. This paper introduces the computer drawing technology and the concrete application and method in interior design, in order to improve the working method, improve the level of interior design and realize the leapfrog development of interior design in the future work and life.

1. Introduction
The rapid development of science and technology constantly changes people's work and life, and people's love of life also affects people's aesthetics. With the continuous development of computer science and technology, the design industry is also looking for improvement and development, more and more designers realize that the application of computer technology can achieve more ideal design results. They use computer graphics technology to stimulate their design ideas, many wonderful, seemingly impossible design inspiration into practice. In addition, they can also according to the individual needs of customers, develop a personalized design, more directly express their ideas and customer needs, to achieve a win-win situation. Therefore, computer drawing technology plays an important role in more and more interior design.

2. Basic concepts of computer graphics
Computer drawing actually refers to drawing relevant graphics according to relevant requirements by using computer processing and analysis technology and a series of drawing technology software. Based on the traditional drawing requirements, computer and related software equipment are used as drawing tools, and a computer technology for obtaining, drawing and editing graphic information is realized by using computer related drawing technology and graphic digital processing. Computer drawing technology is also a form of data representation that can be edited by computer function[1]. Computer drawing can store electronic drawings on database, USB, hard disk and other storage equipment. It can greatly improve drawing efficiency, solve difficult and complex problems, reduce labor intensity and reduce labor cost.

In the past era of lack of computer and related technology, interior designers often need to draw a large number of design drawings by hand, each drawing needs to be revised and discussed over and
over again, and it takes a lot of manpower, material resources and time and energy to carry out typesetting design. Even so, there are still many problems and loopholes in hand-drawn drawings, resulting in a variety of errors and defects in practice, and even bad negative effects. With the progress of the times and the continuous development and application of computer science and technology, interior designers have completely replaced the manual drawing method by using computer technology, which has made the design drawings and drawing drawings more and more convenient and fast, and has made the design drawings more and more refined, the structure layout of the drawings has become more reasonable and accurate, and the design effect and design speed have been improved continuously. The interior designers will no longer have the design errors and errors caused by the traditional manual drawing, and the computer design software is being upgraded with the continuous demand of the users, The interior design operation is also handy, the design products are more and more popular with customers, the effect of computer drawing makes the whole interior design field more and more new[2].

3. Types of computer graphics software
In addition to having certain professional knowledge of interior design, professional and excellent interior designers must be proficient in the use of computer drawing software and computer drawing software. Let their design ideas and design ideas through the form of pictures, this is a contemporary designer must have a working ability. Generally, interior decoration design commonly used computer drawing software such as PHOTOSHOP, ACAD, 3DSMAX, VRAY design software.

3.1. PHOTOSHOP mapping software
PHOTOSHOP software PS software is a picture, graphics processing software developed by foreign ADOBE companies. It is also the most widely used drawing software in the global field. It is mainly in advertising design, interior design, website design, graphic model design graphic model design, etc. In the post-processing of effect drawings, the use of PS software can be used to reconcile various colors and colors, so that designers can achieve the design results they want through continuous integration. PS software can not only deal with color, tone, but also layout and add various scene effects, such as related special effects screen, so that the design effect is more interesting and lively[3].

3.2. ACAD production software
ACAD software is developed by a computer company in the United States, mainly used in computer graphics, picture making and processing software. It is not only rich in drawing function, but also simple and easy to operate. It is mainly used in many fields, such as home design, civil engineering design, garden planning design, mechanical drawing design, clothing design, electronic engineering drawing, etc. ACAD software is updated almost every year, which makes the software more humanized and personalized in operation performance and operation interface. The software is very complete, users after editing and modification, can quickly draw all kinds of complex graphics and animation. Many interior designers in the process of use, by completely replacing the traditional manual drawing way, more convenient and efficient drawing, greatly improve the quality of design drawings, to meet the needs of various work and life[4].

3.3. 3DSMAX production software
3DSMAX production software is mainly based on the computer system development of a three-dimensional model and animation production software, is one of the most popular three-dimensional design software used by designers around the world, 3DSMAX the software model design function is powerful, can carry out all kinds of three-dimensional space graphics design, animation scene design and special effects demonstration, in addition to the production and development of film and television repertoire of special effects virtual scenes and so on. The 3DSMax and AutoCAD software can be compatible smoothly. In interior design, the designer inserts the prepared CAD graphic design module in the 3DSMaxDSMAX, develops the 3D space scene design, through any kind
of 3D design module. In the use of their own lighting design system, lighting effect rendering, you can make a beautiful virtual effect. A large number of customers through 3DS MAX of effect drawings or animation, more intuitive to feel the interior design of the tone, modeling style and lighting warm and cold bring different visual experience.

3.4. Vray production software
Vray production software is a simple, small memory space and powerful color rendering software for 3DS MAX specially designed and developed by the world famous 3 software providers. The characteristics of Vray in the design process of interior design effect diagram are generally shown in the following aspects: 1. Vray making software and 3DS MAX perfect fit, and make up for the weakness of 3 in lighting performance[5], especially in some special effect treatment of color addition, such as line tracking, surface scattering, refraction of light, lighting and so on. 2. rely on excellent software R & D design team, Vray software functions and use interface is also constantly upgraded and improved, running very fast, design drawings rendering effect is very excellent interior design software. 3. Vray production software mainly through the basic design packaging and advanced design packaging, two forms of synthesis. The basic design packaging has the basic use function and the low sale price, suits the ordinary student and the general interior designer to use. Advanced design packaging contains a lot of special features, very suitable for professional designers. Therefore, Vray production software can be said to be one of the most popular design software used by interior designers so far. It can be used perfectly with 3DS MAX design software. The various styles and effects of interior design are created into beautiful and high-end design types, showing creativity beyond imagination in representative cases of interior design[6].

Figure 1. Schematic illustration

4. Flow of use of computer graphics
So, how do the design drawings created by the mainstream interior designers through the computer drawing software achieve the purpose of drawing through the use of computer drawing software, the author will take the interior design of computer drawing software in interior design field more intuitively and deeply, the author will take home interior design as an example.

4.1. Graphic layout using ACAD software
The interior designer of the home decoration can use the ACAD software to make the plane layout of the home decoration space according to the basic needs and individualization of the consumers in the process of communicating with the consumers in the interior design. Through the design and production of the ACAD layout plan, this drawing design software can not be separated[7]. First, the company calculates the actual data by measuring the actual area and layout size of the house, and makes the CAD plan by ACAD the drawing design software, After the design is finished, the
designers communicate deeply with the consumers about the layout of the plane layout, and after finalising the design plan, they can avoid a lot of modification of the design effect diagram, thus improving the efficiency of interior design

4.2. Drawing DS MAX 3
Interior decoration designers in the design process not only to communicate with consumers in the early stage, to determine the overall direction of consumers to decorate color and style hobbies layout, after that, will start to organize personnel to make effect drawings. To begin with, use dsMax 3 modules: import the CAD plan module into the 3 drawing software, and then complete the description of the whole frame part of the design plan through professional lines, enter the relevant password and the actual height of the house, attach the design and decoration materials, and then connect the windows, floors, ceilings and other plates of the house in the same way. Then in the design space layout, relying on the furniture placement position of the CAD plan[8], using the 3 dsMax modules of furniture derived from the database suitable for consumers, including all kinds of household appliances and soft clothing, connected to the layout module, and then connected to the same module Vray production software, which can continuously improve the efficiency and effect of interior design. Here, the design effect diagram has been basically completed more than half, in addition, in the process of designing the layout model, some layout elements need to be set up with the Vray material, This is the basic completion. 2. the placement of camera angle, through the scene, according to the family function area planning different settings, camera angle placement is also different, roughly divided into living room, dining room, kitchen, bedroom, bathroom and so on, these layout design viewing angle is different, need to set design parameters, this is a very important step, will affect the entire design drawing effect experience[9]. 3.Vray software in the drawing process lighting effect design: this needs to be achieved through the home main lighting and atmosphere lights and other light sources design, in the process of adapting to process, through the overall coverage of the light source, this can be a good simulation of the day, solar light through the window effect, here, recommended beginners interior designers in the selection of software environment settings in the sky option, so that even if the design scene has no lighting effect, the entire interior design environment can look very bright, It is convenient for consumers to observe the design of the scene quickly and intuitively. After completing these steps, the operator can output the command according to the F9 to render the interior design scene setting drawing until satisfactory[10].

4.3. Image processing by using PhotoShop software
The quality of the picture is proportional to the length of the rendering time. The higher the quality of the drawing, the longer the rendering time will be. If the light source or auxiliary light of the home main lamp is not in place, then the effect map of the home will show a more dark effect. PhotoShop software can be used to adjust the color, color temperature and color difference of the drawing, which can effectively make up for the dim light of the drawing effect design. However, assuming that the rendering parameters of the drawings are not set well, the effect design drawings of the drawings will show the problems of fuzzy design pictures, serious light leakage and overexposure, which will increase the difficulty of processing the PhotoShop software. In order to improve the quality and efficiency of drawings, interior designers will re-render and make drawings[11].

5. Conclusion
With the development of the times, in today's social life, artistic creation and design need comprehensive designers' self-experience and speculation on social humanities and art, in order to adapt to the trend of diversified development of contemporary business and domestic humanistic society. The vast number of interior designers are thinking every day about how to make first-class interior design drawings, but this can not be achieved in a short time, which requires designers to first have a solid basic art painting skills and aesthetic innovation ability, but also the local customs, cultural environment, consumer hobbies and other comprehensive understanding and exploration,
A perfect interior design drawing must have good design ideas and innovative ideas, it and people's daily life, clothing to interior design drawings to give a new soul. In the process of making drawings, interior designers should constantly sum up experience and successful cases, accumulate experience in life and work, and get exercise and inspiration through a large number of creative design practices, which is the only way for the development of interior design creation.

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