Application Research and Analysis of Computer Artificial Intelligence Identification Technology

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Abstract: With the continuous development of social economy and science and technology, the information age has come. As an important modern scientific and technological achievement, artificial intelligence technology can play a significant role in production and life. Especially in recent years, the application of artificial intelligence technology has become more and more extensive, penetrating into various social fields. Computer artificial intelligence recognition is an emerging technology, which can effectively replace the traditional identification mode, improve people's production and living habits, and promote the sustainable development of social construction. In order to effectively promote the rational application of computer artificial intelligence recognition technology, this paper mainly analyzes the specific application functions based on its concept, and puts forward its development bottleneck, in order to provide reference and reference for the innovation and development of computer artificial intelligence recognition technology.

1. Introduction

Computer science and technology play an important role in national production and life, and help to support industrial transformation and promote life convenience. In the process of applying computer technology, artificial intelligence is the key component. It has received extensive attention in various fields, and has a relatively high economic value. On this basis, in order to meet the needs of production and life in the new era, a new type of identification technology based on artificial intelligence is developed, which has very high application value. It can automatically recognize language, body, facial features, etc., so as to provide verification services for various activities to maximize safety. In the future, the research on computer artificial intelligence recognition technology will be further deepened.

2. Overview of computer artificial intelligence identification technology

Computer artificial intelligence identification technology is a new type of identification technology based on modern computer science, aiming at improving work efficiency, reducing work errors and saving human resources. It can promote the positive change of traditional working mode, and better simulate people's thinking with the help of the research and development of human-like intelligent algorithms, thus providing convenient services. Generally, computer artificial intelligence recognition technology is designed to many fields, such as image recognition, language recognition, robot and so on. Using the corresponding equipment to automatically obtain all kinds of information has high application value. At present, the practical application of this technology can be divided into two categories. First, there are life recognition technologies, such as voice recognition, fingerprint recognition, face recognition technology, etc., which are widely used and play an important role in security. Second, lifeless identification technology, including smart card identification, two-dimensional code identification and radio frequency identification, promotes the optimization and upgrading of traditional identification technology [1].

3. Application of computer artificial intelligence recognition technology

3.1 Robot and artificial neural network

When applying computer artificial intelligence recognition technology, it mainly uses intelligent robots and artificial neural networks. First of all, an intelligent robot is a mechanical system that fully simulates humans. It has strong human-like characteristics in perception, thinking and effects, and can realize self-control. Generally, it relies on CPU, visual, auditory, tactile and other information sensors, which is essentially a comprehensive application of various artificial intelligence technologies. It is widely used in practice, such as agricultural production and processing, automatic operation of industrial assembly line, etc. Secondly, artificial neural network is a new mathematical model for information processing, and its main function is to realize self-control according to the behavior characteristics of human or animal neural network. Several micro-processing units are connected to build a special information processing system, which is characterized by nonlinearity, distribution and self-adaptation. At the same time, artificial neural network has relatively good self-learning ability, and can find the objective relations and laws between different things to a great extent. In practice, it can be used in auxiliary intelligent control, effectively make up for the existing defects such as language recognition, and help to improve the artificial intelligence system.

3.2 Speech recognition

Computer artificial intelligence recognition technology can be applied to speech recognition system. It can recognize and judge individual different sounds from the characteristics of sound quality, tone and timbre. It can pass the verification only after it meets all the characteristics. This kind of system refinement can be divided into three basic units, namely speech feature extraction, matching language patterns, reference pattern library and so on.First, the computer artificial intelligence equipment should extract and analyze the corresponding voice information, and establish a reasonable voice model according to its signal characteristics. Secondly, it is effectively compared with the speech in the language database, so as to match the corresponding processing strategy and fully realize interpersonal interaction. At the present stage of development, the application of voice recognition system has been relatively mature, and it is widely used in communication services, home services, smart home appliances services and other fields. Such as voice-to-text, intelligent voice control of electronic products, etc. In the future development stage, related industries have gradually begun to focus on the integration of speech recognition chips and artificial intelligence technology to further improve the efficiency of speech recognition [2].

3.3 Fingerprint recognition

Because there are some differences among individuals, fingerprints of different people are heterogeneous. Through the computer artificial intelligence identification technology, we can accurately locate a specific person according to the fingerprint lines, breakpoints, patterns, intersections and other related information. In actual production and life, fingerprint identification has a very wide range, such as employee attendance, fingerprint lock in smart phone security settings, security door fingerprint lock, etc. In the application of computer artificial intelligence fingerprint identification, individuals are required to input the corresponding fingerprint information first, and their fingerprint characteristic information is collected for verification service in the subsequent application process. The fingerprint that does not meet the characteristics is not identified, which helps to improve the security [3].

3.4 Face recognition

Face recognition is an important product in the development of computer artificial intelligence recognition technology, which aims at identification and verification by identifying individual facial features. This technology can automatically track and monitor the face, automatically adjust the image magnification, adjust the exposure intensity, etc., reflecting the advantages of biometric identification, such as dynamics, and can complete identification and verification in most scenes. In the application,

the individual's facial features, facial features, facial expressions and other information are collected first, and verification can be completed by swiping the face after entry. Face recognition has a relatively wide range of applications in modern times, such as shopping and payment in shopping malls, mobile phone unlocking, security monitoring level verification, banking business processing, public security monitoring and tracing, network account login, etc. The purpose of the application of this technology is to further improve the security protection, avoid the hidden dangers of the simple setting of payment passwords and login passwords, and also effectively improve the login efficiency, etc., to provide convenient services for people's lives. The identification process orientation is shown in Figure 1.

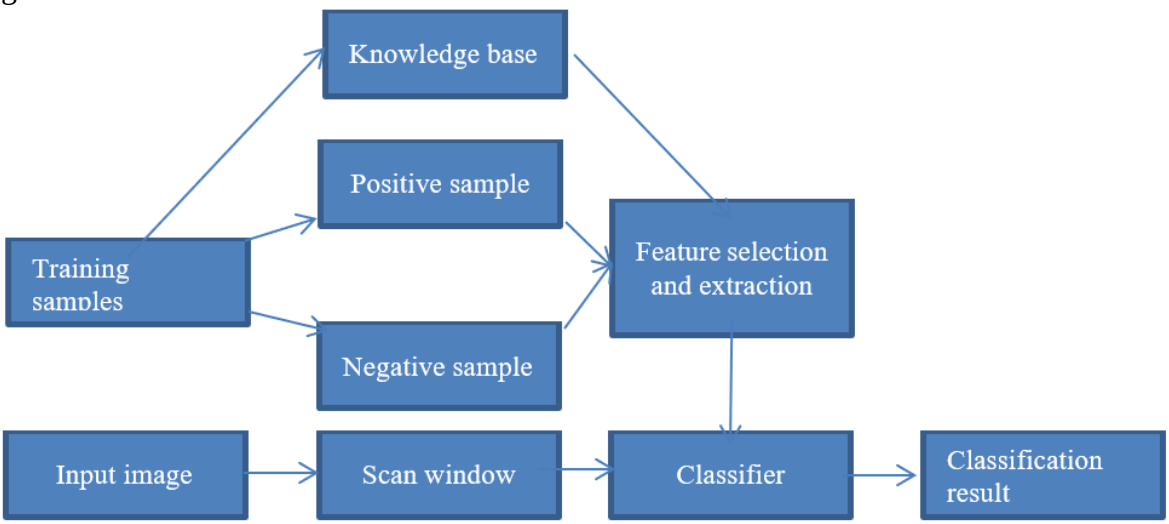

Fig 1. Flow chart of computer artificial intelligence face recognition process

3.5 Smart card identification

In the practical application process of smart card identification technology, it is mainly to automatically identify and verify the corresponding smart card facilities. As the smart card is an integrated circuit card, it has certain data operation and data storage functions. By integrating with computer technology, it can realize a series of operations such as information collection, transmission, management and encryption. It is widely used in the field of production and life at present. Such as item identification and tracking, vehicle identification, access control card, elevator card, etc. Provide better security and convenience conditions, which is conducive to rapid identification and certification. However, it also has certain potential safety hazards, such as failure caused by smart card loss, damage and degaussing. Therefore, for the application scope of smart card identification, it mainly has good application value in specific fields, and its security level and security function are weak compared with life identification.

3.6 Identification of QR code

Among the inanimate identification technologies of computer artificial intelligence, two-dimensional code identification is one of the most widely used technologies at present. On the basis of barcode recognition technology, a black-and-white geometric figure is generated by specific two-dimensional code software, and a plane figure is formed by regular arrangement. The use of this unique special graphics is beneficial to record various data symbol information, and then recognize the two-dimensional code image through image input equipment, etc., which can be automated processing and read the information content it represents. At present, this technology is mainly used to pay for consumption, social networking, and network business processing platform access, etc., to provide better convenience for people's real life [4].

3.7 Radio Frequency Identification

The principle of radio frequency identification technology is to use wireless electromagnetic waves to identify and read the corresponding target. In fact, this technology is a non-contact automatic symbol recognition technology. The data information is read from the label of an article by means of electromagnetic field and then transmitted by radio signal, so as to realize automatic identification and tracking. At present, radio frequency technology is more common in item identification, especially in the era background of rapid development of Internet of Things technology, and even has the trend of replacing traditional bar codes as an important means of item identification management.

4. Development bottleneck of computer artificial intelligence identification technology

4.1 R&D and production costs are high

Although the computer artificial intelligence identification technology has developed rapidly in recent years, it still faces certain bottlenecks in the new era, which restricts its wider application. Among them, the prominent problem is the relatively high cost. Generally speaking, the transformation of new technologies from scientific research achievements to market products requires mass and large-scale production, so as to achieve economic and social benefits. The development of computer artificial intelligence recognition technology has been relatively mature, which can provide good help in production and life, and produce some practical products. At the same time, the functional value of this type of product does not match the price, cost, etc., resulting in greater restrictions on the application of artificial intelligence recognition technology. For example, the application of voice recognition technology in smart home appliances is generally more expensive than traditional home appliances, making it difficult to become the mainstream consumer market.

4.2 Lack of reliability guarantee

For the artificial intelligence recognition technology products themselves, although there is a clear trend of diversification at the functional level. But in terms of reliability, it is difficult to have a greater guarantee. For example, some products have unique shapes and strong functional innovations, but they can provide relatively little help to users in the actual application process, and the real needs of users cannot be fully guaranteed. For example, in the application process of face recognition system, at present, except for the specialized face recognition in airports, stations and other scenes, all other scene systems have higher requirements on factors such as light and face position. It is often relatively troublesome to recognize, and it is easy to fail in recognition, which greatly restricts the scientific application of face recognition technology in multiple scenes.

4.3 Insufficient functional adaptation

Another bottleneck of computer artificial intelligence identification technology in practical application is the lack of functional adaptability. Usually, the innovation of product functions is directly related to consumers' purchasing desire and user experience. If the product functions can't match users' needs, it is difficult to popularize the products. For example, when the speech recognition system recognizes, it often relies on the language database to identify the speech signal. Once the corresponding language template cannot be found in the language database, the speech recognition task will not be completed. At the same time, the storage range of the language database of modern speech recognition system is expanding, but some languages and vocabulary are still missing, and can not solve the conversion between different languages. For example, the functions of dialect recognition are not perfect, so there are some constraints in practical application.

5. Conclusions

To sum up, with the support of modern science and technology, computer artificial intelligence identification has been well applied in many fields, providing great convenience for production and

life. However, in the process of development, there are some bottlenecks and limitations, which are mainly reflected in cost, reliability and function. Therefore, in the future development stage, in-depth research can be carried out for life recognition and inanimate recognition, focusing on technological innovation and product optimization, so as to promote the rapid development of computer artificial intelligence recognition technology and provide people with more convenient services. The society as a whole moves forward.

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