Pattern Recognition and Its Application in Image Processing

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Abstract: With the continuous improvement of China's national economy and the unprecedented innovation and development of modern science and technology, artificial intelligence technology has been widely used in China's industrial production, power transportation, aerospace and other fields. As an extension of modern artificial intelligence technology, pattern recognition technology plays an important role in modern computer image processing by virtue of its own intelligence and automation. It fundamentally guarantees the accuracy of image processing and greatly improves computer image recognition and information processing. Overall work efficiency. This paper mainly analyses the main characteristics of pattern recognition technology, and further studies the practical application of pattern recognition technology in image processing, hoping to provide corresponding reference for the future application and development of pattern recognition technology in image processing.

1. Introduction
The development level of modern computer is improving, the application of computer information technology and Internet technology is deepening, and intelligent recognition technology replaces artificial brain recognition constantly, which can improve the identification and analysis of unique information of things, and the overall working efficiency is high, and the accuracy of recognition is also high. In the process of development of human society, in the face of different things, it is necessary to recognize, analyze, describe, explain, classify and judge these mental functions and recognition patterns with the support of modern information technology to achieve intelligent transformation\cite{1}. After the emergence of computer, artificial intelligence and energy technology has developed rapidly, in order to further improve the production efficiency.

2. Main Characteristics of Pattern Recognition Technology
With the innovation and development of modern science and technology, the progress of modern science and technology such as mobile Internet technology and electronic computer technology has been greatly improved, and artificial intelligence technology has also been unprecedented development. Artificial intelligence recognition technology has replaced artificial brain recognition, and pattern recognition as an extension of artificial intelligence technology. A recognition technology,
which is applied effectively in modern image processing, has comprehensively improved the overall recognition quality and efficiency of image recognition and information processing. The pattern recognition technology is mainly devoted to automated artificial technology. Through the computer system, the corresponding recognition methods can be penetrated into different system modules, thus realizing the automatic recognition of languages, fonts, pictures and images by the computer [2]. Because the design of pattern recognition technology mainly uses artificial brain recognition. In the model control design, there are a lot of design parameters in it, which can identify and process massive information quickly in a short time, and give corresponding decision-making suggestions according to the instructions. Therefore, pattern recognition technology not only has the characteristics of intelligence and automation, but also has a strong recognition accuracy and rapidity.

3. Application of Pattern Recognition Technology in Image Processing

3.1 Application of Cell Recognition in Medical Disease Diagnosis and Treatment

The rapid development of modern science and technology provides an important scientific and technological guarantee for the development and application of pattern recognition technology. At this stage, pattern recognition technology has been widely used in various industries, and its practical application scope has gradually expanded. But in contrast, the most remarkable application of pattern recognition technology in image processing should be its practical application in cell recognition, which is also an important topic to explore the application effect of pattern recognition technology in medical disease diagnosis and treatment. With the gradual deepening of the reform of the modern medical and health system in China, modern medical care should not only ensure that the people see the disease, but also ensure the timeliness, effectiveness and accuracy of the people's medical treatment [3-4]. As far as clinical medicine is concerned, in the actual process of disease diagnosis and treatment, patients'condition is generally based on their unique symptoms and manifestations. Judgment, such a diagnosis and treatment method is difficult to accurately determine the etiology of patients, especially in the diagnosis and treatment of some rare diseases, in order to ensure the timeliness, effectiveness and accuracy of clinical diagnosis and treatment, the actual clinical diagnosis and treatment of diseases must use scientific and accurate identification technology, so as to effectively avoid leakage. The occurrence of medical malpractice such as diagnosis and misdiagnosis.

Cell recognition technology is mainly used to magnify the observation and research of the patient's affected cells through microscopy and other instruments, in order to fully grasp the specific situation and phase change of the patient's affected areas. This recognition technology is developed with the support of pattern recognition technology. Relevant staff only need to input the pattern recognition technology into electronic calculation. In the machine system, microscopic instruments can focus on the typical characteristics within a certain image range, and then determine the main causes and the main location of the disease according to the observed specific cell arrangement and movement changes, which can fundamentally ensure the accuracy of clinical disease diagnosis. Thus, the practical application of pattern recognition technology in modern medical disease diagnosis and treatment cell recognition is conducive to improving the overall quality of modern medical disease diagnosis and medical technology level, and plays an extremely important role in promoting the development of modern medical cause in China.

3.2 Practical Application of Character Recognition in Modern Enterprises

Character recognition is another important subject in the research of the application effect of pattern recognition technology in image information processing. It focuses on the recognition of different data texts and text. Because there are many kinds and contents of text, text has become a common recognition object in the application of character recognition technology. For this kind of text recognition and processing, printed and handwritten text processing applications are more, basically can include all text patterns. As far as data text recognition and processing is concerned, the object in text is sorted and numbered mainly by character recognition, and the Arabic numerals are often used
in the actual sorting and numbering processing. This special character is widely used in government departments, modern enterprises and banks [5]. Whether it is government announcement, fund allocation, or financial settlement of enterprise projects, digital characters are used. The practical application of modern pattern recognition technology in this kind of text is made in digital form. In the early stage of actual reception and acquisition, this system can pre-process it, extract its characteristics by using graphical space, construct a relevant resource base, and eventually identify characters uniformly, so as to facilitate the development of later work, which is not only conducive to improving the overall quality of work, but also to a large extent. High overall work efficiency plays an extremely important role in the development of government departments, modern enterprises and banks.

3.3 Practical Application in Fingerprint Recognition

Everyone also has the characteristics of everyone. Fingerprint recognition technology human fingerprints are almost identical, through the study of fingerprint recognition can help biologists to study human evolution, can help public security organs to combat criminals, so it is widely used in biological research and security.

Fingerprint recognition technology mainly adopts fuzzy pattern recognition method, that is, a kind of object pattern recognition method which uses fuzzy logic to solve the pattern recognition problem. Compared with the traditional pattern recognition, the pattern recognition based on this method can express the identified object information more accurately, and can make full use of all kinds of information in the recognition process, push rationality and the stability of recognition. At the same time, the image is fuzzy inverse transformation operation, and finally, the enhanced image is obtained. The advantage of this kind of method is that it cannot only obtain good image processing effect, but also involves simple fuzzy transformation, inverse transformation and so on[6]. At the same time, if the fuzzy idea is combined with other pattern recognition, the calculation cost is smaller than that of the whole algorithm, but the calculation speed is faster, which improves the image processing speed.

The scientific research work should intensify the research on fingerprint identification technology and improve the efficiency and accuracy of fingerprint identification. Furthermore, the low fingerprint identification rate is also a problem to be solved. During fingerprint verification, it is difficult to identify some fingerprints, resulting in the low fingerprint identification rate. Therefore, to solve the existing problems well is of great popularization value for improving the application of fingerprint identification technology[7-8].

3.4 Practical Application in Voice recognition technology

Because human speech has great difference in timbre and tone, fingerprint is unique to different individuals, so in very few special cases, the replicable rate of speech and fingerprint is very low, which leads to the application of speech recognition and fingerprint recognition in different fields more and more widely. The application of fingerprint recognition is mainly because there is no consistency in human fingerprinting.

It plays an important role in the fields of public security, medicine, biology and human evolution. On the basis of realizing the basis of neural network and fingerprint recognition model singularity, we can complete the first through language analysis and algorithm analysis. Research on finger recognition of one. Speech recognition technology is a high technology that enables machines to convert speech signals into corresponding text or commands through recognition and understanding process. Voiceprint recognition technology in early speech recognition technology has very practical characteristics, such as biomedicine and so on[9]. The accuracy of voiceprint recognition technology is high, the cost of use is low, and the operation is very convenient, so it has been paid more and more attention by scientists and researchers. At present, Markov speech recognition model is the most widely used. This speech recognition technology mainly includes feature extraction technology, pattern matching criterion and model training. Practice technology in three aspects. This technology adopts the recognition method of image feature extraction and fuzzy mode recognition method.
4. Problems of Pattern Recognition in Image Processing
At present, the research of pattern recognition technology is still in the primary stage, and there is still a lack of a model that can identify all problems, so the application field of pattern recognition technology in image processing is still relatively narrow. How to establish a unified model and solve the problem of image processing is a problem that researchers need to solve at present. Moreover, the research direction of pattern recognition technology is still relatively single. How to effectively combine the research of pattern recognition with artificial intelligence and French sentence method, improve the efficiency of various tools for model learning, make up for the shortcomings of this research field at present, and guarantee the wide application of pattern recognition technology in image processing. Therefore, the research on pattern recognition technology should combine the experts from all walks of life, and fully combine the professional technologies from all fields to solve the problems, so as to ensure the steady development of the technology[10-12].

5. Conclusion
In summary, in the practical application of pattern recognition technology in image processing, many different methods of processing are generally used to accurately and effectively recognize, describe and type process characters, data and images with symbolic characteristics, which not only improves the timeliness, accuracy and effectiveness of image processing in an all-round way[13]. It also fundamentally improves the overall quality and efficiency of the corresponding work, and plays an extremely important role in promoting the development of related application fields. Therefore, in the future, our scientific research staff will have to do more in-depth research on AI technology and pattern recognition technology in order to promote the development of various fields in our country. Construction provides important scientific and technological guarantee, so as to further improve China's comprehensive national strength and promote the sound and rapid development of our society.

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