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Student Mental Health Cloud Assessment Algorithm Based on Blink Frequency Image Detection Algorithm in Heterogeneous Network Environment

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Abstract:With the development of society, the environment that contemporary college students live in becomes more and more complex, and the mental health of college students has become a very concerned issue at the social level. This paper firstly introduces the relationship between blink frequency and college students' mental health, and uses the blink frequency image detection algorithm to evaluate college students' mental health based on complex heterogeneous networks. Then use C++ to design a cloud evaluation platform for students' mental health in a heterogeneous network environment, upload the evaluated mental health data to the cloud platform based on big data, and use cloud evaluation algorithms to comprehensively review the mental health of college students. Finally, a joint ranking model is used. "MutuRank" tests the mental health intelligence evaluation index of college students. The results show that the method can comprehensively and objectively describe the change characteristics of college students' mental health, and the results of the intelligent assessment of college students' mental health are stable.

Keywords: Student Mental Health, Cloud Assessment Algorithm, Blink Frequency Image, Heterogeneous Network Environment

1. INTRODUCTION

As the number of college students continues to increase, and the pressure of college students' study and employment is increasing, the probability of college students' mental health problems is getting higher and higher, which brings severe challenges to social stability and college management. College students' mental health problems have caused social problems. attached great importance to [1-2]. Major colleges and universities have set up activities such as mental health lectures and consultations, but due to the influence of the psychological characteristics of college students, the effect of such activities has gradually diminished [3]. Therefore, it is of great social significance to study an effective mental health assessment method for college students [4] Association rule algorithm is a kind of important algorithm in data mining. decision support.

Apriori is an association rule mining algorithm, which has the advantages of simple calculation, easy understanding and low data requirements, and has been widely used in the field of data mining [5]. Biometric identification is a technology that uses biometric acquisition devices and computer technology to identify individuals based on the inherent characteristics of the human body. It is currently the most convenient and safest means of personal identification [6]. The current biometrics can be roughly divided into two categories: external features - such as fingerprints, face, palm print, iris, voice, gait signature; internal features - hand veins.

Teaching evaluation is an important work in the field of education, and it is also an important indicator of teaching evaluation [7]. Due to the imperfect evaluation mechanism, the current teaching evaluation system of school education and education training is facing many challenges. But there is no systematic theory. With the continuous thinking and exploration of social networks, and eager to obtain important potential information from social networks, social network analysis [8], a new research field has been rapidly developed with the maturity of data mining technology development has also attracted more and more attention [9].

Compared with other biometric identification technologies, finger vein identification technology has the following advantages [10]: (1) Internal features: finger veins are located under the human epidermis, so there is no damage, wear, dryness or too much damage to the finger surface. Wet and other recognition obstacles. This paper mainly studies the image matching technology based on deep learning [11]. Firstly, the research background and significance of image matching are summarized, and it is concluded that the traditional image matching algorithm has poor adaptability to interference such as occlusion and deformation, which brings certain difficulties to template preparation [12].

The follow-up briefly introduces the research on image matching algorithms at home and abroad, and briefly analyzes the existing image similarity comparison networks [13]. Infrared images are usually used in the far field of view. According to the wavelength range, they are divided into near-infrared, short-wave infrared, medium-wave infrared, long-wave infrared, and far-infrared, low contrast, and low spatial resolution; remote sensing images are usually used in space-based observations, which are further divided into single-channel panchromatic images and multi-channel hyperspectral images [14].

The intelligent assessment of college students' mental health can help student administrators understand the changes in college students' mental health, and formulate corresponding treatment plans according to the psychological state of college students. Therefore, the design of intelligent assessment methods for college students' mental health with excellent performance has important practical application value [15]. The mental health status of college students is reflected through the contents of the self-assessment scale. However, with the changes of the times, the psychological characteristics of college students have gradually become more complicated [16], and some of the contents in the

evaluation form are no longer suitable for the description of the current state of college students' mental health. Association rule algorithm is a kind of important algorithm in data mining, which is to find the association or correlation between itemset in a large amount of data, and provide support for management decision-making [17].

2. THE PROPOSED METHODOLOGY

2.1 The Heterogeneous Network Environment

A set of filters of different sizes and numbers are obtained to extract image features, and then their features are input to SVM for training. The overall positioning ability of the target is slightly worse. Therefore, this chapter designs a heterogeneous twinning region selection network with multi-layer feature fusion, referred to as MF-HeSRPN. The dataset needs to be scanned multiple times. The dataset is scanned once every iteration, and when the length of the maximum frequent itemset is N, N scans are required. Data mining is usually faced with massive data, and frequent scanning of these data will occupy a large amount of output of the computer system. DBN is a multi-layer network structure proposed by GEOFFREY E HINTON in 2006. A deep learning network model composed of several unsupervised RBMs and a supervised back-propagation neural network. This algorithm is mainly used in online education.

In order to evaluate the teaching effect in real time, it is necessary to capture the real-time feedback of students. In online education, the only real-time feedback a student has is the student's demeanor. Therefore, it is necessary to take a real-time photograph of the student's demeanor. During training, the RBM can be trained layer by layer from low to high to extract data features, and then the output of the last layer of RBM is used as the input of the BP neural network. Using a power function can approximate the number of nodes with a certain degree and the relationship between this particular degree. Therefore, the network not only has many nodes with relatively small degrees, but also has a few nodes with very large degrees without an obvious characteristic scale. Therefore, the phenomenon that the degree distribution of such nodes exhibits a power-law characteristic is called "scale-free characteristic".

First, build a sparse autoencoder model and divide the training set into different subsets, which are input into SAE in batches. After the network performs a forward propagation, the updated weights and biases are obtained, and the optimal solution of the weights and biases is found through repeated iterations. When the accuracy meets the requirements, the iteration is stopped. The input of image matching is the template image and the image to be matched, and the dataset should cover a variety of interference factors that appear in image matching. This paper selects three different datasets: public detection datasets, public tracking datasets, and self-calibrated datasets. In this paper, the same target image of the test set is copied into two copies, the template map set and the search map set. During the matching test, the images with the same name are removed from the two sets for cross-matching testing.

2.2 The Student Mental Health Cloud Assessment Algorithm

According to the differences in the degree of mental health of college students, the psychological state indicators of college students are divided into three different gray categories: good, ordinary, and morbid. For each indicator shown in Figure 2, the specific quantification of its score is implemented.

The detailed description is as follows. In order to test the effect of mental health intelligence assessment of college students, students in five colleges and universities were selected as the research objects, and they were numbered by A to E respectively. Similarly, we can use a similar set of minutiae points containing skeleton shape geometric information to represent veins. Position correlation has a large improvement in matching accuracy. The experimental results of training sample size impact analysis and original image matching show that the network has a greater demand for data samples. Finally, compared with the deep learning and traditional matching algorithms NCC and HOG, it proves that the anti-interference ability of deep learning is much stronger than that of traditional algorithms.

3. CONCLUSIONS

In this paper, three sets of experiments are used to verify the influence of the number of layers, the number of hidden layer nodes, and the learning rate on the detection results, and the optimal DBN parameters are determined. Finally, the DBN fake finger detection model proposed in this paper is tested on the test set. The intelligent assessment of college students' mental health is a research hotspot in the field of college student management.

In order to obtain more accurate intelligent assessment results of college students' mental health, an intelligent assessment method of college students' mental health data mining is proposed, which evaluates and analyzes every minute of the teaching process. Real-time teaching evaluation is realized, and teaching evaluation effect can be checked immediately in a short time.

4. REFERENCES

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