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Research Article

Application of Image Super-Resolution Recognition and Artificial Intelligence System in Repairing Students' Psychological Education Problems

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The rapid and profound, changes in modern social life have caused great pressure on human psychology. The number of people undergoing psychological adjustment has increased, and some of them have serious physical and mental health problems due to psychological disorders. Research shows that college students are gradually becoming a group facing the risk of psychological crisis. College students are in an important transitional stage of life, their bodies and mind are becoming more and more mature, and their new life can easily make them psychologically dangerous. The article uses artificial intelligence to start with image resolution recognition, upscaling image sharpening, reconstruction-based higher resolution, and recognition-based higher resolution processing. The project aspires to solve development problems by researching recognition-based advanced solution techniques. Investigative experiments use questionnaires, interviews, case analysis, comparative analysis, action research, etc., to describe and analyze the current situation of college students' mental health education. On this basis, a guiding reflection on future development is carried out. The survey results show that 34.5% of students in independent colleges feel inferior, and 28.7% of students in ordinary colleges also feel inferior. Among ordinary college students, 59.6% felt the burden of psychological problems.

1. Introduction

In today's society, the economy is developing rapidly, science and technology are changing with each passing day, interpersonal relationships are complex and changeable, the life process of the whole society is getting faster and faster, and the pressure on people's lives is increasing. Usually, college students between the ages of 18 and 25 have not yet fully developed their self-awareness, and there is still a psychological conflict between values and reality. How to help students, who have not yet entered the secular world to avoid or eliminate the psychological crisis caused by the pressure of study, making friends, work, etc., prevent the occurrence of psychosomatic diseases, prevent and face various psychological difficulties, and ensure a good psychological state to adapt to the complex social environment, and how to better manage students' mental health have become a common concern and urgent problem for university administrators. Usually, the application of the comprehensive information system to the management of psychological education in colleges and universities is to install the relevant software on a specific client and then publish the test on the web page. It distributes and fills out machine-reading drawings, collects questionnaires, and then analyzes statistics. This process, to a large extent, frees the mental health education personnel of colleges and universities from complex problems when conducting the psychological survey of students, saves human resources and energy, improves the scope of students' psychological calculation, and improves the timeliness of mental health education in colleges and universities. However, this system has many defects, students can only log in to the software system to test and operate on the computer, where the relevant software system client is installed in the school.

Many experts have also conducted many studies on the application of image super-resolution recognition and

artificial intelligence systems in students' psychological education problems. Delgadillo J proposed that pretreatment role induction interventions may improve psychotherapy attendance and clinical outcomes [1]. Katz RR believes that to date, no study has examined educating participants about the psychosocial effects of trauma, which often go beyond conscious awareness [2]. The purpose of the Auerbach R P study was to assess the impact of psychiatric comorbidities on college students' role disorder by means of a web-based self-report survey of selected freshmen (response rate [RR] = 45.5%) [3]. Sudano et al. believe that student-athletes may be less likely to admit to mental health issues and seek mental health care for a number of reasons. Integrated care is a model of care that integrates behavioral health into medical practice [4]. Experimental results from Allen suggest that explicit prioritization of academic performance and mental health is beneficial. In addition, a method is provided to investigate the multilevel structure of schools using linguistic analysis [5]. Andersen R believes that students' mental health problems are now commonly understood using psychiatric models. In this model, diagnosed anxiety and mood disorders are considered to be so common that they constitute a crisis [6]. Nesbitt et al. believe that physical activity is a treatment for postsecondary students' mental health problems, but the impact of physical activity on students' career outcomes has not been fully studied [7]. Perkins A suggested, using schools to better support students' mental health, focusing on areas where students' mental health is poor and rural areas [8]. Barrett's and Twycross suggested that higher education students are at high risk for mental health challenges. In fact, the Institute for public policy recently acknowledged that mental illness and stress levels are on the rise among college students and are greater than in other population groups [9]. Posselt J's lack of multiagency, multidisciplinary evidence on mental health in graduate education blurred a clear picture of the population, context, and social dynamics worthy of attention and resources [10]. Jones investigated undergraduate preregistered mental health nurses' satisfaction with problem-based learning, and given the lack of such research, future teaching and learning strategies will be affected [11]. Noriega et al. believe that the implementation of mental health education courses like CSMHEC in medical courses can effectively help medical students improve their mental health [12].

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Online life has become an important part of today's young people's lives. Obviously, it is easier and more efficient for university administrators to use information technology to understand the mental health of students. At present, there are many kinds of comprehensive counseling systems for psychological education and management in colleges and universities, mainly for the transmission of psychological psychology and the investigation of mental health problems for the general population. There are few customized systems that can meet the needs of universities, and it is necessary to develop a customized system, that is, suitable for the educational model and philosophy of higher education. It popularizes mental health information through psychological distance learning, allows students to understand their psychological state through systematic review, takes effective measures to prevent, comfort, and overcome, and provides psychological support for students, who are confused by communication and consultation. At the same time, the evaluation results can give early warning to students with psychological problems, and improve the integrity, pertinence, and effectiveness of psychological education work. At present, most colleges and universities of comprehensive psychological education and information management consulting use the C/S structure, which must be installed on the computer configured by the school, the client software system must be installed, and students can log in to the software system to test and operate, which often requires substantial school resources. Moreover, there should be equivalent hardware and software systems, and there should be specialized personnel to maintain and manage the equipment, which cannot provide basic convenience to students.

2. SAR Image Feature Extraction Method

The current research in the study and repair of students' psychological education problems is limited and not complete and comprehensive. In this paper, the method of image super-resolution and artificial intelligence is used to substitute the problems of students' psychological education, which can effectively solve the problems of traditional research. Feature extraction and artificial intelligence techniques.

Super-resolution is to enable imaging data to surpass or exceed the original resolution level. Image super-resolution technology is based on the existing imaging equipment and imaging conditions, using a single frame or multiple discrete images with poor quality and low resolution, or multiple sets of video sequences to reconstruct better quality and resolution. Higher discrete image or video data. After being processed by image super-resolution technology, the pixel density of the obtained image is denser than the original image, with more detailed information, and the spatial resolution level is also higher than the original image. This chapter first introduces the basic knowledge of reconstruction-based image super-resolution technology and recognition-based image super-resolution technology and then uses logical reasoning to verify whether reconstruction-based image super-resolution processing technology has a reconstruction limit.

2.1. Improved Classification Algorithm Combining Nearest Neighbor Method and Unequal Spacing SVM. The human face is a major feature of vision machine learning and image processing systems to determine the desired target. A face carries discriminable and separable information, including gender, age, race, etc. Facial information is applicable in many situations such as human-computer interaction,

image retrieval, biometric authentication, driver monitoring, human-computer interaction, sensory analysis of sports competitions, video summarization, and image/video indexing. In this paper, the SAR images filtered by different algorithms are analyzed, the pixel values of a certain column of the filtered image by the four filtering methods are taken out, and the image pixels filtered by each filtering method are analyzed and compared with the corresponding row pixels of the original image and the noise image. As shown in Figure 1, the average curvature drive (MCD) filtering, Gaussian curvature drive (GCDD), and the improved filtering method in the article filter the grayscale information of a certain line of the image and the grayscale information of the original image and the noise image of the corresponding line [13]. The P-M filtering method can achieve a certain filtering effect. From the previous SAR image analysis, it is known that the P-M filtering method produces a blocky effect, which is manifested by some gray values seriously deviating from the original image gray value. Compared with the P-M model filtering, the average curvature-driven filtering algorithm shows little difference in gray value, but it can also be seen that the smoothing effect of the average-curvature-driven filtering algorithm is improved in the area with less noise. However, in the area with relatively large noise, the smoothing effect is basically the same as that of the P-M model [14]. The Gaussian curvature drive algorithm is an improved algorithm based on the average curvature drive algorithm, and its smoothing effect is obvious. However, due to the relatively large noise area of the SAR image, there will be an over-smoothing phenomenon, which makes the edge details and other information of the filtered SAR image lost. At the same time, because the Gaussian curvature-driven filtering method has a poor filtering effect in the area containing isolated noise points, the gray value will show the peak of individual isolated noise points. It can be seen that the grayscale information of the SAR image filtered by this algorithm is the closest to the original image, and there is no obvious noise peak in the grayscale value. It also can be seen that the filtering effect of the improved denoising algorithm in this paper is better than other methods [15]. If there is relative motion between the camera and the scene, the first step of super-resolution reconstruction is to register multiple frames, that is, to calculate the pixel displacement of the reference frame image relative to other images. The typical assumption is that the motion field satisfies a simple parametric model such as translation or projection deformation, but it can also be described by a dense optical flow field. Assuming that the image registration has been completed, the research focuses on the second step of super-resolution reconstruction, how to fuse multiple registered low-resolution images to form a high-resolution image. The second step is usually based on the assumption that the super-resolution image will inevitably result in a low-resolution input image after proper warping and under-sampling that takes into account inter-image registration and can accurately model the image formation process.

According to the principle of PSNR, the larger the PSNR value, the better the denoising effect of the algorithm. Figure 2 shows the analysis of four filtering methods for the same target image under different noise variances. As can be seen from the figure, when the given analog noise variance is below 0.7, the PSNR of several filtering methods is basically equal, indicating that the filtering effect is not much different. When the variance of the simulated noise is greater than 0.7, the PSNR values corresponding to several filtering methods gradually increase. The figure analyzes and compares the P-M algorithm, the average curvature drive algorithm, the Gaussian curvature drive algorithm, and the denoising algorithm proposed in this paper. It is not difficult to see that under the same noise variance, the PSNR value corresponding to the improved algorithm proposed in this paper is the largest. It can be seen that this algorithm has the best filtering effect compared with other algorithms.

The imaging process of SAR determines that speckle noise is generated in SAR images, and the speckle noise is a multiplicative noise similar to the Rayleigh distribution. During the experiment, by adding simulated noise to the original SAR image, the formed image is taken as a noise image, comparing several filtering methods from the simulation graph, it can be seen that the denoising effect of the improved filtering algorithm in this paper is better than that of other filtering algorithms. The specific evaluation indicators of each filtering method are given, as shown in Table 1 for details. It is evaluated from three aspects of image mean, variance, and equivalent view number. As mentioned above, a good SAR image speckle suppression method should also try to preserve the local mean information of the image. It can be seen that the image means after denoising by the P-M model drops from 60.0619 in the original image to 51.8132, which is seriously deviated from the original image mean. From the previous analysis, it can be seen that the image mean decreases due to its fast effect. Compared with the mean value of the image denoised by the P-M model, the mean value of the mean curvature-driven model and the Gaussian curvature-driven model is improved, so the filtering effect of the latter two is improved compared with the denoising of the P-M model.

According to the experimental data, the specific implementation process of the PCA and 2DPCA algorithms is given as shown in Figure 3. It can be seen from the flow chart that the steps of the 2DPCA algorithm are basically the same as those of PCA, and the corresponding eigenvectors are selected as the principal component vectors according to the size of the eigenvalues. But the difference is that in the process of feature extraction, the PCA algorithm needs to convert SAR images into column vectors and then train the training samples. The transformed covariance matrix is relatively large, and it is difficult to directly obtain its eigenvalues and corresponding eigenvectors. It is necessary to use the SVD theorem for indirect transformation and solution. The 2DPCA algorithm directly uses the original SAR image for training, because the matrix dimension involved is low, and the eigenvalues and eigenvectors can be directly obtained. Especially when the dimension of each training target is relatively large, the PCA algorithm is more difficult to deal with, as shown in Figure 3.

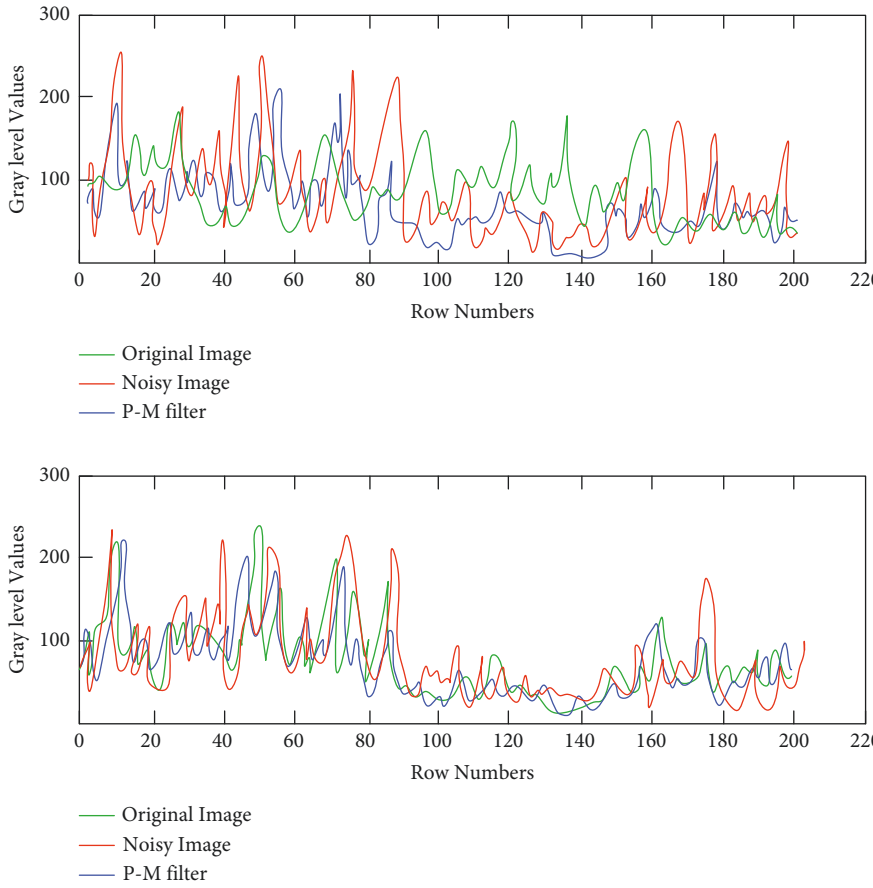

Figure 1: The gray value of a row of the same image after denoising with the no-pass filtering method.

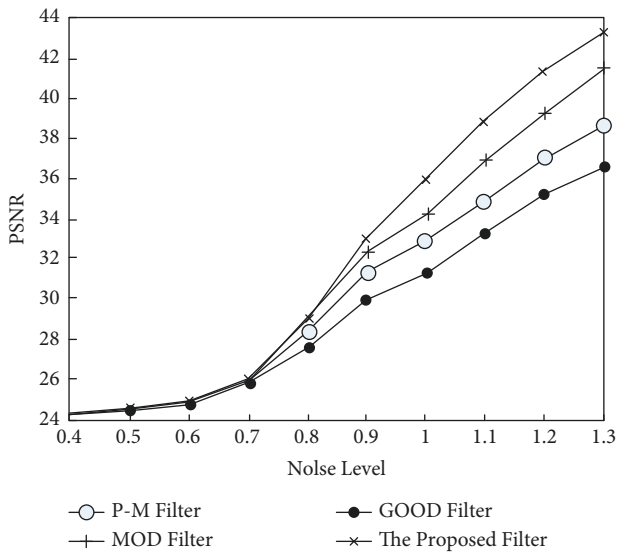

Figure 2: PSNR values of the same target image under four filtering methods.

In order to further improve the generalization ability of SVM, we improve it on the basis of the optimal classification surface SVM algorithm with unequal spacing. Considering that the K-nearest neighbor method uses all data sample points as representative points, it is more representative of sample categories. Therefore, the respective characteristics of the K-nearest neighbor method and the unequal spacing optimal classification surface SVM algorithm are combined. According to the distribution of training sample points, different classifiers are selected. The K-nearest neighbor method is an improved algorithm based on the nearest neighbor method. The specific idea of the algorithm is the same as that of the nearest neighbor method. Both need to find the nearest neighbor target. For the K-nearest neighbors of X, the target sample category with the most occurrences is X category. The key to the K-nearest neighbor classifier is the selection of the K value. The smaller the K value, the better the characteristics of the classified samples. The larger the K value, the samples that are dissimilar and do not essentially belong to the samples to be classified are also included. come in, resulting in a poor classification effect. The specific improved classification algorithm flow is shown in Figure 4. The experimental data is multi-class classification, and there are many methods for designing multi-class classifiers of SVM. The experimental process adopts a one-to-one multi-class classification method, that is, all training samples are combined in pairs according to different categories to form multiple two-class classifiers. Each two-class classifier is trained on the training samples using the unequal-spaced SVM classification method. According to the training sample category, when it finds the optimal classification surface obtained by each two-class classifier after training,

Table 1: Data under different filtering methods.

	Original image	P-M	Mean curvature	Gaussian curvature	Ways to improve
Mean	60.0619	51.6523	56.5123	57.6126	57.6221
Var	1652.0919	1005.3541	1052.6581	924.6522	847.6221
Enl	2.1835	2.3452	3.3126	3.5213	3.9523
	BRDM-2 data under different filtering methods				
	Original image	P-M	Mean curvature	Gaussian curvature	Ways to improve
Mean	96.3112	86.6163	92.6263	93.3216	95.6123
Var	3588.6121	1995.2316	2206.6325	1996.5611	1652.3621
Enl	2.6235	3.6542	3.3126	4.6263	4.6232

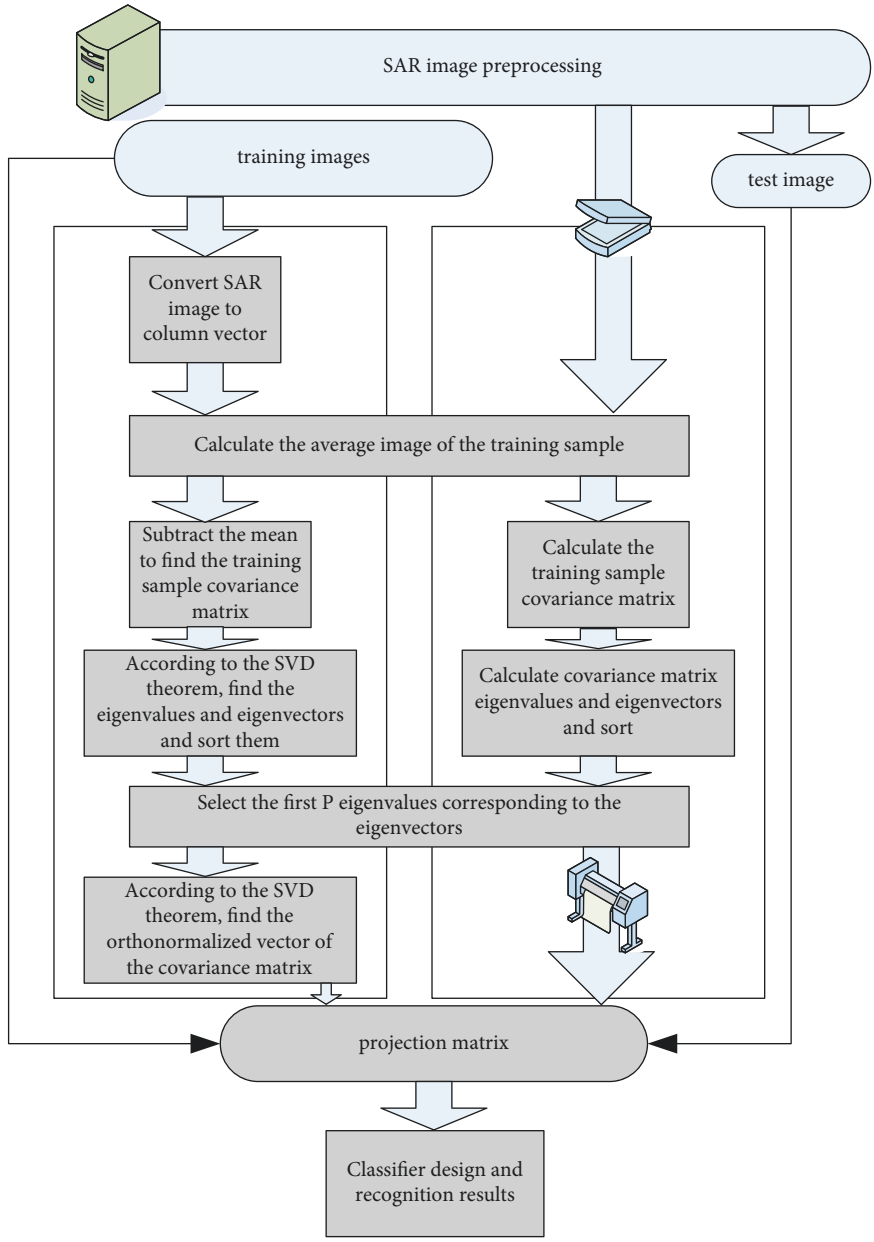

Figure 3: PCA and 2DPCA flow chart.

whether there are noise sample points on both sides is the most critical. If it exists, it means that the optimal classification surface generated by the SVM method may not be optimal due to the existence of noise sample points. The overlap between adjacent high-resolution image blocks is one pixel. For a more conservative estimate of high-

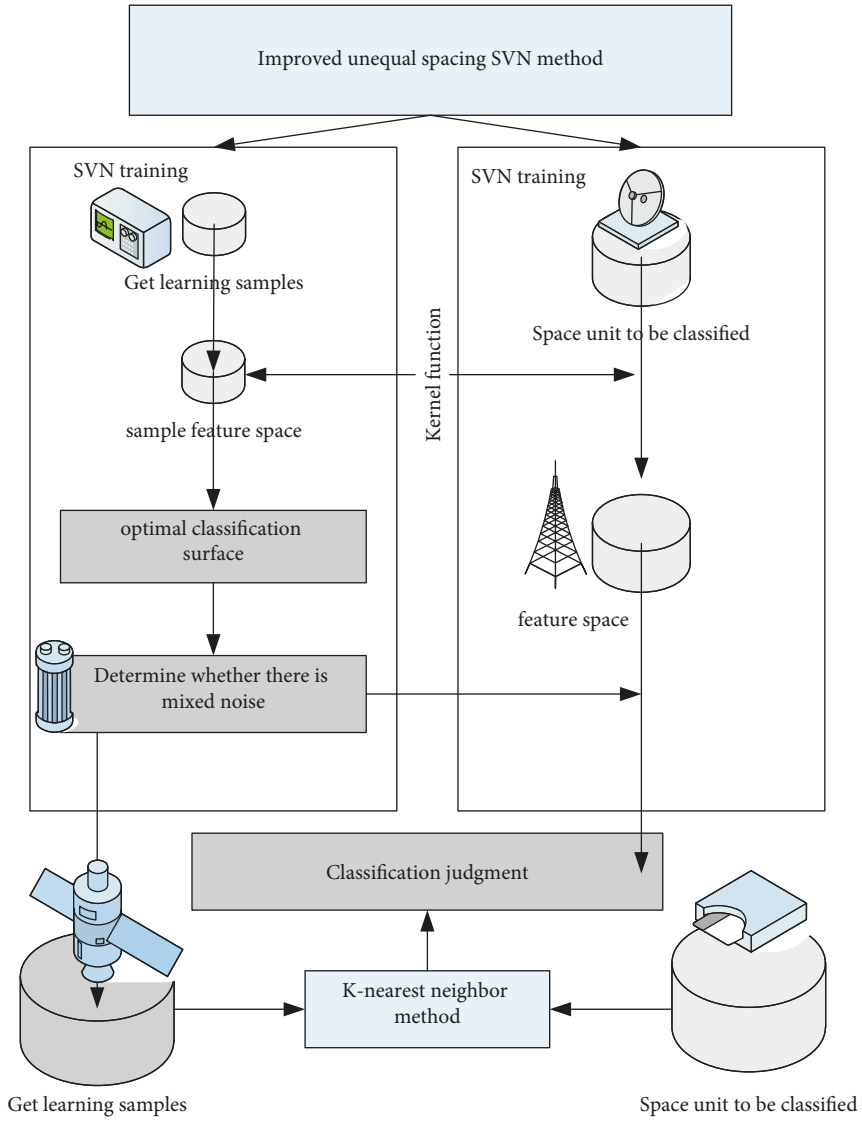

Figure 4: Improved algorithm flow.

resolution detail, it is also possible to perform four operations on the staggered offsets at different locations of the patch sampling grid to obtain four independent high-frequency estimates, which are then averaged, so that although some image details are smoothed, it is possible to reduce oscillation artifacts. Therefore, it is easy to misclassify using the SVM classification method at this time. The *K*-nearest neighbor method is used to take all the sample points as the characteristics of the representative points, and the *K*-nearest neighbor method is used for classification, and the recognition effect will be better. It adopts a one-to-one classification and recognition method, combined with the discrimination of each two-classifier, and votes to select the final recognition target type. The experimental data of identification show that the improved classification algorithm not only solves the problem of easy misclassification of noisy sample points near the classification surface of the SVM algorithm but also solves the problem of insufficient calculation and storage space for all data using the *K*-nearest neighbor algorithm. At the same time, it also improves the classification accuracy of the entire data.

2.2. Simulation Results and Analysis. The processing ideas of recognition-based super-resolution technology and reconstruction-based super-resolution technology are similar, and both use one or more frames of low-resolution images to generate high-resolution images. Recognition-based super-resolution processing focuses on generating a single-frame high-resolution image from a single-frame low-resolution image using a set of training images containing one or more frames of the same or different types of scenes. The basic principles of the two are quite different. The theory of recognition-based super-resolution is closer to the pattern recognition algorithm, and it is not constrained by the assumptions of reconstruction-based image super-resolution algorithms. The recognition-based super-resolution technology generates a recognition model through a series of

images in the training set, uses the recognized common local features to predict recognition-based prior conditions, and then uses these recognition-based prior conditions to extract high-frequency image detail information, it is more effective for texture feature information of special symbols such as numbers and characters.

In the process of feature extraction and classification and recognition experiments, other filtering algorithms are no longer used to compare with the filtering algorithm in this paper, and the unfiltered and filtering methods in this paper are directly used to compare different machine learning algorithms. The main purpose is to analyze the influence of the target recognition rate under different machine learning methods. It can be seen from Table 2 that the target recognition effect of image training and recognition without filtering is very poor, while the recognition effect is significantly improved after using the improved filtering algorithm to filter. In the feature extraction algorithm, the 2DPCA algorithm is better than the PCA algorithm has been analyzed in detail. Therefore, the two are no longer analyzed. Table 2 shows the effect of different classifier designs on the recognition efficiency of the experimental data. The data used in this experiment are all SAR image data filtered by the improved anisotropic diffusion method proposed in chapter 2. Since the 2DPCA feature extraction algorithm has been well analyzed due to the PCA extraction algorithm, we choose the 2DPCA algorithm combined with different classifiers for experimental analysis. It can be clearly seen from several tables that the improved SVM classifier design method has the highest target recognition rate.

2.3. Hopfield Feedback Network. In the Hopfield feedback network, all nodes are the same, and they can be connected to each other (a node not only accepts input from other nodes but also outputs to other nodes). Neuron models can take discrete or continuous variables and take into account the delay between input and output. Hopfield networks can be used for memory association or optimization calculations. Hopfield network has two functions of associative memory and optimization calculation: when using dry contact chess memorization, the constant state of the network is provided by inputting the sample pattern, and synaptic pressure is obtained by learning; if it is used for optimization calculation, the optimal function of the system is established according to the objective function and constraints to determine the weight. If the network develops to a stable condition, the optimal solution to the computational problem can be obtained. In order to simulate the main features of nerve cells and their networks in the human brain, Hopfield constructed a circuit model of a feedback neural network using analog electronic circuits, as shown in Figure 5. Consider the time delay between input and output. The percussion network can be used for associative memory or optimized computation. The two functions of associative memory and optimization calculation of the network have duality. When used in associative memory, the steady state of the network is given by the input of the sample pattern, and the synaptic weights are obtained by learning.

2.4. Meta-Analysis Results Based on Scl-90 Scale Research. The results of the homogeneity test and the published offset test are shown in Table 3. The results show that the Q values are all above 11623, far greater than the critical value of 124, which is 101. The Orwin loss-of-safety coefficient showed that the values of the nine factors were all between −1 and 0, which indicated that the publication bias effect was not obvious. Then to further verify this conclusion, we compare the quality types of published journals, namely core journals, general journals, and dissertations. The results showed that the three types of journals were interpersonal sensitivity ($F = 5.59$, $P = 0.005 < 0.01$), depression ($F = 5.17$, $P = 0.008 < 0.01$), and anxiety ($F = 4.72$, $P = 0.01 < 0.05$). There were significant differences in three factors and no significant differences in other factors. Therefore, it is generally shown that the publication bias of the sample in this study is not large, as shown in Figure 6 and Table 3.

2.5. Reconstruction-Based Image Super-resolution Constraints. Since the circulation circuit needs to occupy a part of the space of the CCD unit, the photosensitive area does not occupy the entire CCD unit, and it can be assumed to take a certain value in the range of [0, 1]. The analysis of the super-resolution reconstruction problem is actually carried out according to the parameters, rather than the distance between pixels. The continuous image equation can also be expressed as

$$\begin{aligned} y^{(i)}(m) &= E_i * w_i * a_i(m,n), \\ P &= \frac{1}{M} m, \\ y^{(i)}(m) &= \int_u E_i\left(r_i(z)\right) * PSF_i\left(r_i(z) - m\right) \cdot \left|\frac{\partial r}{\partial z}\right| \mathrm{d}z, \\ y^{(i)}(m) &= \int_u E(z) * PSF_i\left(r_i(z) - m\right) \cdot \left|\frac{\partial r}{\partial z}\right| \mathrm{d}z. \end{aligned} \tag{1}$$

In the simplest case, $f(p)$ represents a piecewise constant function:

$$\begin{aligned} E(z) &= f(p), \\ y^{(i)}(m) &= \sum_p f(p) \cdot \int PSF_i\left(r_i(z) - m\right) \cdot \left|\frac{\partial r}{\partial z}\right| \mathrm{d}z, \\ y^{(i)}(m) &= \sum_p W_i(m,p) \cdot f(p), \\ W_i(m,p) &= \int PSF_i\left(r_i(z) - m\right) \cdot \left|\frac{\partial r}{\partial z}\right| \mathrm{d}z. \end{aligned} \tag{2}$$

The cold elements of point spread are assumed to be consistent for all low-resolution images and of the form:

Table 2: 2 DPCA + K-nearest neighbor method identification.

	2S1 (299)	BRDM2-(298)	D7 (299)	Recognition rate	Average recognition rate
2S1 (274)	257	8	6	93.54%	
BRDM-2 (274)	10	255	5	93.54%	93.41%
D7 (277)	9	7	258	93.55%	
		2DPCA + SVM identification			
Sample	2S1 (299)	BRDM2-(298)	D7 (299)	Recognition rate	Average recognition rate
2S1 (274)	265	4	3	96.61%	
BRDM-2 (274)	6	265	3	95.64%	96.52%
D7 (277)	4	3	264	96.42%	
		2DPCA + unequal spacing SVM recognition			
Sample	2S1 (299)	BRDM2-(298)	D7 (299)	Recognition rate	Average recognition rate
2S1 (274)	269	2	2	98.15	
BRDM-2 (274)	4	266	3	97.65	97.65
D7 (277)	4	3	268	97.65	
		2DPCA + improves SVM recognition			
Sample	2S1 (299)	BRDM2-(298)	D7 (299)	Recognition rate	Average recognition rate
2S1 (274)	272	1	0	99.53	
BRDM-2 (274)	2	270	0	98.56	98.61
D7 (277)	1	1	275	98.65	

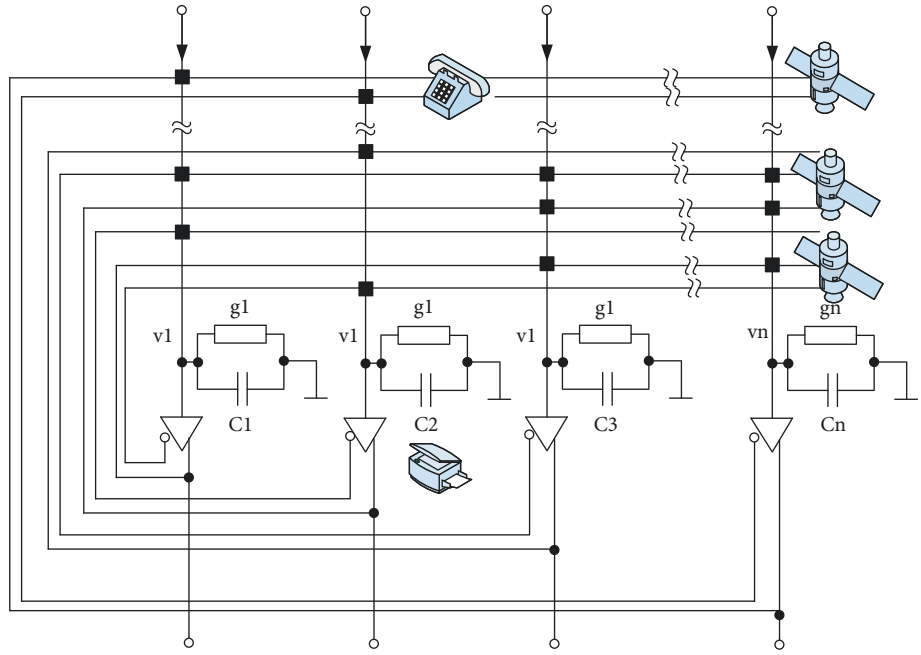

Figure 5: Hopfield network model.

Table 3: Overall levels of scl-90 scores.

Factor	Q	Nfs	D (2, 87)
Somatization	13313.12	−0.26	0.04
Force	17852.23	−0.26	2.68
Interpersonal sensitivity	19512.21	−0.07	5.59
Depression	17131.13	−0.19	5.17
Anxiety	16645.65	−0.21	4.72
Hostility	11366.32	−0.23	0.02
Fear	15941.21	−0.16	0.21
Paranoid	13859.31	−0.21	0.03
Psychotic	146526.61	−0.31	0.07

$$
\begin{aligned}
PSF(x) &= \left(w_i * a_i\right)(x),\\
r_i(z) &= \frac{1}{M} z + e,\\
y^{(i)}(m) &= \sum_p W_i(m,p)\cdot f(p),\\
W_i(m,p) &= \frac{1}{M^2}\cdot \int a_i\left(\frac{1}{M} z + c, -m\right)\mathrm{d}z.
\end{aligned}
\tag{3}
$$

The activation function can take the following forms:

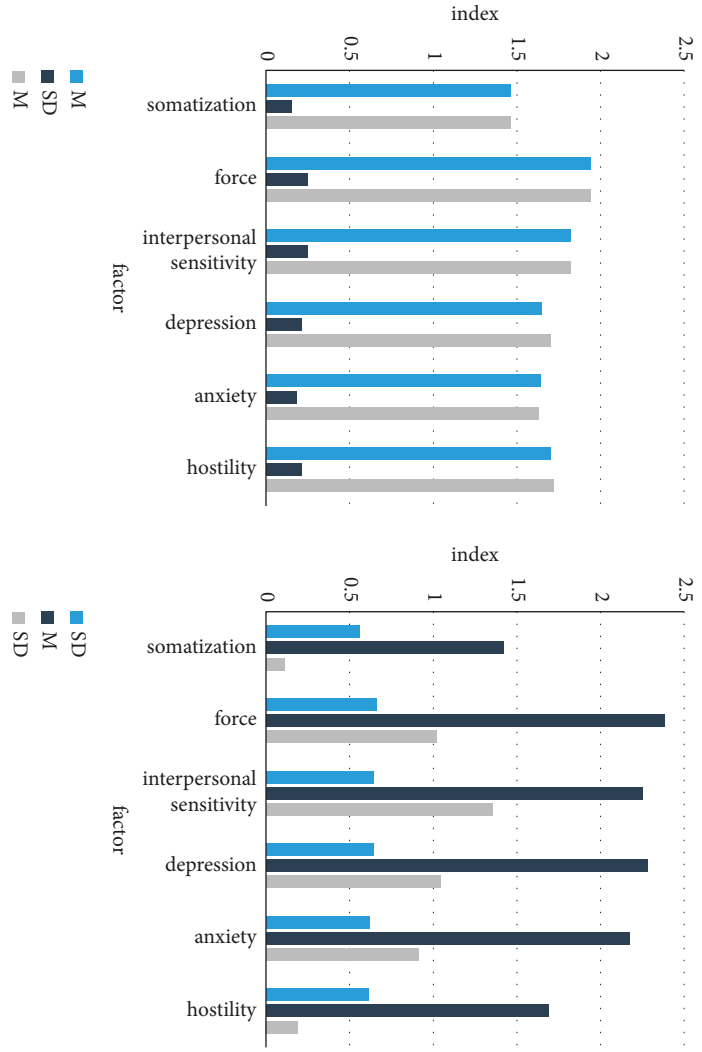

Figure 6: Homogeneity check and publication bias results.

$$\phi(v) = \begin{cases} 1, & v \geq 0, \\ 0, & v < 0. \end{cases} \tag{4}$$

The corresponding output is:

$$yk = \begin{cases} 1, v_k \geq 0, \\ 0, v_k < 0, \end{cases}$$

$$\phi(v) = \begin{cases} 1, & v \geq 1, \\ \frac{1}{2}(1+v), & -1 < v < 1, \\ 0, & v \leq -1, \end{cases} \tag{5}$$

$$\phi(v) = \frac{1}{1+\exp(-av)}.$$

Then the error signal can be written as

$$e_k(n) = d_k(n) - y_k(n),$$

$$J = E\left(\frac{1}{2}\sum_k e_k^2(n)\right),$$

$$\Delta w_{kj}(n) = \eta \cdot e_k(n) \cdot x_j(n), \tag{6}$$

$$\Delta w_{kj}(n) = F\left(y_k(n), x_j(n)\right),$$

$$\Delta w_{kj}(n) = \eta \cdot y_k(n) \cdot x_j(n).$$

According to the KKT condition of the constrained optimization problem, assuming that $*$ is the optimal solution, the following conditions should be satisfied:

$$\alpha_i^*\left(y_i\left(w^* \cdot x_i + b^*\right) - 1\right) = 0, \quad i = 1, 2, \ldots, n. \tag{7}$$

3. A Survey on the Mental Health of Students in Independent Colleges

The survey adopts the combination of a symptom self-rating scale (SCL-90) and a self-made questionnaire and collects information on the mental health status of students in independent colleges objectively through individual interviews and symposium methods. The scale adopts the method of random sampling to select 300 measurement objects from three universities, respectively, and collect 291 valid questionnaires from independent colleges and 289 ordinary colleges and universities. The survey objects cover male, female, liberal arts, and science, which are basically representative. The basic information of the respondents is shown in Table 4.

The self-made questionnaire also adopts a random sampling method to select 500 survey objects from two schools respectively. Independent colleges returned 473 valid questionnaires, and ordinary colleges and universities returned 484 valid questionnaires. The results are shown in Figure 7.

It can be seen from Table 5 that in the test results, the average score of students in independent colleges is higher than that of students in ordinary colleges and universities. Comparing the average scores of each factor, there are very significant differences between the two types of schools in the four factors of interpersonal sensitivity, depression, anxiety, and fear. That is, the four symptoms of interpersonal sensitivity, depression, anxiety, and fear of independent college students are more prominent than those of ordinary college students.

As can be seen from Figure 8, among the symptoms, except for psychotic symptoms, the detection rate of other symptoms is higher than that of students in ordinary colleges and universities. This shows that the mental health level of students in independent colleges is generally worse than that of students in ordinary colleges and universities.

The prevailing view at present is that the students have serious psychological problems and the situation is not optimistic. After a meta-analysis of the collected samples, it is found that the overall scores of each factor and the factor average are lower than the norm, and the average effect size of −0.20 is a small effect, indicating that the overall mental health level of this sample is higher than the norm. At the same time, we converted the average effect amount into a percentage level, and the results showed that the average effect amount was at 58% of the norm, which was at a medium level, indicating that the situation was not optimistic. In the process of meta-analysis, we also compared the sample data with the norm of the youth group. The average effect size of 0.20 is also a small effect, indicating that the overall mental health of the sample is lower than the norm of the youth group. To sum up, we can understand that the mental health level of the students in this sample is slightly higher than the norm of the four provinces, that is, the mental health level is basically stable, so we are skeptical about many conclusions that "students have serious psychological problems." The social indicators are correlated with the mean of each factor, and there is a partial correlation between the two. The results are shown in Figure 9.

Table 4: Basic information of SCL-90 survey respondents.

	Independent institute	Normal high school
Male	169	172
Female	122	117
Liberal arts	134	136
Science	157	153
Total people	291	289

Figure 10 reflects the situation that contemporary college students think that college classmates are more difficult to get along with than their middle school classmates. The figure clearly shows that among the respondents: 38% of ordinary college students think, it is difficult to get along with their classmates, and 62% of them choose to be difficult to get along with their classmates in independent colleges. It can be clearly seen from the figure that among the respondents: 42% of ordinary college students think, it is difficult to get along with their classmates, while 58% of the students in independent colleges choose to be difficult to get along with their classmates. It can be clearly seen from the figure that among the respondents: 45% of ordinary college students think, it is difficult to get along with their classmates, while 55% of the students in independent colleges choose to be difficult to get along with their classmates. The above three sets of data fully demonstrate that most of the students in independent colleges among contemporary college students have a better family life since childhood, and some are even spoiled by their parents. Being spoiled since childhood, these students are relatively less self-reliant, more dependent, and lack the spirit of collective cooperation. After entering the university, they cannot adapt to the new environment very well, and their self-centered living habits are highlighted. With the increase in grades, the proportion of the above three surveys gradually decreased. This shows that students in independent colleges have gradually learned to think in a different position through communication with teachers and classmates at school, their self-reliance ability has also been enhanced, and their self-centered living habits have been gradually changed. Although the students of independent colleges have many advantages compared with those of ordinary colleges and universities in terms of ability and quality, the psychological problems cannot be ignored. The results of the self-rating scale test show that interpersonal tension, employment psychological pressure, and study pressure are common psychological problems among students in independent colleges. The results of the self-made questionnaire also showed some obvious psychological problems of the students of independent colleges. A variety of survey results have concluded that interpersonal problems are the most obvious psychological problems specific to independent college students. The interpersonal and social range of students entering college is much more complicated than that in junior high school. Most of the students of independent colleges are individualistic and self-centered in high school, which makes them more complicated in interpersonal communication than in ordinary colleges and universities. From elementary school to middle school and even to high school, there are familiar faces

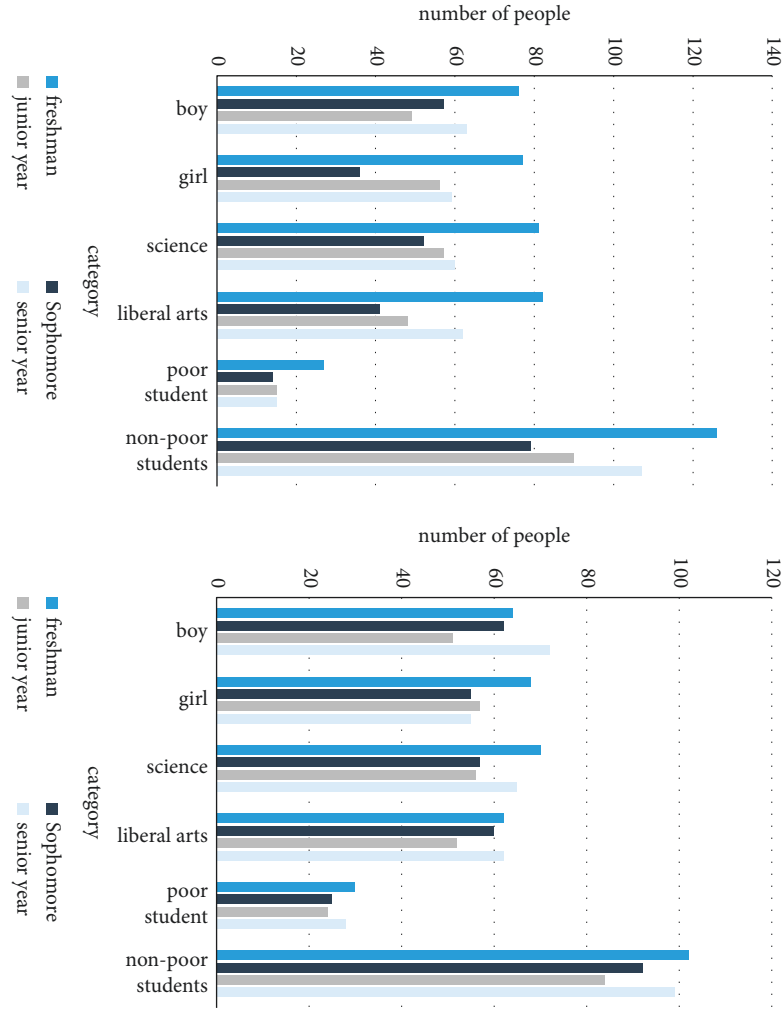

Figure 7: The basic information of self-made questionnaire respondents.

Table 5: The comparison of the average scores of each factor between independent college students and ordinary college students.

Factor term	Average student at independent colleges	Average college students
Total score	199.3	117.6
Interpersonal sensitivity	1.65	1.62
Fear	1.52	1.42
Anxiety	1.42	1.35
Depression	1.24	1.06
Somatization	0.96	0.96
Obsessive-compulsive symptoms	1.13	1.12
Hostility	1.53	1.53
Paranoid	1.62	1.63
Psychotic	1.45	1.42

around, not only the contact time is more, but also the language is the same, which is very conducive to communication of feelings. Just like fish, they must create their own familiar living environment in order to grow well. When entering university, most of the people around all come from different places. Unfamiliar faces, a wide variety of languages, living habits, etc., all hinder the communication between students. Having good interpersonal communication skills is a compulsory course for every college student, and it also determines whether a college student can spend the four years of college smoothly, successfully, healthily, and happily. Classmates who have barriers in interpersonal communication will soon be thrown away or take the initiative to leave the group and be isolated from the group. The specific actions of such students are: one is arrogant and exaggerated; the other is selfish and self-centered, and the other is too inferior and shy. These situations are incompatible with the communication among college students, and it is difficult to complete their studies happily, which will accumulate many psychological problems for a long time.

4. Discussion

This paper mainly studies the image resolution enhancement technology, and systematically discusses and studies the related theories and technical methods of image super-resolution research results. The development status of image

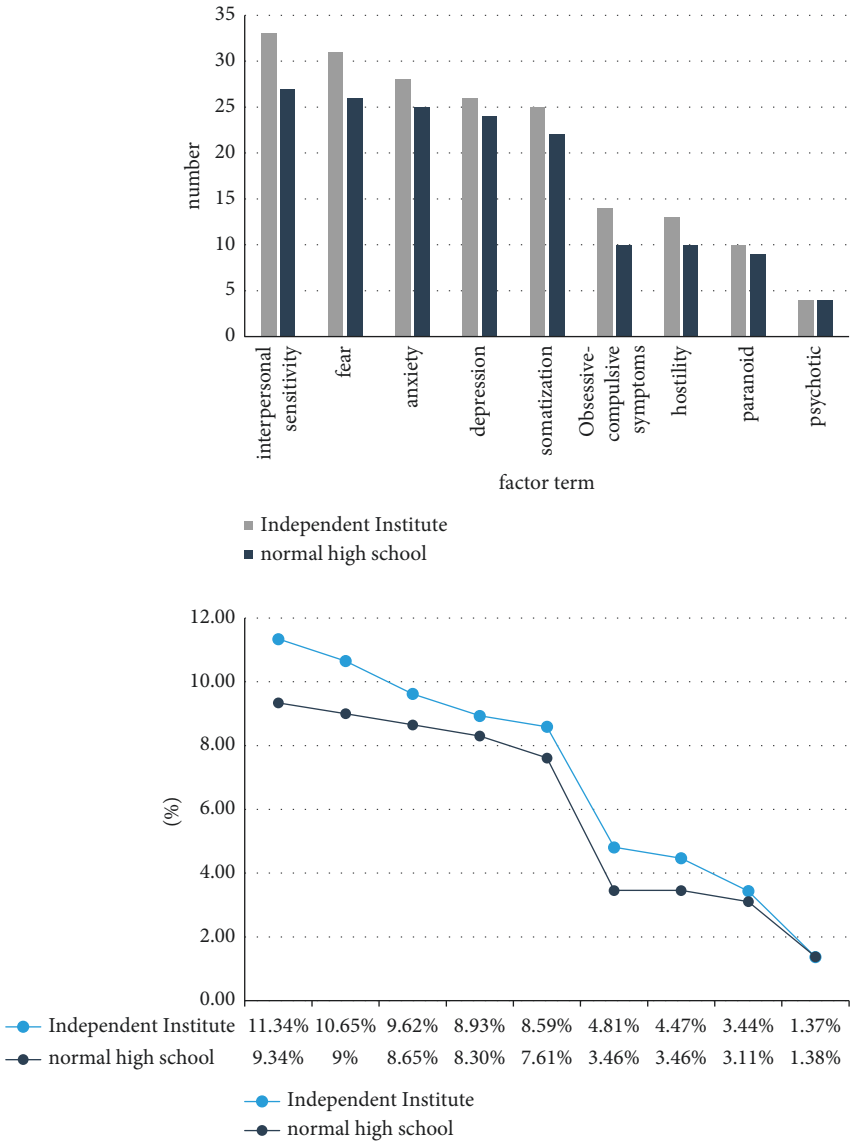

Figure 8: The detection rate of psychological problems among students at independent colleges.

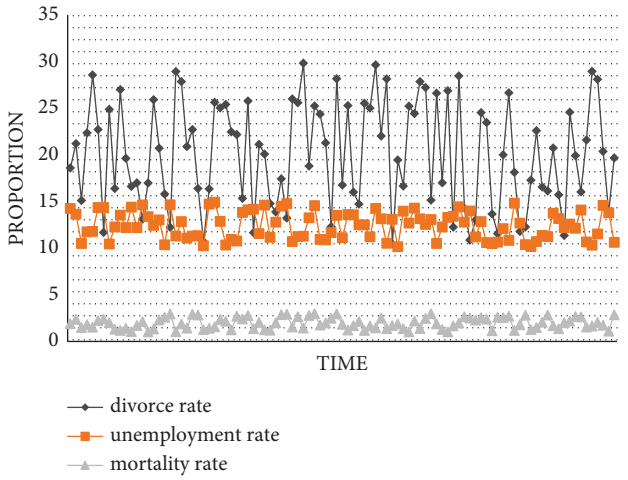

Figure 9: The correlations between socioeconomic indicators and means of MMHI factors.

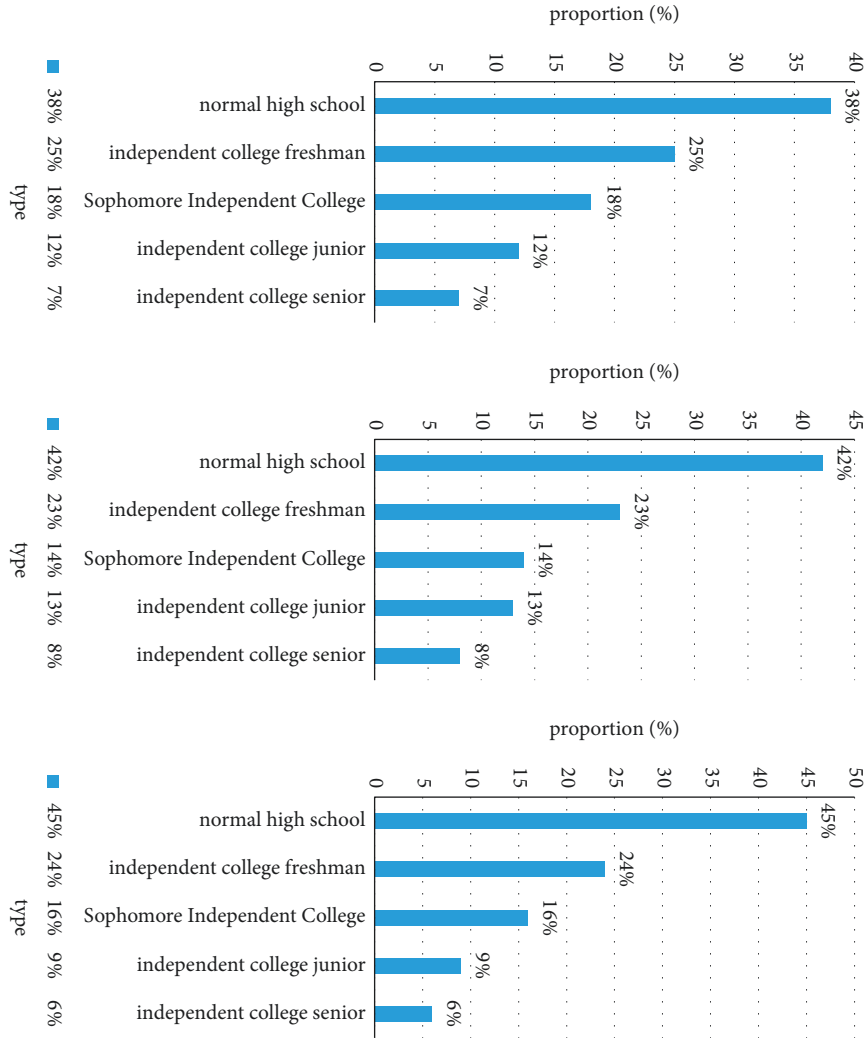

Figure 10: The statistical analysis of self-made questionnaire survey results.

super-resolution technology in three directions is studied, the constraints of reconstruction-based image super-resolution technology are analyzed and established, and the research route of recognition-based image super-resolution technology is determined. A neural network algorithm incorporating the idea of pattern recognition and processing technology is proposed, and the specific implementation process of the recognition-based finite cyclic neural network algorithm is designed, and verified by experiments, the problem of image resolution enhancement is successfully solved. An image super-resolution algorithm with diverse learning abilities is proposed, and the specific implementation process of the recognition-based one-way diverse learning image super-resolution algorithm is designed, and the rationality and superiority of the algorithm are verified by a number of experiments. Compared with other learning-based algorithms, it requires fewer training samples and is more practical and generalizable. It is an important link to promote the continuous improvement of students' mental health education by clarifying the basic goals of students' mental health education through image resolution technology, and constantly improving the content and methods of students' mental health education. One of the purposes of mental health education is to enhance personality, and its primary purpose is to improve students' psychological quality. The main focus of college students' psychological education work is: to disseminate and popularize mental health information, make students know themselves, understand the importance of mental health to growth, and establish mental health knowledge; introduce methods to improve mental health, so that students can master scientific and effective teaching methods and develop good study habits; develop intellectual thinking potential, cultivate the innovative spirit and practical ability; teaching students psychological skills, so that students learn to self-adjust, analyze psychological abnormalities, and let college students understand the cause and root causes. It shows common psychological problems, and students should treat all kinds of psychological problems with a scientific attitude. Around this content, the school's psychological education should cover all stages of students' study and life.

One is psychological adaptation education. All students enter the school with good intentions. But after entering the university, they soon discovered that the university is not the

Garden of Eden, not the lifestyle full of flowers and sunshine, and the reality is not as beautiful as they imagined. When it comes to social life, the actual society is very different from his ideological expectations, and it is not so relaxed, pure, and fair. Especially in the market economy conditions, different social and economic interests and ideological values conflict with each other, resulting in strong oscillations. For students who have just entered the university, they need to adapt to the study, life, and environment of the university as soon as possible in a relatively short period of time, adjust their psychological state to the best, so as to adapt to the university life environment and cultivate their independent knowledge and thinking. For college students who are about to enter society, they need to have a higher level of knowledge and psychological preparation to realize the transition from campus to society as soon as possible. Only in this way can they correctly understand society, understand that others understand them correctly, and find their position in communication with society.

The second is psychological education. Psychological education is a test of one's will and a test of one's endurance. Currently, in the transition period of society, various social contradictions are intertwined and collided, and college students are facing pressures such as academic difficulties, employment difficulties, and interpersonal relationships. That is cognitive problems in terms of academics, emotional relationships, tense relationships with classmates, and self-role. This makes some college students feel confused and even mentally ill. Whether you can pass through the barriers on the road to growth, psychological endurance is the foundation. Schools should guide students through developmental counseling education to properly deal with the psychological pressure brought by incompatibility or conflict from the study, life, communication, emotion, etc. Let them learn self-regulation, and self-adaptation, face up to difficulties, not give up because of setbacks, and not be afraid and retreat because of pressure. Students should cast an indomitable and strong character in adversity, and always grasp the coordinates of life.

The third is psychological innovation education. Innovation is the soul of a country's progress, and it is undoubtedly the driving force for a person's career development. Innovation requires a healthy heart. The initial mental health education program in Chinese schools focused on guiding students to improve their psychological adaptability and reduce the incidence of mental illness. However, with the popularization and deepening of mental health education, it has been solved to enhance students' psychological potential and lay a good foundation for future development, there is no progress without innovation. The role of school mental health education should pay more attention to cultivating students' creativity, developing their psychological potential, establishing a healthy self-image, emotional control, and interpersonal skills. Through psychological innovation education, students can always establish a correct life belief, maintain a strong learning spirit and enthusiasm for life, and treat study and work with an open vision and open thinking. They learn to self-pressurize, develop actively, and realize their self-worth step by step. At the same time, teachers of various disciplines in colleges and universities should also learn mental health knowledge in order to have a good grasp and understanding of the mental health status of college students. In this way, mental health education can better run through the process of teaching and educating people.

5. Conclusion

College students' mental health education is a complex, systematic, and innovative project, which is in line with social progress. To reform the mental health education of college students, we must change the educational methods and leadership methods of college students' mental health education, and change the staff who are responsible for the mental health education of college students first. This paper proposes an image super-resolution algorithm with diverse learning abilities, designs the specific implementation process of the recognition-based one-way diverse learning image super-resolution algorithm, and verifies the rationality and superiority of the algorithm through a number of experiments. Compared with other learning-based algorithms, it requires fewer training samples and is more practical and generalizable. This paper starts by analyzing the related concepts of mental health education for students in independent colleges, systematically analyzes the psychological characteristics and causes of students in independent colleges, expounds on the current situation and reasons for mental health education for students in independent colleges, and further proposes to strengthen mental health education for students in independent colleges Effective countermeasures and suggestions. If no noise sample points are detected near the classification surface, the unequal distance SVM is used to design the classifier, and the K-nearest neighbor method is used to design the classifier, which not only solves the problems of large computational complexity and insufficient storage space but also improves the recognition of the entire system.

Data Availability

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

Conflicts of Interest

The authors declare that there are no conflicts of interest.

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