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Retraction

Retracted: Design and Optimization of Psychological Emergency Response System for College Students Based on IoT and Computational Intelligence

Mobile Information Systems

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] X. Wang, "Design and Optimization of Psychological Emergency Response System for College Students Based on IoT and Computational Intelligence," *Mobile Information Systems*, vol. 2022, Article ID 8437201, 10 pages, 2022.

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Research Article

Design and Optimization of Psychological Emergency Response System for College Students Based on IoT and Computational Intelligence

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Today, when university students are the future subjects of society, psychological crises are constantly emerging. At the same time, considering the rapid socioeconomic development, competition among the best talents, cultural diversity, and the growth of temptations and events in public health, all of these put growing students through the wringer. However, when traditional sentiment data are analyzed through manual selection, it usually has some drawbacks such as small sample size, poor real-time status, high transaction costs, and high human errors. We need to use modern technology, applied technology, and computer intelligence to collect psychological data from all respondents, which is ultimately measured by sentiment data. Use the results of emotional data analysis to deal with emergencies in a timely manner. The system designed in this paper has unprecedented advantages in terms of automation, timeliness, and accuracy compared to previous participatory psychotherapy methods.

1. Introduction

In recent years, people's living standards have been greatly improved. The impetuous pace of life has led to various psychological problems in daily life and society. In order to solve the psychological problems in people's life, we need to establish a mental health emergency measure system [1]. Considering the difficulties encountered in the collection and analysis of psychological data, the timeliness and untimely response in emergencies, and the need to use modern technology based on Intranet technology to establish a mental health emergency system, analyze personal data through artificial intelligence technology, so as to verify the psychological state and emotional fluctuation of subjects, so that the system can respond to emergencies in a timely and accurate manner [2].

According to the questionnaire results of related research scholars, more than one-fifth of college students have used the Internet to seek psychological help; more than one-half of college students have used online psychological counseling to get help. In recent years, the incidence rate of malicious incidents in colleges and universities is significantly higher than before [3].

Psychological crises caused by psychological problems among college students often occur and cause many campus problems and even group incidents, which directly endanger the security and stability of campus and even personal and property safety [4, 5]. Accidental psychological crisis of college students' campus safety includes psychological crisis campus delinquency (crimes committed by college students due to psychological problems) and accidental psychological crisis (traumatic psychological discomfort caused by criminal aggression, campus safety incidents, and public health accidents) [6]. In the past decade, schools of all levels and types have experienced more serious psychological crisis emergencies caused by various reasons, such as throwing themselves into water due to exam failure; self-harm, self-injury and other injuries for love; mob gambling and fighting; freshmen failing to adapt to college life and dropping out midway; graduates leaving school with alcohol and disturbance intentionally destroying school facilities, etc., which bring about normal

education and teaching work as well as the construction of school spirit and school ethos [7]. The university's normal education and teaching work, as well as the construction of academic and school culture, have been adversely affected. In order to prevent and these campus security and stability events, we insist on the principles of prevention, education first, scientific monitoring, effective intervention, hierarchical management, clear responsibility, rapid response and high efficiency, develop a psychological crisis prevention program, guide students to correctly understand the crisis, face the crisis, grasp the opportunity to turn in time, obtain and seek a new self-order and balance, achieve prevention and response with two hands, and strive to improve We will try to improve the psychological adjustment ability, social adaptation and frustration tolerance of students in school [8].

This paper focuses on the difficult psychological data collection and analysis, poor timeliness of psychological emergency, and proposes to use artificial intelligence to analyze facial data based on mining big data, detecting the emotional state of the subject and analyzing the psychological state, so as to propose emergency for the subject with abnormalities [9].

2. Related Work

Doing a good job of campus stability maintenance is necessary to guarantee the orderly development of academic research, daily teaching and campus life. In recent years, domestic colleges and universities have taken the opportunity of deepening higher education reform to increase the importance of flexible disposal of emergencies, but due to the weak crisis awareness, slow emergency response and improper disposal, they cannot effectively control the emergencies at the first time, which causes the expansion of impact and loss, and even threatens the life and safety of teachers and students in serious cases [10]. Therefore, university management should always uphold crisis awareness, eliminate the mentality of fluke, and improve the strategic position of emergency management in the whole campus management system.

The expansion of colleges and universities makes the number of students increase year by year, on the one hand, there is a situation that the existing teaching resources are not enough to allocate, on the other hand, the management level does not improve with the times, and the contradiction between schools and students intensifies. For example, while the number of students is increasing, the dormitory buildings of colleges and universities have not been expanded, and some schools have changed the original "one room for four" to "one room for six" [11]. As a result, students' dissatisfaction has increased, and the incidence of theft and fights has increased significantly. In addition, schools do not pay enough attention to mental health education, especially when they are close to graduation, or when they are punished by the school, some college students with fragile psychological quality can easily show excessive behavior under multiple pressures, which is also a common factor leading to emergencies.

College students are the backbone of the country, but at the same time, they lack social experience and are more likely to be eroded by external temptations and corrupted concepts [12]. Especially in the Internet era, the poor supervision of the network, coupled with the lack of information screening awareness of many college students, when using the Internet for study and entertainment, they are misled by the "hedonism" on the network, and their values are shaken. For example, in recent years, "campus loans" have become popular, and some of them fall into the mire for the sake of temporary material needs, which may affect their studies and cause psychological problems, or cause the whole family to be in debt, and there are not a few of them to live lightly. Some students choose to steal and blackmail in order to repay their loans, which damages the interests of other students and corrupts the school atmosphere [13].

In 1954, an American psychologist was the first to propose the concept of "psychological crisis", and in 1943, began to conduct research on grief reactions after fires, which led to a series of experience summaries and the introduction of "grief counseling" [14]. The theory of "grief counseling" was proposed. This literature began by suggesting that people's stress responses in a peaceful living environment depend on the interrelationship between personality, acute stress, and the social environment [15]. The action phase, the withdrawal phase, and the post-traumatic phase. In his book Crisis Intervention Strategies, Brammer proposed an applied crisis theory, in which he classified psychological crises into three categories: situational, developmental, and existential crises.

In the early 1990s, the results of foreign crisis intervention were introduced into China, and the first domestic psychological crisis intervention center was established in Nanjing, initiating the first crisis intervention in China [16]. Many scholars have also published some valuable academic articles and treatises, and the breadth of the topic is gradually increasing [17]. The scholars in China have done a lot of research on the meaning, classification, causes and crisis prevention of psychological crisis among college students, etc. The psychological crisis of college students and the resulting suicide phenomenon and traumatic events have attracted the attention of many scholars [18]. Early warning is an important link in the prevention and intervention of psychological crisis among college students, especially with the change of crisis intervention work to active and preventive systematic crisis intervention mode, the role of psychological crisis early warning is becoming more and more prominent [19, 20]. Early warning of psychological crisis among college students is to assess the relevant information of the early warning object by examining a series of psychological indicators, using scientific quantitative methods and timely discovering and identifying potential or real crisis factors, predicting the severity of psychological crisis, issuing crisis alerts and taking targeted preventive measures to limit or even eliminate the occurrence of psychological crisis and minimize the harm caused by psychological crisis [21, 22]. How to take effective measures to identify and warn the psychological crisis of college students and carry out more systematic, developmental and

active prevention of psychological crisis is an important part of the current mental health education of college students [23]. Therefore, it is important to build a scientific and operable psychological crisis early warning index system and its matching graded response system for the development of psychological crisis early warning work of college students [24, 25].

3. Method

Emergency control should have smooth processes, clear responsibilities, and effective measures in order for emergencies to be handled effectively. A complete set of control process should contain the basic contents in Figure 1. The person present at the emergency should inform the person in charge of emergency management by telephone as soon as possible. After clarifying the basic information of the emergency (location, time, scale, etc.), report it to the emergency command center, and then determine the nature of the event and activate the emergency plan. Relevant personnel (medical personnel, security personnel, etc.) should also arrive at the scene as soon as possible to do a good job of maintaining stability, and finally ensure that the emergencies are properly solved under the deployment of senior leaders. The specific university emergency treatment process is shown in Figure 1.

According to the platform informatization and university users' demand, the overall structure of the psychological emergency system for university students with IoT technology and computing intelligence technology as the main technology of the platform is shown in Figure 2.

The overall architecture diagram in Figure 2 shows that it is divided into four parts:

(1) The device layer is a collection of hardware devices required for the construction of the platform. The device layer is at the bottom of the IoT platform and provides equipment support for the overall architecture of the platform using the device layer. The device layer mainly includes sensors, cameras and handheld devices, etc., and collects user information through the devices in the device layer. Using devices such as respiration rate sensors and heart rate sensors, the collected data detect the user's mental state under different circumstances.

(2) The platform provides network support for the platform through fiber optic network, wireless network and campus network, and uses the network layer to realize the reception, transmission and sharing of mental health data of college users, and realize the transmission of information and resources of various devices and users through the network.

(3) The IoT layer of the platform includes three parts: functional layer, intelligent processing layer and data layer, through which the analysis, storage and integration of massive mental health data are realized. The data layer is responsible for storing university user information, user psychological data, relevant service data and data records; the intelligent processing layer uses relevant IoT processing technologies to realize various processing such as mining, retrieval, analysis, sharing and fusion of massive data, and uses the processing results to provide users with information that meets their needs; the functional layer provides the platform with functions such as message, voice and video, and provides video and voice for the application layer. Functional services for the application layer.

(4) The application layer is located at the top layer of the platform, which is the direct embodiment layer of college mental health service for college users. The application layer of college mental health service platform is mainly divided into two parts: college user module and counselor module, which serve college students, teachers and counselors respectively. The relevant data can be correlated with each other.

The specific college psychological emergency composition is shown in Figure 3. In the emotional data analysis and psychological emergency system based on IoT and computational intelligence, it has three main components, which are the emotional data analysis part, the collection of the measured data part, and the psychological emergency part. In order to make up for the shortcomings of the previous emotional data analysis and psychological emergency system, such as poor effectiveness and large design errors, it is necessary to collect network data samples around the monitored object, so as to facilitate the active collection of data such as emotional fluctuations and psychological status of the monitored object, by detecting the facial information of the monitored person, and then using the emotional data analysis part to determine their Mood fluctuation and psychological condition, when the monitored person has a large mood fluctuation or abnormal psychological condition, the emergency system will issue an emergency in time.

3.1. Collection of Human Expression Data. One of the ways in which human emotions are expressed is through facial activity, which is known as expression, and expressions can be used to understand indicators of human emotion. For expressions, they are formed by different combinations of human's five senses and facial muscles, which makes them an important way to express emotions when people communicate. Among the various expressions produced by people, the common expressions can be roughly divided into six types: happy, dislike, fear, sadness, surprise and anger, and in addition, multiple expressions can be compounded to produce more complex expressions, for example, sadness and anger are compounded to produce expressions. In the field of mental health treatment, in order to better solve patients' psychiatric diseases, it is necessary to grasp the changes of patients' expressions and psychological fluctuations.

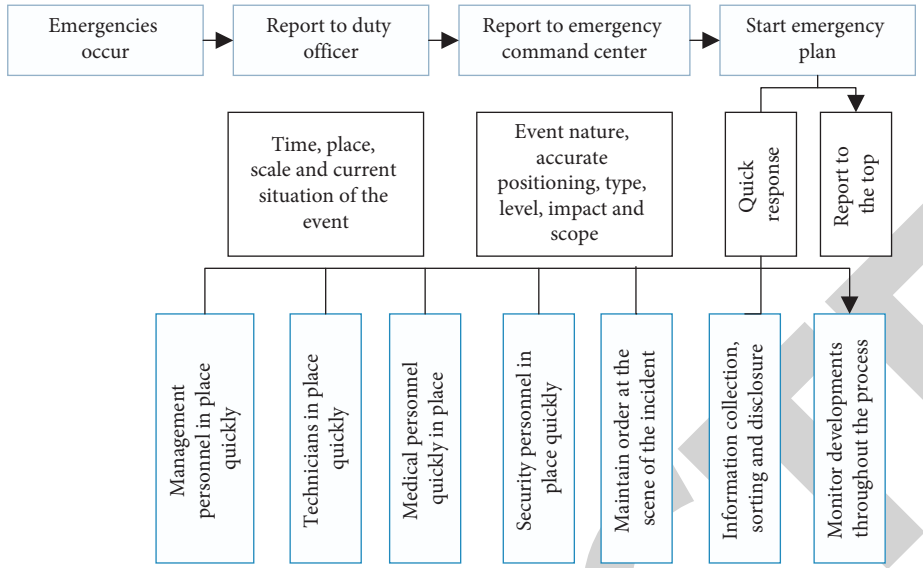

Figure 1: Flow chart of emergency treatment.

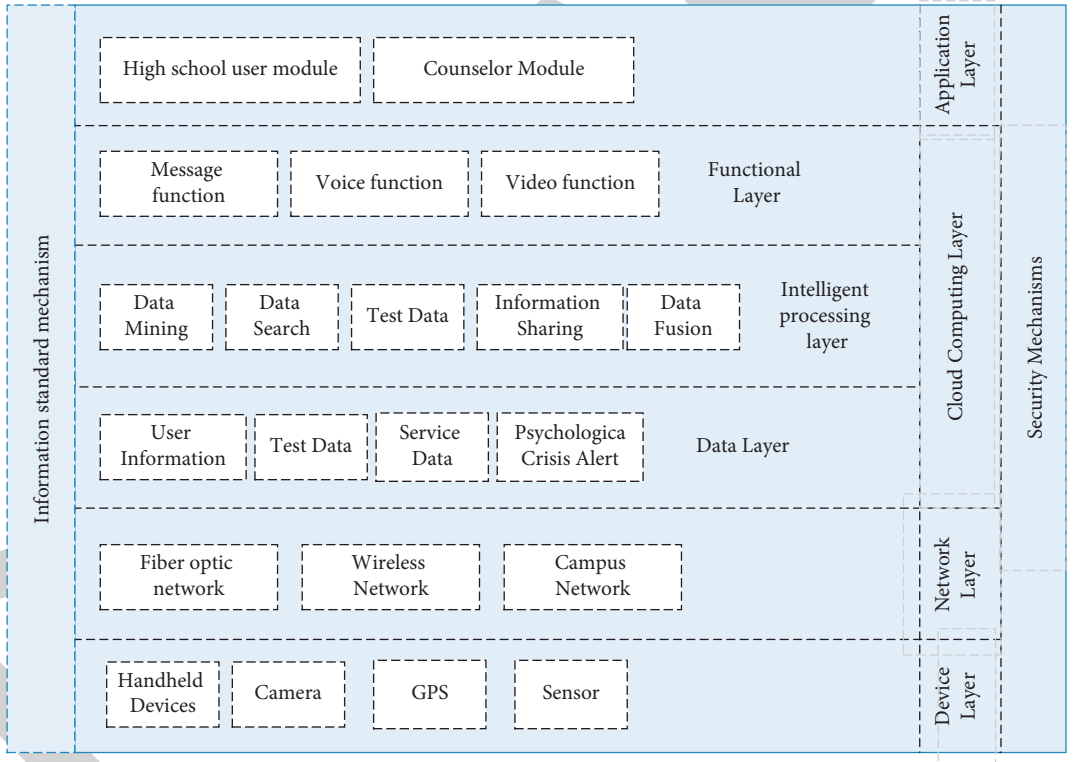

Figure 2: Overall architecture.

3.2. Facial Expression Recognition. More and more people have become aware of the application value of facial expression recognition technology, and the technology has also achieved rapid development in just a few decades. All along, when people apply facial expression recognition technology, they often need to denoise the face image, and then extract features such as face contour and breakpoint in the image, so as to analyze the mood of the face according to its expression features in the image, and then make the corresponding classification, however, this technical method is only a more shallow learning method, which is because people's extraction of facial expression features is more It is difficult and the amount of extracted data is also very large, which makes it urgent to optimize the application stability of facial expression recognition technology. The facial expression recognition technology with deep learning as the core can better extract the face features in images, and deep learning is a method to master the extraction of face features in

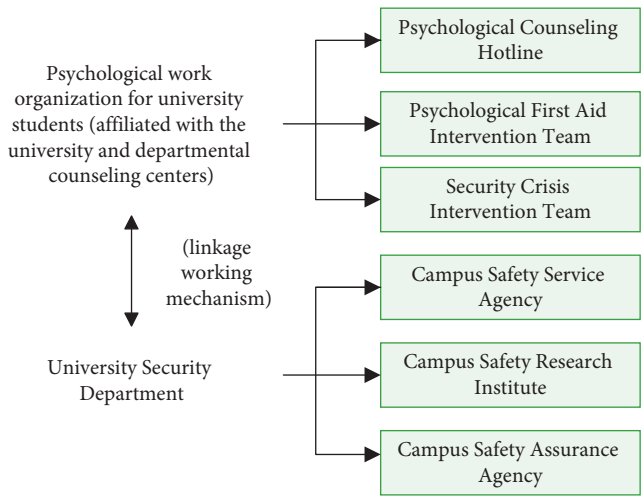

Figure 3: Psychological emergency components of universities.

images through a large amount of learning. Time and save a lot of labor cost.

In the analysis of human facial expressions, it is necessary to grasp the different combination forms produced by their shadow changes and facial muscle morphology, so it is necessary to define the features that human facial expression units have in each region accordingly, and the specific definition formula can be expressed as follows:

$$x_{ij} = \left(d_{ij12}, \ldots, d_{ijp-1p}, \theta_1^T, \ldots, \theta_p^T\right)^T. \quad (1)$$

In the above equation, the Euclidean distances of the different feature points after normalization are represented by $d_{ijb}|\widehat{S}_{ijk} - S_{ijb}|_2$, and the Delaunay triangles generated by these feature points are represented by $\theta_a = (\theta_{a1}, \ldots, \theta_{aqa})^T$. In this system, the Delaunay triangles are used to decompose the human face in the image, and there are 107 such triangles. The Gabor filter is also used in this system to process the unprocessed human cortical image units.

Expressions, as a uniquely human facial activity, are indicators of the emotions projected by humans. Most expressions are a variety of combinations of facial muscles and the states of the five senses, and are indispensable for expressing emotional information and regulating interpersonal relationships in the process of human communication. There are at least 12 types of human facial expressions, including surprise (which can be decomposed into happiness and surprise), grief and anger (which can be decomposed into grief and anger) and 15 other compound expressions, in addition to the 6 common emotions of happiness, surprise, sadness, anger, disgust and fear. Facial Emotion Recognition (FER) has increasingly shown its superior application value in the wide application of deep learning technology.

With the general recognition and increasing demand of FER technology, as well as the development of psychology, computer science and other related disciplines, FER technology has made great progress. In the traditional FER technology, the screened face images are pre-processed such as denoising, and features such as contour angle and breakpoint are extracted to achieve the classification of face images of different moods, as shown in Figure 4. Its feature extraction method and shallow learning method are difficult to adapt to the high requirements for the stability of recognition technology due to the increase of data volume and accuracy requirements.

Unlike the traditional FER algorithm that gives feature extraction, FER, based on deep learning, has better feature extraction capability for images. Since the combination of deep learning network prediction and feature engineering eliminates the step of manual feature extraction, it reduces the time and labor cost of manual feature extraction in traditional FER methods.

Humans analyze facial expressions by combining morphological and shadow changes of facial muscles, and thus define features in different regions of the Action Unit (AU) of the face, as follows:

$$x_{ij} = \left(d_{ij12}, \ldots, d_{ijp-1p}, \theta_1^T, \ldots, \theta_p^T\right)^T, \quad (2)$$

where $d_{ijab}|\widehat{S}_{ija} - \widehat{S}_{ijb}|_2$ is the Euclidean distance between feature points after normalization, and $\theta_a = (\theta_{a1}, \ldots, \theta_{aqa})^T$. is the Delaunay triangle between feature points. The facial images were decomposed into 107 triangles using Delaunay triangulation, where the angle vector $\theta_a = (\theta_{a1}, \ldots, \theta_{aqa})^T (q_a = 3)$. is the angle estimate of the feature vector $\widehat{S}_{ija}$.

The unprocessed human cortical image units were used with a Gabor filter to create the function.

$$g\left(\widehat{s}_{ijk}; \lambda, \alpha, \phi, \gamma\right) = \exp\left(\frac{s_1^2 + \gamma^2 s_2^2}{z\sigma^2}\right)\cos\left(2\pi\frac{s_1}{\lambda} + \phi\right), \quad (3)$$

where

$$\widehat{S}_{ijk} = \left(\widehat{S}_{ijk1}, \widehat{S}_{ijk2}\right)^T \cdot s_1 = \widehat{S}_{ijk1}\cos\alpha + \widehat{S}_{ijk2}\sin\alpha \quad s_2 = -\widehat{S}_{ijk1}\sin\alpha + \widehat{S}_{ijk2}\cos\alpha, \quad (4)$$

where λ denotes wavelength, α denotes direction, Φ denotes phase, γ denotes spatial aspect ratio, and σ denotes the scale of the filter (standard deviation of the Gaussian window).

The eigenvector of the picture's i-th AU in the Gabor filter at the j-th sampling is obtained as

$$g_{ij} = \left(g_{ij1}^T, \ldots, g_{ijp}^T\right)^T. \quad (5)$$

3.3. Emotional Data Analysis System Construction. Deep learning still has two main problems in the field of sentiment data analysis: the small sample size of the dataset and the poor robustness of the deep learning network to intra-class variation in the dataset.

The mapping f is the excitation function, and the S-type function is selected as follows:

$$f(x) = \frac{1}{1 + e^{-x}}. \quad (6)$$

The network training process is as follows:

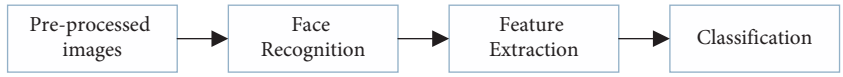

Figure 4: Conventional FER process.

(1) Select the face dataset, initialize the weights $V_{ij}, W_{ij}, \theta_k, \Phi_j$ and make the absolute values around 0, initialize the accuracy control parameters ε and the learning rate α.

(2) Select the photo samples from the training machine (X_k, Y_k);

(3) Calculate the M-term error between the actual output vector and the target output vector.

$$\delta_k = (d_k - y_k) y_k (1 - y_k). \tag{7}$$

(4) Calculate the error of the L term of the node in the hidden layer.

$$\delta_j^* = h_j(1 - h_j) \sum_{k=0}^{M-1} \delta_k W_{jk}. \tag{8}$$

(5) Calculate the amount of change in the weight threshold.

$$\begin{aligned} \Delta V_{ij}(n) &= \left(\frac{a}{1+N}\right) * \Delta V_{ij}(n-1) + 1)^* \delta_j^* * x_i, \\ \Delta\theta_k(n) &= \left(\frac{a}{1+L}\right) * (\Delta\theta_k(n-1) + 1)^* \delta_k. \end{aligned} \tag{9}$$

(6) Adjust the weights and thresholds.

$$\begin{aligned} W_{ik}(n+1) &= W_{ik}(n) + \Delta W_{ik}(n), \\ V_{ii}(n+1) &= V_{ii}(n) + \Delta V_{ii}(n). \end{aligned} \tag{10}$$

To judge whether the accuracy meets the requirement: $E \le \varepsilon$.

As shown in Figure 5, the supervised neural network is constructed this time.

Using the backward learning algorithm, the weight coefficients of the neural network are continuously updated. If the training accuracy requirement is met, the weights and thresholds are saved and the training is finished.

3.4. Affective Data Analysis and Psychological Emergency System Based on IoT and Computational Intelligence. In the study of the emotional data analysis and psychological emergency system based on IoT and computational intelligence, the algorithm design is subject to intra-class differences due to the different conditions of the system feedback images, and the intra-class differences will seriously affect the training results of the neural network, so in order to ensure that the BP neural network can have good robustness in the application process, so that it can obtain accurate training results, it is necessary to select the multi-source The database is selected. Using the samples stored in the multi-source database for BP neural network training

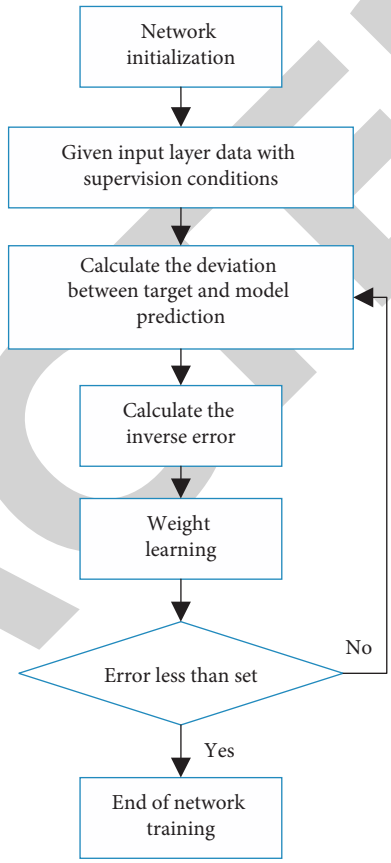

Figure 5: Neural network training flow chart.

can greatly enrich the facial images of human faces, thus greatly reducing the correlation between AU and AU intensity and samples. Moreover, a reasonable selection of the access to the sample data can avoid the subjective interference of human factors in the process of image selection.

By architecting the BP neural network database in the IoT and computational intelligence-based emotional data analysis and psychological emergency response system, and using it as the basis, the system no longer uses the previous Windows operating system, but uses the robot operating system instead, which is called ROS Robot Operation System in English. ROS system. On the basis of the application of ROS system, in order to achieve the acquisition of the facial data of the monitored object, the camera is also installed in the system hardware equipment, the camera is Kinect 2.0 RGBD, the specific configuration is as follows: RGB resolution of Kinect 2.0 RGBD camera is 1024×768, depth resolution is 512×424, the number of detectors is 6 people The detection range is 0.5~4.5 m, and the detection angle is 70 degrees. By establishing a psychological emergency system, if the psychological condition of the detected subject fluctuates abnormally during the monitoring process, the

system can combine the previous detected psychological cases to make a comprehensive analysis and provide the necessary help information in the electronic terminal of the detected subject with the help of UDP communication protocol for emergency response.

Based on the architecture of the BP neural network database, a psychological emergency system is built using the ROS Robot Operation System, as shown in Figure 6. The Kinect 2.0 RGBD depth camera was used to acquire the subject's facial data, and the configuration of the Kinect camera is shown in Table 1. Through the analysis of the emotion analysis system above, if the subject shows abnormal psychological fluctuations, combined with the comprehensive analysis of the subject's psychological case, emergency and help messages are sent to the subject's electronic terminal using the UDP communication protocol.

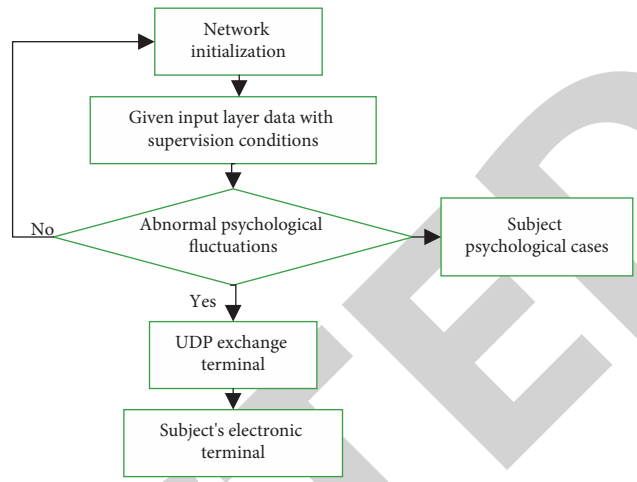

Figure 6: Psychological emergency system architecture diagram.

4. Experiments

To test the effectiveness of the college emergency management system based on IoT and computational intelligence technology for college students' emergency response, 1,000 students of a college and university in a certain place in class 2018 were selected as the experimental subjects. The results of the platform serving the mental health of students in this university are shown in Table 2. The platform can meet the user's various test indexes successfully operate, and the platform performs each operation with a response time lower than 300 ms, which effectively indicates that the emergency response platform designed in the paper has high effectiveness, and the platform has high real time, which can meet the real-time needs of college users.

In order to prove the effectiveness of the platform, it is compared with personal platform and new media technology platform. It can be seen from the platform test results in Figure 7 that with the increase of the number of devices, the time to introduce the platform into the text will be shortened; The implementation time of personalized platform and new media technology platform increases with the increase of the number of devices. The platform test results show that when the number of hardware is large, the platform execution in the text is more significant.

In this study, 1000 university students were selected as the survey object to study the use of the platform in this paper, so as to ensure students' mental health, experience and perception of statistical data, as shown in Table 3. According to the statistics in Table 3, 88.4% of students believe that the platform can help students correctly judge their mental health status; 90.1% of the students thought that the platform could clarify the problems affecting mental health; It can help users adapt to specific problems that affect their mental health; More than 90% of users believe that this platform can evaluate their mental health status through a reasonable mental health index system; The platform works better. More than 90% of users believe that this platform can evaluate users' psychological state through a reasonable mental health index system; High emergency response efficiency of the platform; This platform helps users better understand their mental health status; Users can use this platform to keep good contact with consultants and get the desired psychological effect. The results effectively verify the effectiveness of the platform and provide users with the ability to deal with emergencies effectively.

4.1. Verification of Recognition Accuracy. The constructed neural network was tested using a test set and the results are shown in Table 4.

4.2. Stability Verification. For the image streams captured by the Kinect camera, the OpenCV library is used to preprocess them accordingly, and then the mood analysis system designed above is used to deeply analyze the mental and emotional fluctuations of the subject, and then the stability is checked by a multi-source database. In the process of applying the multi-source database, a validation method must be set in order to verify the stability of the testing algorithm. The method is as follows: the database is first selected in a random way, with a number of two, and then the network is used for training, while the validation dataset used must be independent. There are three experimental approaches, one is to obtain the results of a single training session and the average value, and another is to obtain the training results with the same leave-one-out condition to verify that the training results are close or identical. The last one is to estimate the average error by the intensity of the action combination. Considering that different datasets have more or less different differences in the shooting process, and the intra-class differences of the images stored in different databases are relatively high. The specific method is to choose any two databases for network training and use the remaining one independent dataset for validation, and the experiment can be designed in three ways, as shown in Figure 8. Figure 8(a) shows the results of each training and its average value; Figure 8(b) shows the average estimation error of the action group intensity (AU intensity) under the same leave-one-out test condition. Since each dataset is not captured in the same way, and there is a high intra-class difference in images between databases.

Table 1: Kinect camera configuration.

Projects	RGB resolution	Depth resolution	Number of inspections	Inspection scope	Check angle
Parameters	1024 × 768	512 × 424	6	0.5~4.5 m	70°

Table 2: Service results of the platform in the paper.

Test indicators	Test steps	Test results	Platform response time (ms)
User login	The user enters the user name and password and clicks login	Success	255
Password change	User enter old password and new password and click OK	Success	134
Online consultation	Click on online consultation	Success	129
Health log	Click on health log	Success	93
Health assessment	Click on health assessment and display the assessment questions	Success	106
Analysis of assessment results	Based on the results of the assessment, the specific analysis	Success	134
Information search	Enter the information to be searched and click search	Success	118
Mental health seminar viewing	Load the required lectures	Success	151
Community exchange	Successfully enter the community	Success	186
Special focus	Show the users you follow	Success	175

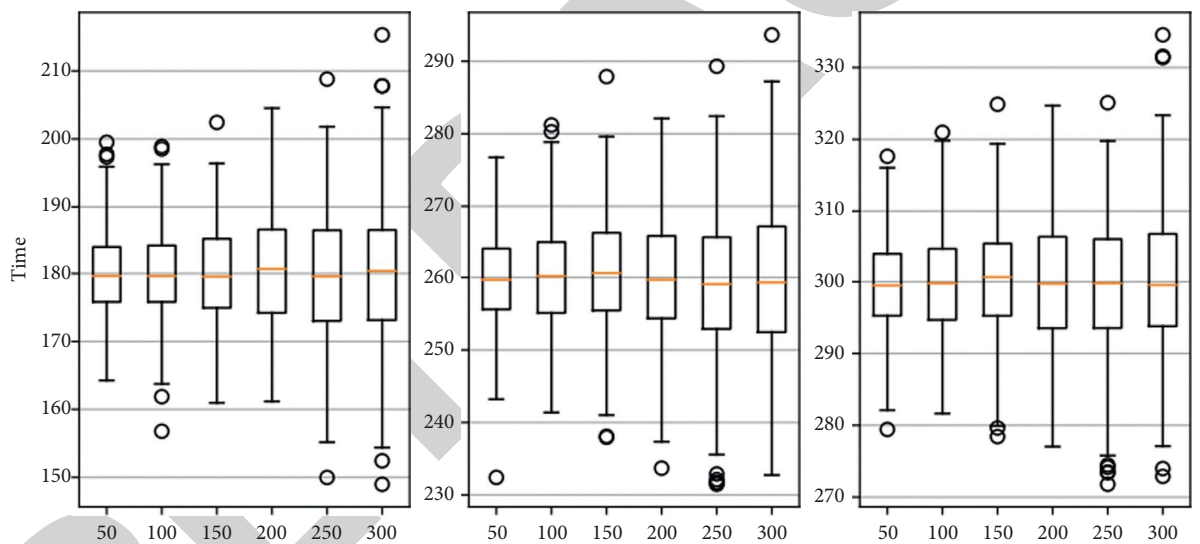

Figure 7: Comparison of platform execution time with different number of devices.

Table 3: Survey results of students' experience and feelings.

Survey indicators	Very high (%)	High (%)	Moderate (%)	Low (%)	Very low (%)
Does it accurately locate their mental health situation	72.8	12.5	3.6	4.6	7.0
Is it clear where the mental health problems are	73.9	13.1	3.1	5.2	4.9
Whether it can be adjusted to the problem	74.5	11.5	3.3	6.4	4.1
Whether the mental health index system provided by the platform is reasonable	78.3	13.2	4.6	2.2	1.5
Whether the platform can accurately evaluate the mental health index system	77.3	12.5	3.1	5.9	1.1
Whether the service is effective for mental health problems	81.5	11.0	3.5	1.9	2.8
Does it have further understanding of mental health problems	79.5	9.6	3.9	4.7	2.3
Whether it can communicate well with the counselor	76.5	9.3	3.0	6.2	4.7
Whether to participate in counselor consultation	75.3	10.3	3.5	5.6	5.2

Table 4: Emotion recognition system demonstration.

Emotion category	Angry	Dislike	Fear	Sad	Surprised	Happy
Number of validation	200	200	200	200	200	200
Successful recognition	186	182	190	188	196	194
Recognition failure	14	18	10	12	4	6
Recognition rate (%)	93	91	95	94	98	97

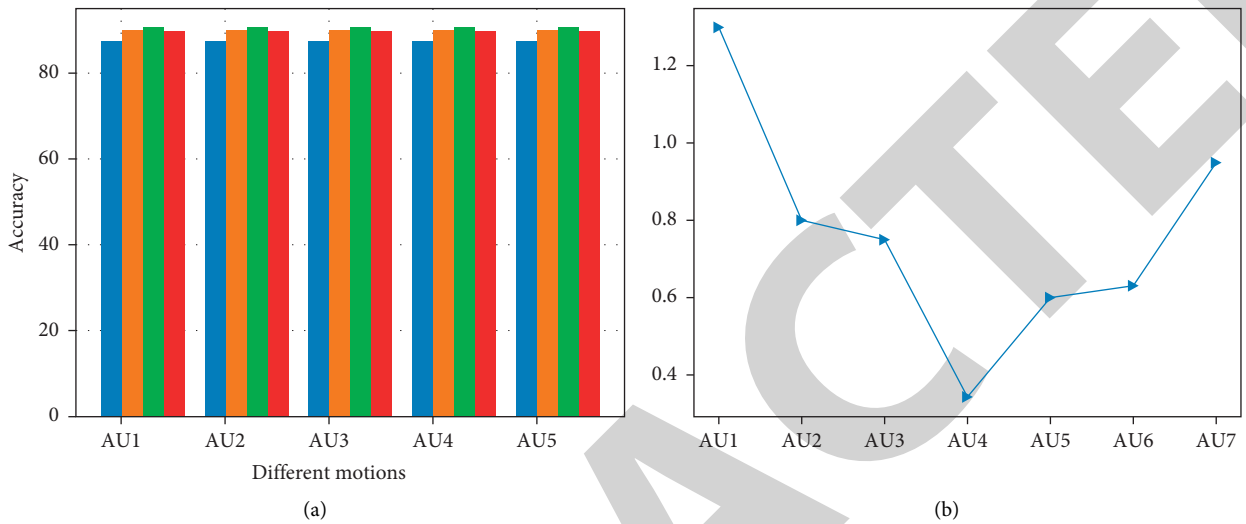

Figure 8: Leave-one-out method verification results (a) Accuracy (b) Average Error.

4.3. Real-Time Verification of Psychological Emergency Response. To verify the accuracy and timeliness of the proposed system in issuing psychological emergencies, four groups of anonymous people are randomly selected, and then two operating systems, ROS and Ubuntu, are used to build the psychological emergency system in order to identify the psychological status of the above four groups of anonymous people, so as to distinguish which of the four groups of anonymous people are normal people, which are depressed people, and which are anxious people. The psychological contingency system was built to identify the psychological status of the four anonymous groups, so as to distinguish which of the four groups are normal, which are depressed, and which are anxious. When the psychological contingency system is used, the results are compared with the real data of the population to analyze whether the identification results of the psychological contingency system are correct. The results of the comparison are shown in Figure 9, and the effectiveness of the psychological response system can be fully demonstrated.

By observing the recognition results in Figure 9, we can understand that the psychological emergency system constructed in this paper can successfully identify the bipolar people suffering from anxiety disorder, that is, the bipolar people whose mood is in the state of irritability and depression. The reason for this is that after these people suffer from anxiety disorder, their expression changes will produce more obvious abnormal characteristics, while the recognition for normal people is the highest.

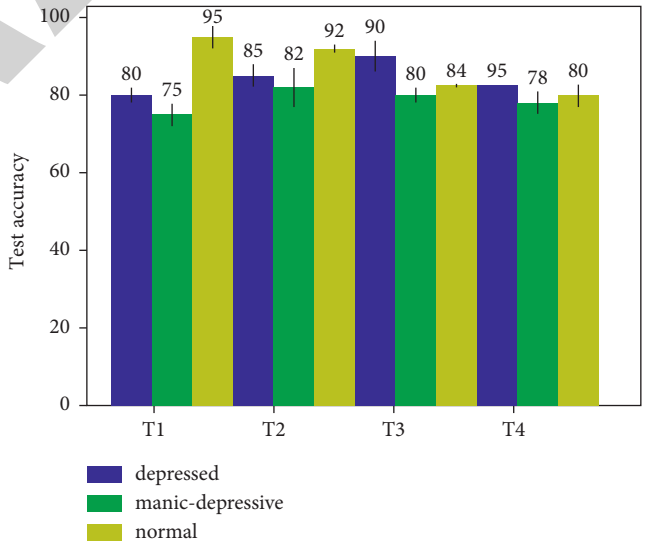

Figure 9: Validation results of the psychological emergency system.

5. Conclusion

The psychological crisis intervention of college students is a systematic project, in which a meticulous early warning information collection system, a complete psychological crisis prevention institution, an orderly crisis intervention mechanism and a professional psychological crisis

intervention team are indispensable. The psychological crisis intervention personnel must understand the law of the development of psychological crisis of college students, grasp the psychological crisis signal, based on the close cooperation of all departments of the school, in order to effectively early warning of psychological crisis, and take the necessary measures to crisis intervention, so that the crisis is really transformed into an opportunity for students to grow.

Data Availability

The experimental data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this work.

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