

Application of Computer Image Recognition Technology and Analysis of Details

Zhang Hongtao

Guangzhou College of Technology and Business, Department of Computer Science and Engineering,
Guangdong, Guoangzhou, China

Keywords: Computers, Image recognition technology, Technical application, Technical analysis

Abstract: With the rapid development of the revolution in science and technology industry, computer technology has been widely applied and promoted in the society. Great progress has been made in the field of computer image recognition technology, which is gradually developing towards intelligence and becoming mature and stable. The wide application of this image recognition technology has played an important role in the domestic economic development and construction. Especially in the current situation of increasingly fierce international competition, the use of image recognition technology can promote the stability of the domestic social situation and promote the development of related industries. Based on this, this paper first outlines the computer image recognition technology and its technical features, then makes an in-depth analysis of the application status and development trend of image recognition technology, and finally puts forward the specific application of image recognition technology in the fields of security, transportation, medicine, literature and art, commercial communication and engineering construction and the analysis of detailed problems, hoping that the computer image recognition technology can be better applied in all sectors of society and provide better services for all sectors.

1. Introduction

With the rapid development of social science and technology, more and more advanced technologies have been applied to people's life and practice. The current society belongs to the post-revolution era of information industry. The application of various technologies in information has also been widely popularized, and the processing technology of computers has also made innovative breakthroughs. Image recognition technology based on the analysis of computer technology can provide more efficient technical support for people's life and production. In order to promote the more effective development of this technology, it is necessary to pay attention to different application details in the relevant application background so that this technology can be widely popularized.

2. The Specific Overview and Technical Characteristics of Computer Image Recognition Technology

2.1 Overview of Image Recognition Technology

As a high and new technology with interdisciplinary characteristics, computer image recognition technology has made great progress with the development of computer technology and information technology in recent years. The main working principle of image recognition technology is to compare some graphics and images by computer data processing and so on. The process of image classification and labeling by computer is realized. In the application of image recognition technology, the first step is the input of image information, then the preprocessing of image information, and finally the accurate recognition of images.

The technical characteristics of image recognition technology show a trend of digitalization. The image is transformed into a digital matrix and analyzed and processed by means of a computer, and finally the image recognition is realized. Among them, in the current application of image recognition technology, more and more digital signals are used for propagation. Digital information has the characteristics of small distortion and easy storage, which plays an important and intuitive

role in improving the efficiency and quality of image recognition technology. Because image recognition technology has the characteristics of flexibility, accuracy and large processing capacity, it can be applied in different fields and different technologies in society. Through the powerful information processing of the data, the computer identification network uses the computer as the core body to guide the database and system software in the computer to support the computer identification technology. For this very high requirement of accuracy, image recognition technology is required to convert image information into digital information in the process of processing, so as to quickly obtain accurate recognition effect in the recognition and processing of digital information. In addition, it is the flexibility of image recognition technology. Because the image recognition technology needs to process and recognize the image by using the computer system in the process of recognizing the image, it can make the whole image processing link more flexible and plays a vital role in improving the efficiency and quality of the whole product.

2.2 Technical Features of Image Recognition Technology

Image recognition technology is a cutting-edge technology and core technology currently developed in the society by computer technology. It needs to be applied to the powerful computing capability, data analysis and data processing capability of computer technology. This technology can be compared with the human brain. After a large amount of data is transmitted to the computer's image recognition system, the computer's powerful computing power can be used to comprehensively analyze and compare the large amount of data information. And from the vast amount of information to find the conditions that meet the information processing. Image recognition technology can bring very high analysis speed and provide technical guarantee for later image processing. Only after full computer operation can the image show high-resolution visual effect in people's sight. In specific application practice, image recognition technology has the following characteristics: 1. massive data processing capability. The computer can process massive information, use database and software to realize the comparison, analysis, removal, discrimination, preservation and other work of different data, and has very short time consumption. 2. Almost perfect accuracy. Today, the development of image recognition technology has gone beyond the traditional two-dimensional recognition of a single photo, realizing the processing of a large amount of data, removing information impurities and unnecessary information, and finally saving the screened images and information. 3. It has a very flexible handling method. When the image recognition technology is used for image processing, the image can be judged and analyzed by itself, and the image can be adjusted. In this way, the image processing effect is enhanced.

3. Application Status and Future Trend of Image Recognition Technology

3.1 Application Status of Image Recognition Technology

As an information product of modern society, image recognition technology is a kind of technological innovation based on the substantial improvement of computer computing capability. As an important modern technology, it can help people find the data they need from a very wide range of data content. The development of image recognition technology has gone through three stages. The first stage is the recognition process of text information. The second phase of image recognition technology gradually began to process digital information. The third stage starts with three-dimensional objects in different forms and states. The development of the first generation of image recognition technology originated from the middle of last century. In the first phase, image recognition technology was mainly applied to the recognition of characters and letters, and has high efficiency in many fields. Secondly, in the second stage, due to the rapid advancement of science and technology, the whole digital image is gradually used in recognition technology. Recognition technology can provide the basis for image recognition from the advantages of computation. It is also supported by the development foundation of the first two stages. The third stage of image recognition technology realizes technological innovation through the application of artificial intelligence technology, and finally can realize accurate recognition of different items. At present,

this technology is widely used in the society. The key to the development of image recognition technology is to continuously improve the accuracy and efficiency of image recognition.

3.2 The Future Development Trend of Image Recognition Technology

Image recognition technology is changing with the rapid increase of computer operation speed and the development of modern artificial intelligence technology, mainly in the direction of gradually high resolution and high transmission rate.

The current image recognition technology still has some technical limitations in practical application, which makes it difficult for the image recognition technology to meet people's high expectations in terms of processing effect and processing speed. Therefore, it is necessary to further promote and develop the image recognition technology. Driven by the technologies in related technical fields such as artificial intelligence and neural network algorithm, the evolution of the image recognition technology is accelerated, and during the rapid increase of computer processing data, As a result, the transmission efficiency of image recognition technology has been improved at a high speed, while the resolution has also been significantly improved. The progress in these two directions meets the development needs of society and promotes the rapid development of industries in related fields. In addition, image recognition technology has carried out technological innovation in many dimensions. With the wide application and rapid development of image recognition technology, traditional recognition of two-dimensional images has been difficult to meet the needs of the times of social development. Therefore, in the development of image recognition technology, gradually from the recognition of images to the recognition and application of three-dimensional world, the application of multi-dimensional and multi-level technology development in modern society has been more widely promoted, and this technology will also be promoted to be widely used in more technology dissemination.

4. Application of Image Recognition Technology in Different Fields and Its Details

4.1 Application of Image Recognition Technology in Security Field

Security technology has a very important impact on the life safety of the public. Video surveillance system can be widely used in the current society, and is fully close and large. The application of image recognition technology in the field of security can view, recognize, record, screen and so on the video and images collected by video equipment, which means that the image recognition technology needs the cloud computing function of big data as the guarantee of overall technical analysis. The data and information collected by the video network system are comprehensively monitored and retrieved, so that the security industry is widely used, the overall work intensity of social security personnel is reduced, and the security system and the monitoring system are integrated into the management of social security, thus improving the completeness in the management of security work.

4.2 Application of Image Recognition Technology in Traffic Field

Image recognition technology plays an important role and significance in the field of transportation. In the actual traffic field practice, there are great differences under the influence of different factors such as weather, geographical conditions, environmental factors, road condition information, etc. Image recognition technology can remind drivers to deal with different information in traffic through different measurements on roads and roads, identification of pedestrians, etc. and different road conditions. In the specific recognition process, the speed requirement is very high. Only sufficient speed guarantee can realize accurate judgment on the driving safety of the car and ensure the safety in the driving process. In addition, image recognition technology is also of great significance to the construction of vehicle information. In most cases, the computer obtains the exact information of the vehicle according to the recognition system, and distinguishes and analyzes various factors in the traffic form, such as the speed of traffic flow, the number of vehicles, passers-by and so on, which are the basis of image recognition technology in

processing. Incorporating different forms of data into the system processing can quickly analyze and compare, and provide accurate reports in traffic operation. Such reports have an important impact on the safety and detectability of the traffic system.

4.3 Application of Image Recognition Technology in Medical Field

In the medical field, computer image recognition technology has been deeply applied to medical diagnosis practice. In CT examination and corresponding image recognition fields, and in related clinical treatment, computer image recognition technology can guide doctors to quickly carry out surgical navigation work, provide the most scientific and accurate treatment site and provide accurate equipment and technical support for doctors by using video acquisition and analysis of medical operation sites, etc. If doctors are required to prepare for surgery under uncertain conditions, they can use computer image recognition technology to provide doctors with practical surgery simulation exercises, so that doctors can timely discover possible risks and potential hidden dangers in surgery and formulate reasonable and scientific surgical treatment plans.

4.4 Application of Computer Image Recognition Technology in the Field of Literature and Art

In the current literature and art field, computer image recognition technology can realize the collection, storage and arrangement of information through the image and sound processing of TV broadcasting network. Finally, after the operation of technicians, radio sound and TV pictures are formed and transmitted to different audiences for viewing. In the propagation and reproduction of images, computer image recognition technology can quickly filter out bad information. In the process of transmission, the data in the video are timely, and the problems and faults can be quickly processed and repaired, thus finally ensuring the continuity and integrity of the video watched by the audience. From the design of art major, computer image recognition technology can be used to make more accurate adjustments to different colors to produce art works more suitable for public preferences, including art exhibitions, animation effects, fashion design effects, etc.

4.5 Application of Computer Image Recognition Technology in Commercial Communication Field

The application of computer image recognition technology in the commercial field is an important direction for the rapid development of this technology at present. Information such as numbers, words and pictures can be transmitted to the network space through this technology, but this technology is completely impossible to be operated manually. Computer image recognition technology can provide very convenient technical support for people and rapidly promote the production and development of technology in some commercial fields. At the same time, computer image recognition technology will be used for multi-directional guidance and economic construction in commercial data anti-counterfeiting and anti-theft as well as in aviation communication.

4.6 Application of Computer Image Recognition Technology in Engineering Construction Field

In the process of construction, computer image recognition technology can be applied in the design, construction management and later material detection and transportation of drawings from the initial measurement, design, construction, acceptance and other different stages. This technology can also help construction enterprises to detect the quality of construction technology. In the construction of some welding technologies, computer identification technology can be used to reduce errors, and ensure that the project can be effectively promoted and finally realize the construction of project quality.

5. Conclusion

In the current social production activities, the productivity of science and technology is

increasing rapidly. Image recognition technology is widely used along with the advancement of network. It is becoming more and more modern and intelligent in the technological development of image recognition technology. Therefore, it is fully guaranteed in the current application in different social fields. In order to obtain a more effective application effect, it is necessary to guide people to deepen the technical details and contents continuously in the process of use, and to realize accurate control of various network details and contents through continuous technological update and iteration. The social and technological progress and development we are currently facing is an unprecedented scene. The domestic industrial revolution is gaining momentum. On this basis, Chinese image recognition technology is being pushed to closely follow the international development trend. It can play a key role in different technical fields and enable the image recognition technology to be applied in a wider space.

References

- [1] Jin Keyan. Application of Computer Image Recognition Technology and Analysis of Details [J]. China New Communications, 2019,vol. 21, no. 07, pp. 100.
- [2] Lei Shangyu. Application of Computer Image Recognition Technology and Analysis of Details [J]. China New Communications, 2019,vol. 21, no. 06, pp. 94.
- [3] Gong Ming. (2019). Application of computer image recognition technology and analysis of details [J]. Information and Computer (Theoretical Edition), no. 01, pp. 7-8.