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Retraction

Retracted: Characteristics Analysis of Mental Health Data of College Students Based on Convolutional Neural Network and TOPSIS Evaluation Model

Discrete Dynamics in Nature and Society

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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) Manipulated or compromised peer review

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.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

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] L. Zhou, "Characteristics Analysis of Mental Health Data of College Students Based on Convolutional Neural Network and TOPSIS Evaluation Model," *Discrete Dynamics in Nature and Society*, vol. 2022, Article ID 5931991, 9 pages, 2022.

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Research Article

Characteristics Analysis of Mental Health Data of College Students Based on Convolutional Neural Network and TOPSIS Evaluation Model

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With the rapid development of modern society, there are many problems concerning the physical and mental health of students. This paper develops a feature analysis method of the mental health data of students in different colleges and regions and of different ages based on a convolutional neural network and TOPSIS evaluation model and studies the college students' mental health analysis model based on convolutional neural network. First, through the data cluster summary and internal characteristics analysis of college students' psychological questionnaire survey data in different regions and grades, we established a college students' mental health grade system and evaluation index system. Then, the TOPSIS analysis method is used to analyze the characteristics of the data results, and the feasibility of the accuracy of the evaluation index standard is analyzed. Finally, the experimental results show that the college students' mental health analysis model based on convolutional neural network can effectively classify and summarize various mental health data, quickly locate the mental health problems of different students and analyze the optimal solutions, and can effectively promote the process of analysis and research on the mental health problems in modern college students.

1. Introduction

The types of higher education are increasingly diversified. With the enrichment and diversification of social life and the popularization of higher education, the traditional single university with "academic" as the standard has gradually changed. In terms of form, schools with different school systems and different forms of running schools have emerged one after another. In terms of content, the basics, application, and technology are different. General education and vocational education permeate each other. In secondary education, general education takes entering a higher school as the main goal, and vocational education takes employment as the main goal. We will strengthen the popularization of compulsory education and extend the number of years of compulsory education. Compulsory education is stipulated in the form of law, and school education with a fixed number of years will be implemented for a certain age.

In traditional education, teaching only pays attention to the improvement of students' performance and ignores students' mental health. These problems gradually accumulate in the university. Because students cannot get diversified development, many students have some mental health problems in the process of learning. Reference [1]. The convolution of the national data has gradually improved the accuracy of the students. After a series of research on the convolution of the national data, it can gradually improve the students' mental health by using the national mental health system [2]. To sum up, using a convolution neural network algorithm to analyze the mental health data of many students and realize the rapid positioning of the mental health problems in college students has become the development trend of the current education system reform [3]. So far, most of the traditional college students' mental health analysis models do not combine intelligent algorithms or adopt traditional deep learning technology. Although these models can

analyze the mental health problems of some students, most of them have limitations. Some models are established for college students in a certain area, and some models are established for college students in a certain grade [4].

Facing the problems that the traditional model is hard to analyze the data characteristics in the process of data analysis combined with advanced intelligent algorithms such as neural network, the portability of the model is poor, and the scope of application is narrow. This paper studies a variety of mental health analysis models of college students. It is mainly divided into four parts. First, it introduces the modern development background of student health analysis. Section 2 summarizes and analyzes the research status of convolutional neural network application, college students' mental health data analysis, and application methods at home and abroad. In Section 3, we used convolutional neural network to analyze the characteristics of a large amount of data, combined with TOPSIS to evaluate several indicators that have the greatest impact on the mental health of college students and allocated different data weights according to different influences to build a set of portable college students' mental health rating system and scoring index system based on convolutional neural network. In Section 4, the portability and effectiveness of the analysis model of the mental health rating system in college students and the scoring index system constructed in this paper are simulated and compared, and the experimental results are analyzed and demonstrated to draw a conclusion.

Compared with the traditional mental health analysis model, the traditional model is difficult to combine with intelligent algorithm technology such as deep learning, which often makes it difficult to analyze the characteristics of a large amount of data. The new analysis model constructed in this paper applies the fast analysis of data characteristics of big data by convolutional neural network to the mental health analysis model of college students. The model can carry out data engineering planning for a large amount of mental health data of college students, evaluate effective data indicators, realize the high-efficiency and multilevel combined application of mental health data, and use Leibniz theorem to summarize the maximum likelihood data and principal component data. The maximum likelihood data group can evaluate the data trend in the big data cluster and synthesize the principal component data to judge the future psychological trend of each student to realize the judgment of students' mental health.

2. Related Work

At present, most studies on students' mental health problems have not integrated big data for analysis. It is impossible to summarize effective results through data analysis to solve mental health problems. Convolutional neural networks without in-depth analysis of data are analyzed by deep learning technology [5]. To quickly classify and summarize a large amount of survey data and analyze the data, Pablo g and other scholars have established a new set of data processing flow, divided the data into different types according to certain standards, reconstructed the structure of the data, and then facilitated the further analysis of the data. This method can effectively improve the characteristic speed of the data. However, due to the limitation of its classification criteria, the model cannot adapt to most mental health assessments [6]. Serrano J V and other scholars tried to classify college students with different mental health characteristics and conducted long-term tracking experiments to record the changes of students with different mental characteristics in their mental status in the face of the same pressure to realize the characteristic analysis of different data included in different mental characteristics [7]. Chen et al. have demonstrated through experiments that college students in different regions and grades have different psychological needs, and the psychological data characteristics of college students in different regions and grades will be slightly different. Based on this, different data characteristics can be used to locate mental health problems [8]. The research of Felix N and other scholars proved that the data analysis model based on the combination of deep learning and data engineering can greatly reduce the redundant data in big data in the analysis of mental health data of college students. The processed data is processed by Poisson distribution through data engineering, which improves the analysis rate by at least twice compared with the traditional data analysis model [9]. Serrano Ripoll and other scholars analyzed the impact of the environment such as the original family and the living city. From the perspective of students' original family life and urban development, this paper realizes the healthy analysis by comparing the psychological data of different students in the same type of external environment [10]. Maalouf et al. designed a mental health characteristic analysis model of different economic development levels of living cities according to the different psychological basic conditions of students caused by different living cities. The model can analyze the different psychological basic conditions caused by different educational methods caused by different economic development levels. It realizes the division of multivariate data and the efficient utilization of urban data [11]. Through the automatic detection function of artificial intelligence, polanin et al. realized the diversified classification of student data in different colleges and universities and converted the students' data into the sample set data of neural network. The data can be divided into hidden layer test set parameters and function layer test set parameters, which realizes the determination of artificial intelligence neural network architecture parameters and can quickly establish an appropriate analysis model [12]. Scholars from Bowser dm and other universities found that the mental health status of different students will also change continuously during their growth. The transformation of mental health status has obvious internal correlation with external conditions, and the mental health status of college students will change rapidly at a specific time in the growth process [13]. Kresovich A and other scholars have developed a strategy of multiple reorganization and data structure redistribution of mental health data based on multidimensional database FFT analysis algorithm. According to the different psychological states of different types of college students, by analyzing the different data characteristics generated by their different psychological

data, the data structure is redeployed according to different characteristics. It improves the matching rate of neural network for data analysis and redistribution [14]. Choi et al. tracked and recorded the changes of various data indicators and life values of college students from different colleges and universities in different living cities at different stages. Through the regular tracking of two specific data, the characteristic data characteristics can effectively realize the analysis of mental health problems at different stages. This experiment realizes the classification and summary of different types of mental health problems, The corresponding database is established, which greatly improves the efficiency of data analysis [15]. Ren and other scholars found through experiments that different types of college students had different personalities formed in the growth process due to different family conditions, and different personalities will lead to different mental health conditions. They proposed a complementary model of mental health conditions in college students based on adaptive personality strategies formed in different family environments [16]. According to the different teaching concepts caused by the different changes of economy at different times in various regions, Ferguson et al. predicted the development trend of the mental health of college students at different stages based on the data analysis model [17].

To sum up, it can be demonstrated that most of the traditional analysis models of the mental health of college students lack portability, flexibility, and regional assimilation [18, 19]. On the other hand, although diversified data collection and analysis have been carried out for the mental health status of college students in different regions at different times, there are very few results that can be widely used in the research on the mental health status of college students in different regions, and there is no innovative application similar to the method of using multiple neural network algorithm and reliability model of Chebyshev inequality [20, 21].

3. Methodology

3.1. Application of Network Algorithm Combined with TOPSIS Evaluation Model in Mental Health Analysis. Recently, convolutional neural network has been gradually improved and is popular in various data analysis models as a data analysis algorithm. It has been widely used in solving problems in many fields and verified the reliability of convolutional neural network [22]. Convolution neural network adopts multilevel factors. The internal solution goal of this strategy is to find the potential phenomena through complex data tables. To realize the rapid analysis and solution of data structure, the corresponding characterization database is often established.

The typical convolutional neural network structure is a high latitude staggered alternating function grid. The structure has different feature analysis modules and hierarchical transmission strategies. The complexity between each network layer is mainly reflected in a variety of node types and complex startup functions between each network layer [23]. At present, when studying the mental health status of college students, we often need to use various questionnaires and data census filled in by students in colleges and universities, such as academic stress data index, social stress index, love stress index, and other data. To further analyze the potential correlation between various data, we need to use TOPSIS evaluation model to analyze the correlation between various data sets [24]. The processing and analysis are shown in Figure 1.

3.2. The Establishment Process of Enhanced Convolutional Neural Network Model Based on Multidimensional Data Analysis. College students in different regions and grades have different psychological needs, and the psychological data characteristics of college students in different regions and grades will be slightly different. To analyze the changes of students' mental health data in different regions, multidimensional data analysis method can be used to decompose the dimensionality reduction characteristics of big data. For students in different regions, the multidimensional data analysis gradient transformation method based on convolution neural network algorithm is adopted. Integrating the data processing characteristics of neural layer parameter converter and the corresponding data grouping method, the data decoupling and decoupling processing are completed. The decoupling analysis process of enhanced convolution neural network based on multidimensional data analysis method for multidimensional data of mental health is shown in Figure 2.

In the process of multidimensional decoupling and gradient transformation analysis of mental health data of college students in different regions, fitting simulation and data feature analysis need to be carried out for different data groups. If all data groups have no redundant nonprincipal component data features and related branch structures, after data dimension reduction analysis through convolutional neural network and anti-interference deep learning, the dataset with a series of different parameter characteristics and unique changes can be obtained. The fitting process is as follows:

$$P_1 = \sum_{i=0}^{k} \frac{\sqrt{\left(x_1{}^0(0), x_1{}^1(0), x_1{}^2(0), \ldots, x_1{}^n(0)\right)}}{x_i{}^2(n)}, \tag{1}$$

$$P_2 = \sum_{i=0}^{k} \frac{\sqrt{\left(x_2{}^0(0), x_2{}^1(0), x_2{}^2(0), \ldots, x_2{}^n(0)\right) + \sqrt{P_1}}}{x_i{}^2(n)}, \tag{2}$$

$$P_3 = \sum_{i=0}^{k} \frac{\sqrt{\sum_{i=0}^{k} \sqrt{\left(x_1{}^0(0), x_1{}^1(0), x_1{}^2(0), \ldots, x_1{}^n(0)\right)/x_i{}^2(n)}}}{\sqrt{P_2 + P_1}}, \tag{3}$$

$$P_i = \sqrt{\sum_{i=0}^{k} P_i} + \sum_{i=0}^{k} \frac{\sqrt{\left(x_1{}^0(0), x_1{}^1(0), x_1{}^2(0), \ldots, x_1{}^n(0)\right)}}{x_i{}^2(n)}. \tag{4}$$

$x(n)$ is the mental health data of college students in different universities. By matching the mental data with the analysis of geographical characteristics and restructuring the data structure, combined with the different economic and scientific research development of different universities, the potential correlation coefficient of the mental health data of college students in different universities can be obtained. The calculation formula is as follows:

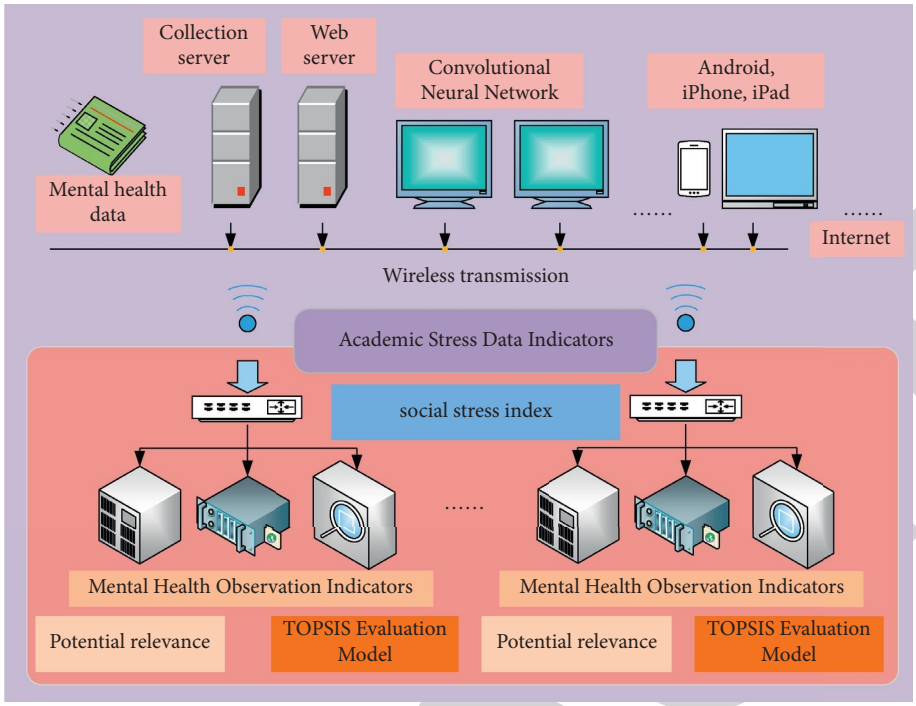

Figure 1: Processing and analysis of the mental health data of college students using convolutional neural networks.

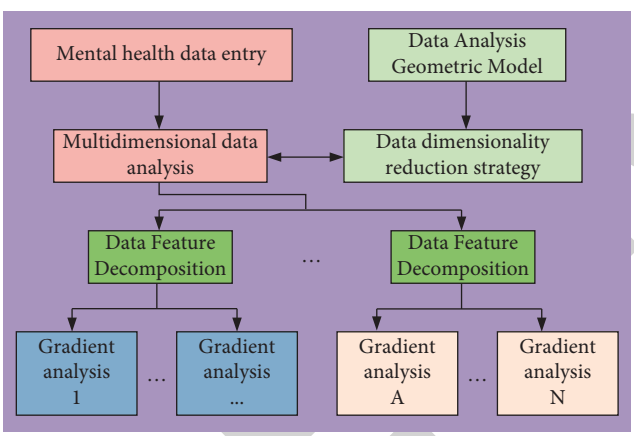

Figure 2: Decoupling and analysis operation process of multidimensional data of mental health by enhanced convolutional neural network based on multidimensional data analysis method.

$$\alpha = \sqrt{\frac{P_1^n}{\sum P_i}} + \sum_{k=0}^{n} \frac{x_1(k) + x_n(k)}{m}. \tag{5}$$

Next, the differential coupling function based on regular gradient change needs to be constructed for the regional economic energy consumption database, and its expression is.

Second, we can conduct decoupling and correlation analysis obtain the correlation strength between each two groups of data. The formula is as follows:

$$D(x) = \frac{{\alpha_i}^2 + \delta_i}{\alpha - 1} + \frac{m+1}{m^i - \alpha}. \tag{6}$$

$\delta_i = \sqrt{i+m}; i = 0, 1, \ldots$. At the same time, when using convolution neural network to analyze the mental health data of different college students, the change trend of the total value of the parameter layer of the convolution network is shown in Figure 3. At this time, the change gradient parameters are Figure 1–3.

For each data unit of data from different colleges and universities, the convolution neural network data feature correlation summary of high-order data parameters (using four data balance factors) is used. The change trend of data miscellaneous parameters is shown in Figure 4.

For each data unit of mental health data from different places, the convolution neural network data feature correlation summary of high-order data parameters (using 8 data balance factors) is used. The change trend of data miscellaneous parameters is shown in Figure 5.

From the result trend of the three groups of data in Figure 3, the data redundancy rate of the mental health data of students in different colleges and universities decreases with the increase of the number of gradient dimensionality reduction factors. With the change of a certain data gradient, the effective value ratio and principal component influence ratio also have a certain degree of fluctuation and step phenomenon. This is because in the process of using multidimensional data analysis to realize data engineering, the Euclidean distance between data groups will change step by step with the change of data dimension, resulting in step interference.

Figures 4 and 5 show that when analyzing and fitting the mental health data of students in different colleges and universities, after establishing the data analysis model with convolution neural network, when the dimension of the model is reduced, the variability and complexity of the data are greatly increased, and there are great differences in different data characteristics. In this process, the starting function of the corresponding convolutional neural network is $F(x)$:

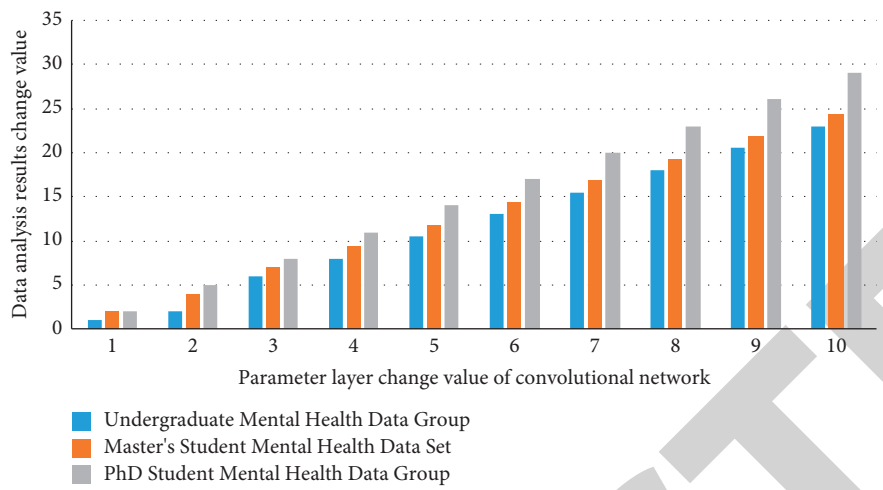

Figure 3: The results of data analysis of the mental health data of different college students using convolutional neural network.

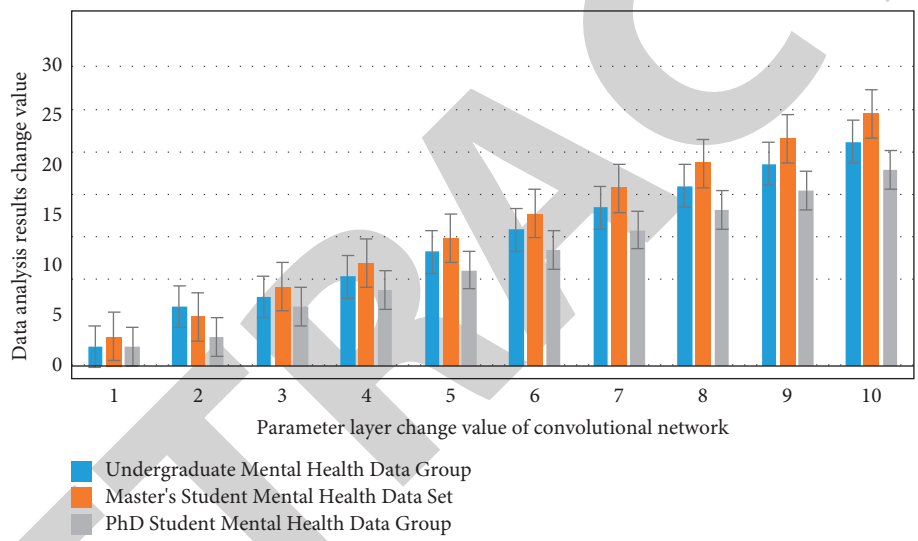

Figure 4: Variation trend of data redundancy of different students (4 data balance factors).

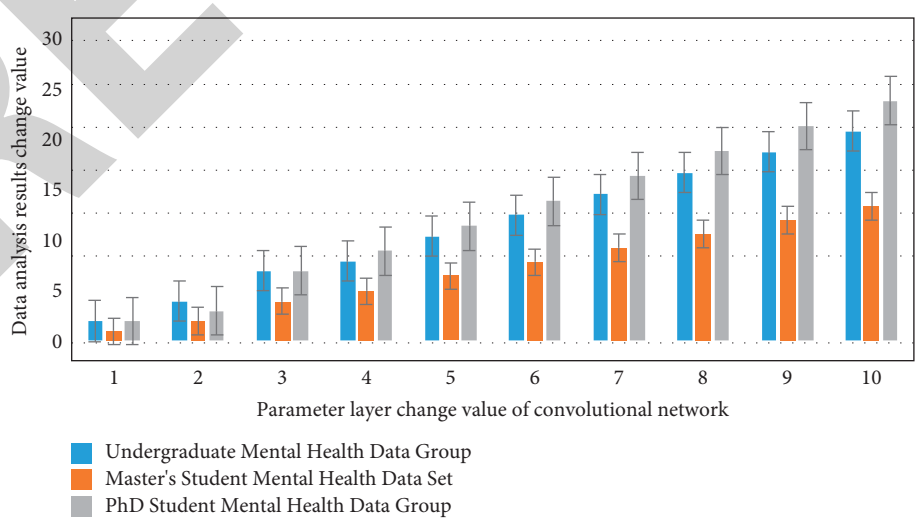

Figure 5: Variation trend of data redundancy percentage of convolutional neural network for the mental health data of students in different colleges and universities (8 data balance factors).

$$F(x) = \frac{x_j(k^*) + x_1(k^*) + x_2{}^2(k^*)}{\sqrt{(\alpha \cdot x_j(k^*) + m}}, \tag{7}$$

where $x_j(k*)$ is the normalization function of the hidden layer of convolution neural network constructed, which is used to continuously normalize the value function without alienation, and its expression is

$$T(x) = \frac{F(x) + \delta}{\sqrt{x_j(k^*) + x_j(k^* - 1)}}. \tag{8}$$

Next, we need to conduct value around combination analysis on the data group. The relative global limiting function is $S(x)$, and the local limiting function is $H(x)$.

$$S(x) = \sum_{j=1}^{k} \frac{F(x) + \sqrt{F(x) + m/F(x) + P_i(x)}}{\delta \cdot F(x) + F(2x)}. \tag{9}$$

$$H(x) = \sum_{j=1}^{k} \left(\frac{\sqrt{\left(x_j^k(k) + x_j^k(k-1)\right)^2 + \beta}}{F(x) + \alpha_j^k + \delta} \right)^k. \tag{10}$$

3.3. Construction Process of Grade Evaluation System Based on Enhanced Convolutional Neural Network. After the dimensionality reduction and decoupling processing of data, it is also necessary to evaluate the effective value and analyze the percentage of redundant value of the processed data. Therefore, a reasonable index evaluation system should be constructed to measure the effectiveness coefficient of the index:

$$\lambda = \frac{\sum \sqrt{\alpha * F(x) - P(k^*)}}{\delta + \alpha_j^k + F(x)} - F^k(x). \tag{11}$$

Normalize it; that is, limit its value to within 1, and then,

$$\lambda' = |P(x) \cdot \lambda| + \frac{\sqrt{\left(F^0(x), F^1(x), \ldots, F^k(x)\right)}}{|\delta \cdot F(x)|}. \tag{12}$$

Combined with the gradient change law of the effect of hidden nodes, genetic factor optimization is used to transform it into an iterative function with nonlinear change. The expression is

$$\sigma(x) = \lambda \cdot \alpha - 1 \sqrt{\frac{\alpha_j^k * P(k) + S(x)}{\lambda \cdot H(x)}}. \tag{13}$$

Through high-order differentiation and effective separation, we can get

$$\sigma\prime(x) = \frac{\sqrt{\lambda + P(k)/\alpha_j^k * H(x)} + \sqrt{\delta + \sigma/\beta + S(x)}}{\lambda P(x) + P(x+1)}. \tag{14}$$

Then, carry out parameter calibration and eigenvalue classification, and you can get

$$\sigma''(x) = S^k(x) * H(x) - \frac{\lambda \cdot P^k(k)}{P(k) + \sigma(x)} \sqrt{\varsigma * x_j^k(n)}. \tag{15}$$

Among them, ς is the characteristic coefficient of each data group of different university data after feature correction. Through the analysis of different dimensions of these different parameters, we can realize the matching and tracking of coupling degree and the separation of value degree of different types of characteristic coefficients of the data group and realize the segmentation of high value degree of different mental health problems, which leads to the emergence of different types of data groups.

4. Result Analysis and Discussion

4.1. The Experimental Process of Positioning the Mental Health Problems in College Students after Dimension Reduction. To effectively verify the feasibility and real efficiency of the college students' mental health analysis model with high portability and rapid data processing, this study uses the mental health data of different colleges. The data neural network structure has high adaptability and rapid transplantation in the process of optimization, some different types of college students' psychological data characteristics and data effective peaks are randomly selected for experiment and optimization verification. The experimental results are shown in Figures 6 and 7.

It can be seen from Figures 6 and7 that, in the process of preliminary experiment and final experiment, the mental health data of college students in different universities correspond to different data characteristics.

According to the multidimensional data analysis and dimension reduction analysis of convolutional neural network, the processed data structure changes alternately. The stability and structural gradient of data hiding layer and functional layer corresponding to the constructed analysis model also show regular changes. This is because, under the analysis of convolution neural network algorithm, when data engineering analysis and data dimensionality reduction are carried out on the mental health data of different colleges and universities, the internal stability and multidimensional of the model will change with the degree of data analysis.

Therefore, we can predict the trend and present the law through the data analysis chart and finally locate the problem through the mental health data of college students and put forward the corresponding solutions. In addition, different types of mental health data have different eigenvalues in different analysis modes. When the vector eigenvalue jumps, its internal information correlation will change irreversibly, but this will not affect the final curve trend. The high value analysis strategies corresponding to different types of data groups with different dimensions also have great volatility and guidance. Therefore, the matching degree of internal related data groups will be different. Therefore, the value degree of different types of data groups in convolutional neural network mode has good matching degree and value analysis degree. Therefore, different data will appear in the final results, resulting in different

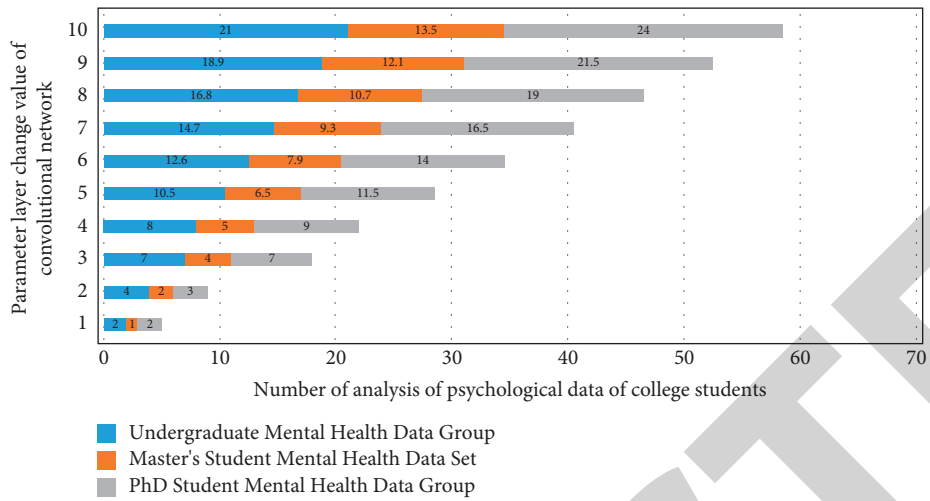

Figure 6: Preliminary experimental analysis results of mental health problems in college students after dimensionality reduction.

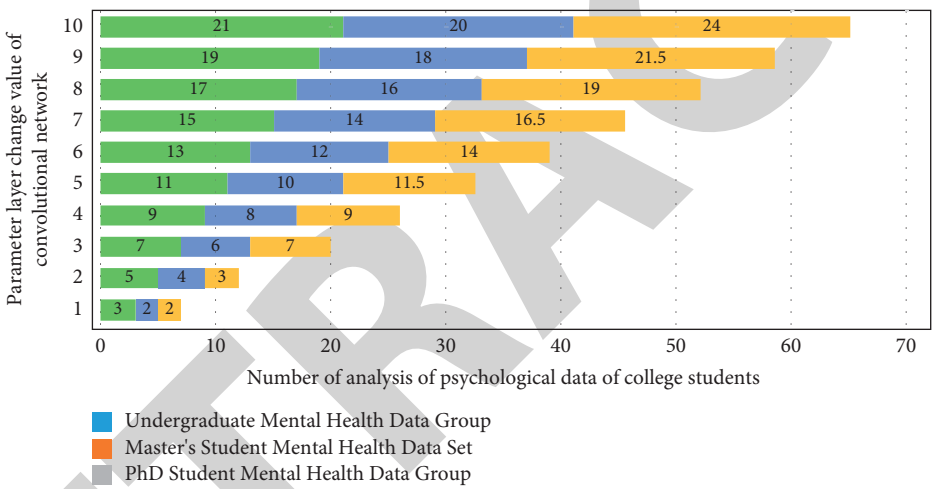

Figure 7: Final experimental analysis results of mental health problems in college students after dimensionality reduction.

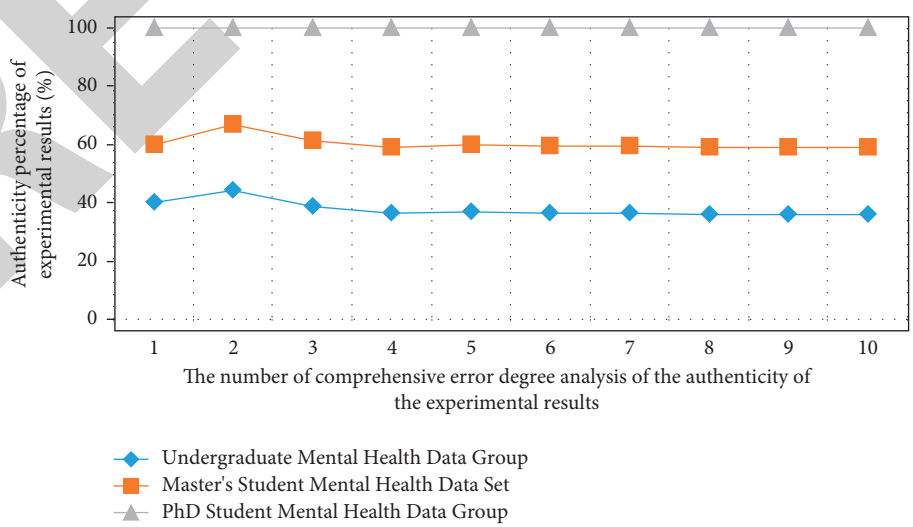

Figure 8: Authenticity analysis results of experimental results.

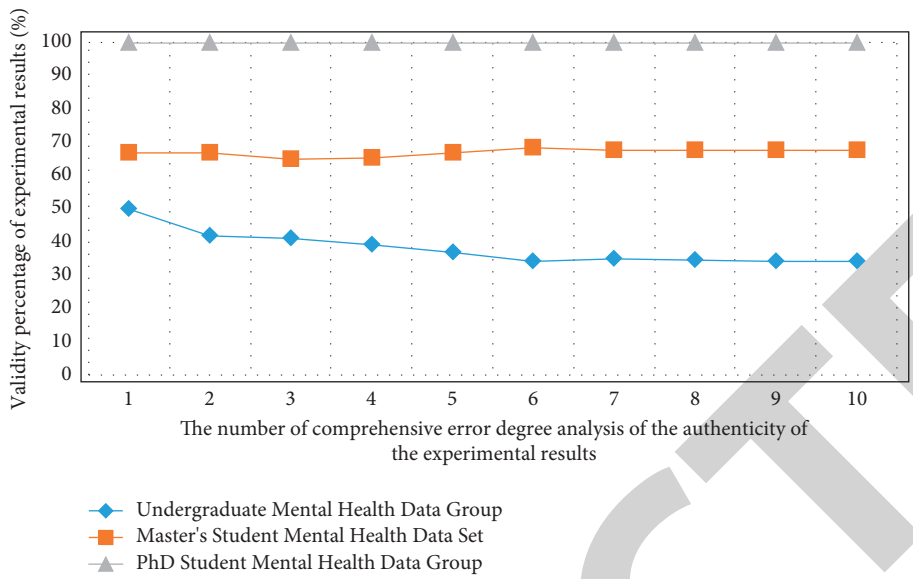

Figure 9: Analysis results.

deviations, and great changes will occur in the direction of the vector.

4.2. Experimental Verification and Analysis of the Accuracy of Students' Mental Health Analysis Model. Through the comprehensive analysis of the experimental results in the direction of authenticity, effectiveness, hierarchy, influence rate, and accuracy, the trend results are shown in Figures 8 and 9.

Through the experimental results in Figure 8 and the dimensionality reduction data processing and data feature analysis results in Figure 9, it can be seen that, in the process of optimization analysis and feature summary of college mental health data in the experimental process, the change of the effective coefficient of the local value of the data presents regular change characteristics. With the increase of the number of optimization factors of model analysis. In the model, the optimization points of the hidden layer and the output layer of the neural network also have different change laws with the matching of the data. This is because the model studied in this paper can reduce the dimension of different types of health data, analyze the parameter adjustment nodes of the data, and set them into the parameter layer of the neural network to ensure that the convolution network model can be flexibly adjustable. The model gradually adjusts the structural parameters of the network in the process of data dimensionality reduction, the model structure is more reasonable, and the analysis results are more reliable.

5. Conclusion

Based on the mental health data of students in different colleges and universities, this paper carries out dimension reduction analysis and processing. Combined with convolution neural network and TOPSIS evaluation method, the collected mental health data of college students is transformed into sample data constructed by the model, and the transfer function of the hidden layer of the model is designed and selected according to the internal relevance of the data. Finally, an analysis model of mental health of college students based on convolutional neural network is designed. Compared with the traditional mental health analysis model, the advantage of the model designed in this study is to use the developed enhanced convolutional neural network for the processing and data feature analysis of large quantities of data. According to the different data features of mental health data of college students in different regions, the potential correlation, and data matching degree between the data, we can locate the impact of the environment on the students' mental health through data analysis. Chebyshev theorem is used to analyze the accuracy of the test results.

The results show that the analysis model based on convolutional neural network can effectively improve the data processing speed and structure portability of the model, realize the rapid processing and analysis of different data, and greatly improve the data processing ability and adaptability of the model. However, the multidimensional data analysis method proposed in this study can only carry out linear analysis and error regression prediction of data information in different regions, without considering the different psychological basic conditions caused by college students' personality in the process of growth. In future research, the comprehensive evaluation index system needs further research. [25].

Data Availability

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

Conflicts of Interest

The author declares no conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Y. Wang, Z. Duan, and Z. Ma, "Epidemiology of mental health problems among patients with cancer during COVID-19 pandemic," *Translational Psychiatry*, vol. 10, no. 1, pp. 1–10, 2020.

[2] J. A. García-Carmona, J. Simal-Aguado, M. P. Campos-Navarro, F. Valdivia-Munoz, and A. Galindo-Tovar, "Long-acting injectable Antipsychotics: analysis of prescription patterns and patient characteristics in mental health from a Spanish real-world study," *Clinical Drug Investigation*, vol. 40, no. 5, pp. 459–468, 2020.

[3] X. Ji, J. R. Cummings, and J. Gilleland Marchak, "Mental health among nonelderly adult cancer survivors: A national estimate," *Cancer*, vol. 126, no. 16, pp. 3768–3776, 2020.

[4] M. L. Hutchcraft, A. A. Teferra, and L. Montemorano, "Differences in health-related quality of life and health behaviors among lesbian, bisexual, and heterosexual women surviving cancer from the 2013 to 2018 National Health Interview Survey," *LGBT Health*, vol. 8, no. 1, pp. 68–78, 2021.

[5] A. Twpd, C. Xjpdb, A. Hspd et al., "Prevalence of mental health problems during the COVID-19 pandemic: a systematic review and meta-analysis," *Journal of Affective Disorders*, vol. 281, pp. 91–98, 2021.

[6] G. Pablo, A. D. Micheli, D. H. Nieman et al., "Universal and selective interventions to promote good mental health in young people: systematic review and meta-analysis," *European Neuropsychopharmacology*, vol. 41, no. 7, pp. 28–39, 2020.

[7] J. V. Serrano, G. Pablo, A. Catalan et al., "Impact of coronavirus syndromes on physical and mental health of health care workers: systematic review and meta-analysis," *Journal of Affective Disorders*, vol. 275, pp. 48–57, 2020.

[8] T. L. Chen, S. C. Chang, H. F. Hsieh, C. Y. Huang, J. H. Chuang, and H. H. Wang, "Effects of mindfulness-based stress reduction on sleep quality and mental health for insomnia patients: a meta-analysis," *Journal of Psychosomatic Research*, vol. 135, Article ID 110144, 2020.

[9] J. M. Cénat, N. Felix, C. B. Rochette et al., "Prevalence of mental health problems in populations affected by the Ebola virus disease: a systematic review and meta-analysis," *Psychiatry Research*, vol. 289, Article ID 113033, 2020.

[10] M. J. S. Ripoll, J. F. M. Echavez, I. R. Cabello et al., "Impact of viral epidemic outbreaks on mental health of healthcare workers: a rapid systematic review and meta-analysis," *Journal of Affective Disorders*, vol. 277, no. 1, pp. 347–357, 2020.

[11] F. T. Maalouf, B. G. Mdawar, L. I. Meho, and E. A Akl, "Mental health research in response to the COVID-19, Ebola, and H1N1 outbreaks: a comparative bibliometric analysis," *Journal of Psychiatric Research*, vol. 132, pp. 198–206, 2021.

[12] J. R. Polanin, D. L. Espelage, J. K. Grotpeter et al., "A meta-analysis of longitudinal partial correlations between school violence and mental health, school performance, and criminal or delinquent acts," *Psychological Bulletin*, vol. 147, no. 2, 2020.

[13] D. M. Bowser, B. F. Henry, and K. E. Mccollister, "Cost analysis in implementation studies of evidence-based practices for mental health and substance use disorders: a systematic review," *Implementation Science*, vol. 16, no. 1, p. 26, 2021.

[14] A. Kresovich, M. K. R. Collins, D. Riffe, and F. R. D. Carpentier, "A content analysis of mental health discourse in popular rap music," *JAMA Pediatrics*, vol. 175, no. 3, pp. 286–292, 2021.

[15] S. Choi, S. Cho, and B. Nam, "An area efficient memory based multiplier powering eight parallel multiplications for convolutional neural network processors," *Electronics Letters*, vol. 57, no. 15, pp. 573–575, 2021.

[16] J. Ren, H. Wang, K. Luo, and J. Fan, "A priori assessment of convolutional neural network and algebraic models for flame surface density of high Karlovitz premixed flames," *Physics of Fluids*, vol. 33, no. 3, Article ID 036111, 2021.

[17] E. L. Ferguson, "Multitask convolutional neural network for acoustic localization of a transiting broadband source using a hydrophone array," *Journal of the Acoustical Society of America*, vol. 150, no. 1, pp. 248–256, 2021.

[18] A. Zhang, R. Hu, and K. Wang, "Age moderates the association between psychological distress and engagement in mindfulness among cancer patients and survivors: a population-based study," *Journal of Psychosocial Oncology*, vol. 38, no. 5, pp. 513–526, 2020.

[19] K. Zhu, W. U. Huan, S. Chao, Y. T. Hwa, and L. Chao, "Pattern recognition in distributed fiber-optic acoustic sensor using intensity and phase stacked convolutional neural network with data augmentation," *Optics Express*, vol. 29, no. 3, 2021.

[20] B. Feizizadeh, M. K. Garajeh, T. Lakes, and T Blaschke, "A deep learning convolutional neural network algorithm for detecting saline flow sources and mapping the environmental impacts of the Urmia Lake drought in Iran," *Catena*, vol. 207, no. 1, Article ID 105585, 2021.

[21] P. F. Wang, H. Zhao, X. P. Xie, Y. T. Zhang, C. Li, and X. W Fan, "Multichannel left-subtract-right feature vector piston error detection method based on a convolutional neural network," *Optics Express*, vol. 29, no. 14, 21320 pages, 2021.

[22] C. Ma, Q. Ren, and J. Zhao, "Optical-numerical method based on a convolutional neural network for full-field subpixel displacement measurements," *Optics Express*, vol. 29, no. 6, 9137 pages, 2021.

[23] G. Wu, X. Chen, J. Lin, Y. Wang, and J. Yu, "Identification of invisible ischemic stroke in noncontrast CT based on novel two-stage convolutional neural network model," *Medical Physics*, vol. 48, no. 3, 2021.

[24] Y. Kwak, V. H. Nguyen, Y. Hériveaux, P. Belanger, J. Park, and G Haiat, "Ultrasonic assessment of osseointegration phenomena at the bone-implant interface using convolutional neural network," *Journal of the Acoustical Society of America*, vol. 149, no. 6, pp. 4337–4347, 2021.

[25] L. L. Brickson, D. Hyun, M. Jakovljevic, and J. J. Dahl, "Reverberation noise suppression in ultrasound channel signals using a 3D fully convolutional neural network," *IEEE Transactions on Medical Imaging*, vol. 40, no. 4, p. 1, 2021.