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AR-Based Clothing 3D Simulation Design Online Smart Curriculum System Design and Mobile Software Implementation

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Abstract:This article studies the computer-aided realization of the online smart classroom of clothing design and its mobile software from the perspective of big data. The application of AR in the production of three-dimensional clothing models is described, the current situation of computer-aided design in clothing design is analyzed, and some application strategies are proposed. Promote the innovative development of the apparel design industry. Combining the background of big data, this paper proposes an innovative clothing design strategy based on AR three-dimensional model. Starting from the various elements of clothing design and discovering fashion elements from the perspective of data mining, it can achieve the purpose of clothing design innovation to meet the ever-changing social needs.

Keywords: AR, 3D Simulation, Online Smart Curriculum, Mobile Software

1. INTRODUCTION

In the 21st century, with the development and promotion of computer networks, mobile Internet and other technologies, computer technology has been fully integrated with social production and life, and "data" has penetrated into all aspects of people's lives [1]. Information data continues to grow massively [2], and human society has entered the "big data era". Applying big data-related information technology theories to clothing design is a major trend for clothing companies to respond to the continuous changes in market consumer demand [3]. Innovating traditional clothing design thinking and brand management concepts, proposing and optimizing clothing [4] design models under big data, can guide clothing companies to avoid market risks, prevent blind product development [5], improve the company's ability to respond to emergencies in the market, and also help Broaden the development [6] direction of enterprises and improve their competitive advantages in the market. Compared with traditional clothing brands [7], apparel e-commerce brands have achieved more rapid development and grasped the needs of consumers in a timely and accurate manner. To a certain extent, this is due to the former's effective use of information technology related to big data [8].

How to calmly respond to the increasingly mature needs of consumers under various changes is becoming a new challenge to test the construction of a rapid response system for every apparel company [9]. Popularity means that a certain thing spreads widely in a certain area for a period of time and is quite popular. In modern social life [10], it can be said that nothing (except epidemic diseases) is more prominent than the popularity of clothing [11]. A certain color and a certain style will be popular in the entire region in a short time, and will be replaced by new models [12] and new colors in a short time. Its spread and update speed [13] is fast, and it involves a wide range of people [14]. It is other Things beyond reach. Therefore, it can be said that popularity has become one of the important characteristics [15] of clothing. With the progress of material civilization and the improvement of people's cultural literacy and aesthetic appeal [16], clothing, as a special product that can show personal status, cultivation, and personality, its popular characteristics [17] have become more and more prominent, and it has also become a must for the prosperity and development of the clothing industry. condition. The popularity of clothing is not only [18] reflected in the fact that a certain style has changed from the dress of a few people to the dress of the majority, and it has become the most common dress in a certain area at a certain period [19], that is, the popularity of fashion; at the same time, it is also manifested in the replacement of new styles in terms of fashion changes. The old model, the new color [20] replaces the old color, the new and the old change, that is, the evolution of fashion. The popularity of clothing is firstly based on human physical and psychological factors [21].

This paper uses 3D character modeling to control the behavior of the model to improve the realistic and smooth effect of 3D virtual animation. Augmented reality [22] (Augmented. Reality, AR for short) is bringing changes to the world, even though it is currently only an emerging technology. A report issued by the investment bank [23] Digi-Capita in 2015 believes that the AR market in five years will reach 120 billion U.S. dollars, which will change the fields of games, variety shows, medical care, education [24], online shopping, sports events, military, news, etc. m. At present, MagicLeap is the world's most watched augmented reality company, with a valuation of at least US$4.5 billion. Google, Microsoft, Sony and other technology giants and investors are paying attention to the AR field. It is one of the research hotspots of many well-known technology companies, universities and research institutions at home and abroad in recent years. It represents the future of technology. Image cartoonization the third type of realization method is to use the material in the material library to match or replace the facial features of the face image to obtain the cartoon image.

In the clothing display, it must be combined and regularly changed by multiple design elements of the same group; the fashion trend in the clothing design process belongs to the link where single or multiple content elements change with the changing aesthetics of the times. For this reason, in the construction and improvement of the actual clothing fashion trend optimization model, it is necessary to efficiently innovate and create design elements in the process of correctly grasping the clothing fashion trend. Clothing design

elements mainly include silhouette, color, and material. At the same time, after the above clothing elements are confirmed, details should be taken as an important content to actually distinguish popular elements.

2. THE PROPOSED METHODOLOGY

2.1 The AR Technology

AR allows users to use the sophisticated 3D polygon modeling tools provided by 3ds Max to create models in an augmented reality environment. Air-Modeling provides a CAD (Computer Aided Design) interface that allows users to create virtual conceptual models in an augmented reality environment through some gestures. The modeling methods used in these systems are actually the same as those in traditional modeling tools, which is very difficult for children to master. Bergig et al. proposed a framework for constructing three-dimensional scenes in an augmented reality environment. This framework allows users to create common mechanical systems from some simple hand-drawn drawings. However, their system is only limited to some simple three-dimensional models and some specific attributes, which makes this system more suitable for certain specific application scenarios such as those related to mechanical systems. Augmented reality, English translated as augmented reality, referred to as AR in the industry.

Early augmented reality book cases require specific tools to be realized, and learners need special glasses tools to watch 3D scenes and animations. This is the case with Magic Book, the earliest example of using this technology in the education field. With the continuous maturity of technology, the combination of augmented reality technology and the application of mobile terminals has achieved a three-dimensional animation effect on the mobile phone screen. For example, Poonsri's research on the effectiveness of The Seed Shooting Game, the use of AR technology in 3D pop-up books, combined with storytelling skills, provides students with a fun way to learn English. Andreas Dünser and Eva Hornecker passed two AR books Big Feet and Little Feet and Looking for the Sun conducted experiments on how children realize interactive reading and how to independently use AR technology. The research results show that most children can use AR books independently without too much help, especially when the story in the book has a clear structure and interactive sequence (which can be used to reproduce or promote the storyline) . As AR technology has a more prominent impact on visual and auditory stimuli, Valéria Farinazzo Martins and others have studied Music-AR in order to train children's awareness of environmental sounds. Music-AR uses a series of dialogue games to cultivate children's perception of music. Through comparative experiments, it is shown that children can learn about pitch, sound intensity, duration and timbre through AR technology, so that they can prepare for music cognitive exercises in advance.

2.2 The Online Intelligent Course On Clothing 3D Simulation Design

Traditional clothing design work, more adhere to the past design methods, through hand-drawn design sketches, and then a series of design work, did not apply computer technology to the design work, and did not fully realize that computer-aided design in clothing Role in design. In addition, the application of computer-aided design does not fully reflect the style and aesthetic characteristics of clothing, so that computer-aided design is still subject to traditional clothing design concepts and cannot fully reflect the superiority of computer-aided design. Designers have not conducted in-depth research on computer-aided design, and their application in design is not enough, which also affects its role.

We can understand that in the first-level optimization process, the nature elements, model profile properties, color properties, material properties, and details of popular clothing are processed; the second-level optimization process is to perform corresponding clothing on the shape elements of popular clothing. The main points are highlighted; the three-level optimization process is to perform in-depth fashion element processing on the composition of the clothing according to the two elements of fashion clothing, and carry out the design and production of new products when the content conforms to the fashion trend elements. In the real clothing aesthetics and consumption awareness of clothing, the selection and arrangement of popular materials corresponding to clothing design element models is also in the process of effectively developing modern clothing design, and the corresponding elements of clothing design are carried out. Optimize and improve.

For clothing consumption, fashion depends on the stage at which consumers intervene. The degree of fashion of consumers depends on their own values and aesthetics. Different values, aesthetics and economic conditions determine whether they are in the initial period and climax period. Or add to the trend of fashion during the recession. Under normal circumstances, the individual consumer's fashion level remains unchanged, so we see that some people around are always fashionable, while others are always out of date.

2.3 The Mobile Software Realization of Online Wisdom Course System

At present, most of augmented reality is in the experimental demonstration stage, and there is no large-scale popularization application. It is necessary to solve the technical problem of registration and positioning first, and its huge application potential may be realized. Registration is one of the most basic problems currently restricting the application of augmented reality technology. In augmented reality, the corresponding objects in the real world and the virtual world need to be aligned with each other, or even precisely (the error is less than a millimeter). For example, in medical probe biopsy, if the virtual target is not aligned with the tumor, the surgeon may find the wrong tumor location and cause the operation to fail. If augmented reality lacks precise registration and positioning, it will not be accepted in many practical applications.

Computer-aided design also has richer colors, which can break through the limitations of pigments on design, so that clothing design can show more colors and increase people's aesthetic experience. Designers can use a variety of color patterns for bold collocation design, show the designer's artistic imagination, give play to the designer's artistic creativity, and inspire more design inspiration. The traditional clothing design method relies on hand-painting, and a large number of places need to be filled in the drawing. This will consume a lot of time and energy of the designer, the design efficiency is low, and the accuracy of the drawing cannot be guaranteed.

the application of sports APP helps to solve the contradiction between the shortage of national fitness venues and the low utilization of a large number of social stadiums, and even the idle waste. It improves the information level of the sports industry and effectively promotes the construction of the

sports industry informatization. process. In the process of developing national fitness exercises, many areas of our country have seen such a phenomenon. On the one hand, residents feel that the venues and facilities for sports, fitness and leisure are not enough; on the other hand, the utilization rate of a large number of sports venues in society is even lower. Quality is an important indicator of clothing products. The design of different materials can make clothing products show different attributes. With the design support of computer-aided technology, the fabric parameters can be defined to analyze the relationship between the fabric and the clothing product in the actual application process.

3. CONCLUSIONS

This article analyzes the 3D clothing design model based on AR. In the research on the optimization model of fashion design elements, we learned that in the actual development of the design and change of the three elements of clothing silhouette, color, and material, through the analysis and combination of the trend of each link, and according to the actual development the overall cultural direction and brand style of the clothing brand. In the process of online smart classroom, computer technology is used as a scientific support for the trend optimization model of clothing design, and the mobile software is managed by layers.

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