

Development of Edge Feature Terminal of Intelligent Interactive System Based on Psychological Interactive Computer Test System

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Abstract:By studying the existing evaluation methods of human-computer interface usability, combined with some characteristics of the current human-computer interface, and based on the design principles of design psychology, the improvement of usability evaluation methods is proposed. Guided by these usability evaluation methods, then determine the interactive content and form, and design the interactive interface features to improve user experience; discuss the gesture recognition technology based on action fragments, face recognition technology and data based on WPF technology in the system implementation Resource integration and integrate holographic projection display technology into the display system. A real-time recommendation method of terminal security policy based on machine learning is proposed. The trained security policy selection model is deployed on the edge side to select and recommend terminal security policies in real time.

Keywords: Edge Feature Terminal, Intelligent Interactive System, Psychological Interactive, Computer Test System

1. INTRODUCTION

Smart city construction has gradually become a social trend. In the past ten years, more than 1,000 cities in the world, including Chinese cities, have carried out research on related topics and policy formulation around smart cities [1]. JH Lee and H Chourabi et al. [2-3] both believed that the Internet of Things (IoT) and information communication technology (information communication technology). Usability evaluation is to evaluate the usability of human-computer interaction to find interaction problems.

Improve the interaction design and improve the usability of the interactive interface. Through usability evaluation, it can not only reduce the time for users to learn and operate the software, but also improve efficiency and user satisfaction. A charming teaching system [4]. However, most of today's teaching systems are developed from an engineering perspective and do not fully consider user experience. Therefore, most teaching systems often fail to take into account the needs and characteristics of learners, are not humane enough, and cannot always bring users attractive or pleasant experience [5].

In the future, 5G mobile communication will no longer rely on the deployment structure of large base stations, and a large number of small base stations will become a new trend, which can cover peripheral communications that cannot be reached by large base stations [6]. Due to the adoption of higher frequency bands, the number of base stations will further increase. The construction of radio and television networks is a key part of the triple play. Compared with Hong Kong, Taiwan and Europe and the United States, the mainland's online interactive TV has a relatively late start, but it has developed rapidly. With the continuous development of the construction of the next generation of broadcast and TV networks, the functions and services of digital TV are becoming more and more powerful, and the development from "broadcast" to "interactive": before, what kind of programs did cable TV providers broadcast [7].

To solve these two problems, this chapter proposes a video description model VD-ivt that combines visual and textual information. The model consists of three channels, the first channel is based on the CNN-LSTM codec structure to generate video description sentences in the testing phase [8]. The second channel is the language model, which is used to learn the language information in the descriptive sentences. To sum up, study the terminal security strategy under edge computing, respond to terminal security threats in a timely manner on the edge side [9], establish a real-time and effective security strategy selection model, and recommend appropriate security policies are of great academic significance and application value for managers to ensure the secure access and application of terminals [10].

Is the study of the design, evaluation, and implementation of interactive computing systems for human use and the science of these phenomena. Human-computer interaction is a comprehensive scientific discipline involving computer science, psychology, sociology, industrial design [11], and graphic design. A platform with a wider and more influential user base is a teaching platform developed by an American company, and educators can use the platform for teaching management [12]. At present, a large number of open-source network teaching platforms have emerged, providing great convenience for universities to use network teaching platforms for teaching [13].

In order to further ensure the safety of the equipment and keep abreast of the operating status of the equipment, so as to improve the maintenance efficiency of the communication equipment and ensure the stability of the network, the macro base station is often equipped with a dynamic environment monitoring system [14]. The complete system includes monitoring of network equipment such as switches and servers. Visual attention must be used to constantly switch between the TV screen and the remote control, which inevitably affects the user's browsing and viewing behavior of interactive programs. How to make the interaction process

between users and interactive TV more effective, easy to learn, efficient and memorable [15].

S. Wang et al. [16] designed a weighted keyword search scheme based on attribute encryption to solve the matching degree problem between keywords and ciphertext and provide multiple search mechanisms to make it more friendly to fog computing. Focus on communication infrastructure respectively construction, management and sharing of electronic data, automation of information network operation and decision-making assistance [17]. However, the interaction between the public and information lacks sufficient attention. The current interaction scheme relies more on terminals such as smartphones, and there are few information access ports in public places.

2. THE PROPOSED METHODOLOGY

2.1 The Psychological Interactive Computer Testing System

Just as usability can be quantitatively and qualitatively analyzed and evaluated from several dimensions such as effectiveness, efficiency, and user satisfaction, user experience can also be quantified from four important factors, namely: impression, sensory impact, usability, and functionality. and content. These factors interact and are inseparable, and together they form the concept of a correct user experience. Vision is superior to any other sense and is the most direct way of perception. In the early 1900s, German psychologists discovered that human vision is holistic and can perceive the overall shape and graphics. This theory is called the Gestalt principle of visual perception.

The gestures described in this paper are an alternative or supplementary way of using a smart mobile terminal for application control. Before discussing further, the technology of gestural interaction systems, it is necessary to classify sensor-based control systems to distinguish the difference between the various methods. The field of human-computer interaction has always been inextricably linked to psychology, the usability of human-computer interface Evaluation itself is an important part of software psychology. Existing usability assessment methods are summed up by applying various psychological methods to the design of human-computer interfaces. For example, cognitive walkthroughs involve psychological knowledge in cognitive psychology. Usually, we use the Cronbach coefficient to calculate the internal consistency of the test.

Usually, if the Cronbach coefficient is greater than that, it indicates that the measurement tool has good reliability, and the measurement tool can be used; if the Cronbach coefficient is smaller than that, it indicates that the measurement tool is invalid. The system includes a potential data acquisition module, a recognition block, and an application module. The data acquisition and dyeing module is responsible for acquiring the acceleration of the user's actions and transmitting it to the potential recognition input block. This channel is a channel that combines video and text information. At the left end, the average feature extracted based on the Alex Net network is input first, and then the words in the text description sentence are input in reverse order, and the fusion representation of visual and text information is obtained by encoding.

2.2 The Smart Interactive System

Landing characteristics - it takes time for pedestrians to notice the interactivity of the device, by the time pedestrians realize and decide to interact with the device, they have likely missed

the optimal interaction position and have to rewind a distance; usability as per ISO Definition, including three aspects of effectiveness, efficiency and subjective satisfaction. According to the definition of Nielson et al., it includes five aspects: learnability, efficiency, memorability, low error rate and satisfaction.

These dimensions are similar with minor differences and are important indicators and principles for designing product interface. Instinct sensory layer is the first layer that users come into contact with when interacting with the system, and it is the layer that brings sensory stimulation to people. The interface design in the system's network teaching system is the same as other websites, mainly expressing information through visual elements. This module has two functions: one is to display the gesture recognition results, and the intelligent mobile terminal provides users with feedback in the form of voice at the same time, it provides an intuitive basis for the system's gesture recognition rate statistics. The second is to apply the recognition results to practical purposes, that is, to use gestures to remotely control the TV set-top box to test the actual effect of the algorithm in this paper.

It is used to solve the problem of lack of text supervision when extracting visual attention information. In the text generation stage of the model, the attention information of the words to be predicted at the current moment is added at each moment, and the connection between the attention at different moments is established. In interaction design, there is no unified design principle that satisfies usability and user experience at the same time. For example, a green background can relieve visual fatigue better than a red background for users, but if the user is a shareholder, he will feel that green is unlucky and reduce the user's risk. satisfaction and user experience. The psychological reflection layer is the highest level of experience. Its design is closely related to the deep thinking and psychology of learners. The goal of this level is to shape its own brand value, create unforgettable memories, and make users feel happy in the process of interacting with the system.

2.3 The Research and Development of Edge Feature Terminal for Intelligent Interactive System

According to the analysis of the above requirements and characteristics, the content of public information services can be divided into three types of interactive contents: visual interactive display, information service customization, and communication/emotion map, and the corresponding interactive mode is determined. In this hardware structure, the system design in the debugging stage, the remote server can rent cloud servers, such as Alibaba Cloud servers, Tencent cloud servers, etc., or use computer hosts to configure servers, and consider purchasing professional servers when commercializing.

First, perform protocol analysis and perform lightweight and fast security authentication and identification; then, during data transmission, perform data encryption and privacy protection; after an attack is found, data packet transmission can be blocked and data backup and recovery can be performed using lightweight technology, protect data security in real time. In addition, the design of icons, graphics and images should be used as much as possible, because images in the page design elements of the teaching system can attract visual attention, increase the viewing and interest of webpages, and fully mobilize the enthusiasm of learners. First, according to the design requirements, write the drivers

of each functional module separately, then carry out the program synthesis, and then compile and link in the Keil integrated development environment to check whether there are obvious bugs.

Then download it to the system board for verification. In the ISO31000:2009 risk management standard, risk is interpreted as "the impact of uncertainty on things", and the intelligent industrial control system believes that risk is controlled by both functional safety and information security. Yes, the purpose of security protection is to control the risk within an acceptable range, and the risk value should be considered when choosing a security strategy. According to the risk management standard. This is because these design principles are based on human psychology. Whether it is cognitive psychology, design psychology or software psychology, one of its research objects, human psychological activities and behavior analysis are maintained. Invariably, the only difference is from which perspective of human psychology to look at and solve problems.

3. CONCLUSIONS

In this paper, a set of base station edge intelligent monitoring system is designed by combining the idea of dynamic environment monitoring system and edge computing, and the design of edge system structure, data acquisition method, transmission process, Web presentation and storage is completed. This system uses the physiological characteristic information of interactors Enhance the pertinence and flexibility of public visual communication content display; increase public participation in urban life by empowering people to create public information; integrate urban emotional maps into the system. More focus on the development of existing computer human-computer interaction technologies the direction is combined with the design principles of design psychology, and the improvement of several existing usability evaluation methods is proposed, thus contributing to the research of psychology and human-computer interaction.

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