Application of Artificial Intelligence Based on Simulation in Image Processing

Sainan Wang¹,*
¹Nanjing Engineering Vocational College, Jiangsu Union Technical Institute, China
*Corresponding author e-mail: wangsainan@juti.edu.cn

Abstract. Nowadays, image processing and computer vision detection technology have very obvious advantage, which are applied in all walks of life, it also has the characteristics of intelligent and fast speed. Now the development of science and technology rapidly, computer vision detection technology is widely used, and at the same time, People are paying more and more close attention, and now the computer has been popular, every household has a computer, people's dependence on computer are higher and higher, Many aspects of capturing and processing visual information are also inseparable from computers. this article expounds the development of computer vision information detection technology, And the principle of the technology, and the field of application and so on.

Keywords: Computer, Visual Detection Technology, Principle, Application

1. Introduction
Driven and influenced by CIMS, the development trend of many enterprises gradually tends to be personalized and automated, which indirectly improves the computer-aided technology in China. With higher requirements, the development of computer related technology is facing more severe challenges. At the present stage, computer aided detection technology has been widely used in many modern enterprises. With the continuous progress and development of the flexible manufacturing system, the driving image processing software and the field bus technology become more and more mature, and the sensitivity and intelligence characteristics of the detection system are attracting more and more people's attention. Under such a big development trend, the computer vision detection technology has been developed rapidly. Computer vision based systems have been widely used in many environments such as field monitoring and condition monitoring[1].

2. Related research on visual technology
2.1. Principle analysis and exploration of computer-based vision detection technology
Image technology mainly refers to the acquisition of images through various ways and further processing and processing technology. According to the degree of abstraction of visual detection technology and the different ways of image processing, image processing and processing technology can be roughly divided into three main levels, which are image processing, image analysis and image
understanding. The combination of these three levels is the image engineering. Computer vision detection technology is a new computer detection technology, the technology based on the basis of computer vision research, absorb and draw lessons from the related research results, with the aid of sensors to implement 3d measurement, thus to obtain the space of the object to be tested location information, it can well meet the demand of the development of modern manufacturing industry. Different from the image processing system like -., the relevant data obtained by computer vision detection technology is more accurate and rapid, and its environment adaptability is stronger.

Computer-based vision detection technology focuses on the guidance function of computing theory and takes application as the target to analyze vision technology. Since the 1970s, our country about the study of computer vision detection technology has made significant progress, and progressively more substantive research stage, in this stage, gradually start from from various angles, such as optical Angle, physiology Angle projection Angle and projection, to analyze the imaging problem. The experts represented by Marr have established some general visual processing models to assist the research of this technology[2].

2.2. The role of sensors in visual detection technology

Under the control of the computer, it is equipped with a related visual detection system, in which there are three main functions: first, the analysis and determination of the visual sensor model; Second, image data dispersion and collation related work; Third, the establishment of CAD model. The main role of the sensor is to analyze multiple sections of the measuring rod, and then transmit the collected data through the image acquisition card to the relevant image processing system, so as to further assist the establishment of accurate models[3].

3. Application research and analysis of computer-based vision detection technology

3.1. Research on the development status of computer-based vision detection technology

In the preliminary stages of research, related technical personnel with the help of the digital image processing technology, is mainly in order to further improve the definition of the digital photos and obtained the quality requirements, and then a more precise and scientific, standardized to photos provided information to discern, for aerospace satellite images, identification and classification of reading. In this series of visual work, the most important and common work mainly includes classification, recognition and interpretation, and the construction of THREE-DIMENSIONAL structure[4]. By means of computer vision technology, the related information of the observed objects is converted into signals and transmitted to the image processing system. The image processing system discriminates and judges the difference. The information such as the distribution and brightness of photo pixels is further converted into digital signals, which are then extracted and calculated by the image system of the computer to determine and execute the next device action. At present, China's computer vision detection technology system has been applied in many fields, the most typical fields such as medical assistant diagnosis, robot induction system, intelligent man-machine interface and so on are built on the basis of this technology. By using this method, computer vision technology can effectively improve the efficiency of product testing, to improve the accuracy, this new type of visual inspection technology compared with the traditional human eyes following up on the assembly line, it has obvious superiority, its access to measure structure quickly, test results can be observed directly, can automatically identify and the characteristic of the positioning accuracy and real-time performance, it's good to avoid because of the people some of the errors caused by subjective factors.

Since the 20th century, computer vision detection technology based on biological characteristics has achieved unprecedented development, which is embodied in face recognition, stiff recognition, fingerprint recognition and iris recognition, with increasingly flexible and complex forms. In addition, the computer-based visual identification technology can be gradually extended to other fields, such as the security inspection of customs and the security control of exit and entrance[5].
3.2. Application analysis of computer-based vision detection technology

Image acquisition technology used in digital cameras. A significant feature of visual detection technology is to effectively improve the flexibility and automation of production, since this century, digital cameras with its high resolution, rapid imaging, imaging, rich functions.

The changeable and cost-effective specific is popular all over the world, gradually replacing the traditional camera, the traditional camera mainly uses CCD camera, its main core timely acquisition card, obviously this acquisition system has gradually fallen behind the pace of the development of the times, has been gradually phased out. Research, development and design of micro-character recognition system. With the continuous progress and development of science and technology, ISI has made rapid progress, the cost of computer-based vision detection system has been greatly reduced, and the research and development of micro-character recognition system based on computer vision detection technology has also been put on the agenda. Most of the processing chips of the micro-character recognition system realize the image recognition with the help of digital signal processing chips, and then make it possible to read aloud with the help of advanced speech synthesis technology. In addition, for ease of use, the volume of the system is minimized and can be designed in various shapes according to aesthetics and practicality. Special paper watermark online detection system. Computer-based visual detection can replace human subjective judgment in a certain field, such as automatic detection of watermark quality. Different from ordinary staff, the computer can be implemented to work long hours, for the error range of control can be realized by setting and so on, and on the computer during the mission, relatively few are objective and subjective factors, it is largely avoided due to human error factors caused by the operation, and effectively improve the working efficiency and precision of detection. This advantage, in the watermark quality standard identification has the very important significance and the function, through the research and development - the definite program and the software, may develop a set of operational strong, the authority high watermark clarity quantification standard. The relationship between digital image processing, computer vision, and artificial intelligence is shown in the following figure.
4. The development prospect of computer-based vision detection technology

Comprehensive analysis, computer vision detection technology is now has a history of about forty years, as a new detection technology, the remarkable advantages of this technology it is understood that the detection technology with its high precision, sensitive response quickly, intelligence, automation, etc are widely used in many fields and industries, and has obtained the remarkable into, say, this technology has very broad prospects for development. But there is no denying that based on computer vision detection technology is not very mature, in the process of its design and development still exist many deficiencies, and visual detection technology is a design to the psychological and physiological aspects of the complexity of knowledge technology, involved in many areas, the realization of the function of more powerful need constant expansion of human knowledge and extension, therefore, must be aware of the test technical difficulties and challenges on the road to development[9].

5. Conclusion

With the continuous progress and development of science and technology, the development of economy poses a higher challenge to the research and development of new technology. The development and progress of computer-based vision detection technology undoubtedly promote the rapid development of the economy and continuously meet the people's increasing demands for life. From this perspective, in-depth study of visual detection technology and explore undoubtedly plays an important role, the author sincerely hope that, more than about based on computer vision detection technology to our country related inquiry can be reasonable to absorb and adopt relevant principals, to better promote the innovation and progress of science and technology, promote the progress and development of the economy[10].

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