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Development and Application of Three-dimensional Folded Garment Design System Based on Woven CAD

Dugang Guo[1,*]

[1]Weifang University of Science and Technology, Shouguang, Shandong, China, 262700

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Abstract

In the context of the current era, network technology continues to develop and innovate and people's awareness of design and manufacturing concepts continues to deepen. Business management has undergone changes to varying degrees and many new design and manufacturing systems have emerged, such as concurrent engineering and digital design. With manufacturing, collaborative design, etc., relying on modern management technology and information technology can shorten the product design and manufacturing cycle, promote technology update and development and seek sustainable development of the company while enhancing the core competitive advantage of the company. The application of CAD technology in product design and manufacturing has received extensive attention and attention from all walks of life. The application of CAD has gradually deepened and the strategic goal of networked, digitalized and integrated development of enterprise production cycles has begun to be put forward. It is an inevitable choice for the development of CAD application engineering and it is also an inevitable choice for the reform and upgrading of my country's traditional manufacturing industry. However, most designers do not understand this knowledge. If elements with the characteristics of the times are added to the teaching materials, it will not only promote the expansion of the designer's thinking, but also improve the designer's aesthetic ability and then keep up with fashion trends. In addition, it is necessary to appropriately add the part of the teaching content of analysis of current fashion trends, so as to allow designers to have a deeper understanding of the fashion trends on the market and then clarify their design direction.

Keywords: *Clothing Design, System, Development;*

1. Introduction

Modernist clothing design pursues the unity of functionality and simplicity, abandoning complicated decorations and unrealistic functions. The clothing style is influenced by the modernist clothing design style, which shows a simple and simple beauty. The characteristics of clothing are the bright lines and sharp outlines, giving people a clothing design structure that can make it independent of the wearer's body. Make the style of clothing closer to practicality and more satisfy people's demand for comfort. The costume designer discarded redundant decorations and arranged the appearance, materials, process structure and other elements as reasonably as possible to make modern women's clothing develop in the direction of simplicity. This kind of "reductionism" and modernism advocated "less is more". Coincidentally. Modernist clothing design is carried out under the premise of industrial development, so it meets the needs of modern times. It shifts the former purpose of serving the powerful and powerful to serving the public as the center. Under this influence, clothing design has also become more and more important. The more attention is paid to the requirements of the design objects, the more they meet the aesthetic

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considerations of the public. The aesthetic and function of modernism is manifested in clothing that clothing design no longer takes form as the starting point, emphasizes the importance and practicability of function and emphasizes comfort based on people. This led to the innovation of fabrics, which no longer adhere to formalism. The influence of modernist clothing design style on clothing has become more and more obvious and it has become the source of inspiration and design elements for designers in the shows in recent years. It has become an important part of clothing design with its concise features and practical functions[1].

2. CAD technology

AutoCAD is mainly used for two-dimensional and three-dimensional drawing using computer drawing software. It involves many aspects of knowledge such as mechanical drawing, computer basics and software applications and is relatively comprehensive and professional. It is drawn with the help of a computer platform. Woven CAD technology is a new design reasoning method. Given existing design examples, a design warehouse is formed on the basis of information and knowledge, which can more accurately provide designers with the knowledge needed for product development and understand the designers' intentions , Automatic detection and correction of problems and suggestions for improvement. At the same time, woven CAD technology can meet the operational needs of newcomers and has reasoning functions. Even novices can easily carry out innovative designs. At present, people are beginning to try to integrate innovative techniques and artificial intelligence technology into CAD technology through intelligent design. And intelligent manufacturing to solve the design and manufacturing problems of new products and create more creative and contemporary products. Woven CAD technology has outstanding advantages. The application of this technology in mechanical design and manufacturing can improve the problem of repeated design and improve the efficiency of information resources. It has a positive effect on shortening the product design and development cycle and improving product efficiency. Concurrent design method is the main design method of woven CAD system. It is an effective means for product life cycle design. In product development and design, product process planning, assembly, manufacturing and maintenance are comprehensively considered. Each link is integrated in parallel. Not only can the product design cycle be shortened, but also the product design quality can be effectively improved. Intelligent scheme design, optimizing the entire design process, shortening the design cycle, reducing costs and improving design quality play a prominent role and are the key points of product innovation design. Optimize the design of intelligent schemes, select reasonable design methods based on product functions, promote intelligent scheme design and realize the optimization and integration of artificial neural networks and fuzzy intelligence. In addition, object-oriented selection of appropriate design methods, establishment of overall object models, optimization of object parameters and changing parameters to meet the design requirements of different objects. Through this method, a more intelligent CAD system can be established[2]. The CAD system is in the figure below.

Figure1.CAD system.

3. Clothing design technology

3.1. Internal structure

The requirements for the internal structure of woven CAD in clothing design are mainly in terms of

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comfort and practicability, because many designers and beginners may make the mistake of pursuing open design thinking and overall collocation. In the process of sense and three-dimensional sense, the overall requirements of the internal structure of clothing design are ignored. Perhaps with the social progress and the changes in the aesthetic needs of the public, people's pursuit of unconventional styles has become more and more intense. Whether it is the asymmetric design on the neckline and the hanging design on the hem, it is a highly tensile woven CAD. Application embodiment in clothing design. In order to allow the wearer to experience the coexistence of exquisiteness and simplicity, exaggeration and detail symbiosis, designers need to make specific designs for details in the structural design of the internal structure as much as possible and fully implement the connotation and feelings of clothing design[3]. The CAD core system is in the figure below.

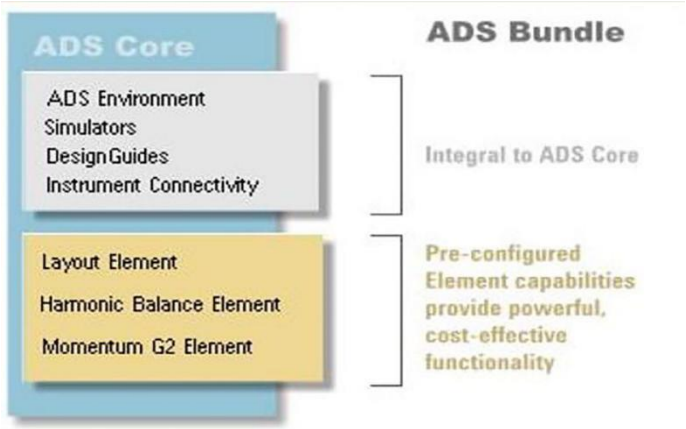

Figure2.CAD core system.

3.2. Color

In clothing design, color is an element that most easily affects consumers' feelings except for external contours. There will be corresponding popular color trends in every season. Designers need to make full use of the visual enjoyment that the seasonal popular colors can provide to the wearer. To deconstruct. First of all, when color deconstruction is fully utilized in the clothing design, it not only subverts the traditional clothing materials and brings new breakthroughs, but also adds more fun and more special texture effects to the clothing design, or a variety of textures. The stacking combination with colors, or the various forms of layered folds and tassels, all express the beauty of the individuality that the clothing needs to show. Secondly, when the designer is in the process of mutating and exaggerating the clothing material, that is, when he creatively damages it, he can not only combine the physical and dynamic characteristics of the material, but also use the incomplete ambiguity and the exaggerated alienation effect to make the clothing. The partial design of the clothes adds the personalized effect of the clothing, making the whole present a completely new state[4]. The CAD clothing design system is in the figure below.

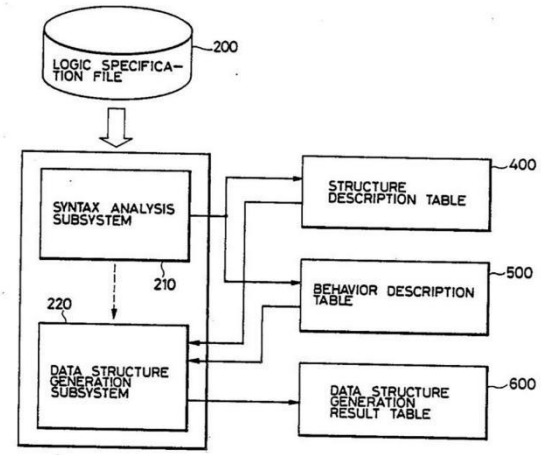

Figure3.CAD clothing design system.

3.3. Clothing materials

Clothing material is the most basic carrier and material basis for clothing design. As long as it is clothing, it needs to show its own style and color through clothing materials. In the process of combining woven CAD and clothing materials, it often breaks out of the original clothing fabric combination method, using the designer's imagination and color combination ability to re-deconstruct and use clothing materials. For apparel fabrics, woven CAD will often digest, subvert or negate it to transform its traditional styles, so that apparel fabrics can present new visual effects in different states, no matter it is simple Wuhua is still a noble and elegant style, or a romantic, fresh and austere style of clothing may be displayed on different clothing fabrics. Under a clear positioning,

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it can ensure that the aesthetic needs of the audience are fully met.

4. CAD-based clothing design system

4.1. Application in clothing design planning

The basics of clothing design projects are project planning and design. Therefore, in the stage of clothing design planning and design, geological, hydrological and economic conditions need to be considered and any influencing factor will have a direct impact on planning and design. Therefore, CAD systems should be used to Reasonably plan, use planning information and query functions, establish a special database and perform real-time query and storage of the data that needs to be used; use an information analysis system to analyze influencing factors, so as to fully understand the actual situation of the area and Design planning brings more reference; planning auxiliary production system can play a certain auxiliary role, calculating and planning some details that need to be supplemented, so as to better improve clothing design planning.

4.2. Application in clothing design

At present, CAD technology has been widely used in clothing design. It has advanced calculation methods and the collection of location data is more accurate. It can effectively improve the accuracy of drawing and strengthen stability. Even for some special geographic environments, it can be obtained. To generate accurate data, the application of CAD technology can greatly relieve the pressure of the staff, reduce the workload and improve work efficiency[5]. The CAD connect system is in the figure below.

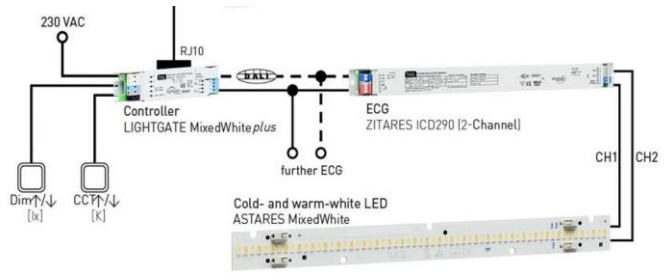

Figure4.CAD connect system.

4.3. Application in clothing maintenance

CAD technology can be applied not only in design and planning, but also in clothing maintenance. In the process of using clothing items, large and small problems will appear. Therefore, it is necessary to deal with the problems according to the design drawings, so as to make efforts for the maintenance of clothing items. The emergence of CAD technology also solves the preservation of drawings. The time is not a problem, the use time of clothing items is longer and the storage time of drawings is relatively short, CAD technology can promote the maintenance and maintenance of clothing items and the drawings can be consulted at any time. The CAD network system is in the figure below.

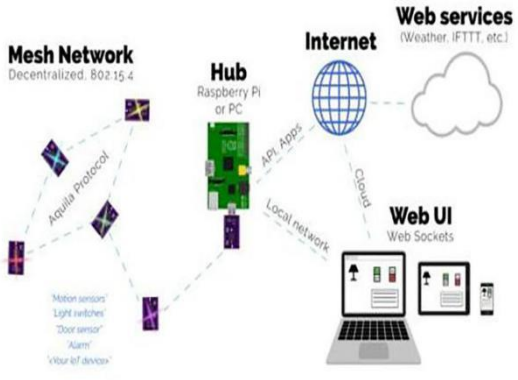

Figure5.CAD network system.

4.4. Application in the clothing construction cycle

The completion of a clothing design project involves many departments, including bidding quotation, project construction and acceptance, etc., especially in the bidding quotation stage, a lot of clothing design needs to be calculated and it takes a long time to apply CAD technology It can effectively solve this problem. Import the drawn floor plan or construction drawing into the engineering cost software and use a professional calculation system for accounting. On the one hand, it improves the accuracy of calculation, on the other hand, it also greatly reduces the work of the staff. Pressure, saving calculation time, the application of CAD software in network calculation and drawing is already an indispensable part of the bidding stage, which improves work efficiency, saves funds and

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costs and also increases the economic benefits of the enterprise[6].

5. Conclusion

CAD technology is widely used in clothing design and can effectively promote construction efficiency, improve design and construction quality, reduce work costs and can improve the accuracy and precision of clothing design and design and help corporate employees to relieve work pressure , Designers should also actively learn CAD technology and apply it to clothing design, change the traditional drawing methods in the past, so that more and more engineering projects can improve the quality and also enable the communication between designers and construction personnel Smoother, extend the service life of clothing design and promote the long-term sustainable development of the enterprise.

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