

Explore the Application and Development of Computer Image Processing Technology

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Abstract: Digital image processing is used to process the image in depth with modern technologies, so that the image can be presented to the users more clearly and intuitively. Nowadays, image processing has been applied to many fields, such as education, criminal investigation, medicine, fruit picking, traffic safety and so on. At the same time, in these fields, computational image processing technology plays an indispensable role. Therefore, this paper will discuss this topic and analyze the application and development of computer image processing technology.

Keywords: Computer Technology; Image Processing Technology

1. The development of modern digital image processing technology

Digital image processing technology is a way of image processing by computer and digital technologies. The so-called digital image processing technology is to transform the image signal into binary digital signal, and restore the binary digital signal to the display with high accuracy through computer technology. The advantages of digital image processing technology lie in the strong ability of image restoration, rich color display, accurate processing of complex nonlinear, and flexible processing ability. And it can encapsulate the latest digital image processing technology through various kinds of image processing software. Users can complete the image processing by simple operation and command. Through image processing software, it greatly enriches the application range of image processing and reduces the application range of image processing^[1].

Digital image technology is an important branch of new computer science, which began to emerge and gradually developed in the 1960s. It has achieved great success both in theory and in practice. It is also the introduction of digital image processing technology that makes today's various visual effects extremely promising, and windows will quickly eliminate the past popular DOS system by virtue of the graphical operating system. In other words, digital graphics processing technology and computer technology are even a relationship showed from mutual promotion and development.

Image, as the basis of vision, can let users get the most intuitive experience through the computer, and effectively shorten the distance between the computer and users. Early image processing technology focuses on image quality restoration, which aims to improve the colorful display of images. Through various algorithms and technical processing, the low-quality image can be transformed into high-quality image. The whole process of technical processing is from image enhancement, then restoration and coding to compression. This processing method is of great significance to many fields. For example, the space photos taken are often not clear or even relatively fuzzy. However, through digital image processing technology, the image can be geometric correction, gray-scale conversion, noise removal, communication. Also, through the four-dimensional space-time analysis of the photos, users can get more brilliant pictures. The pictures of the universe taken by NASA are the results of the application of advanced image processing technology^[2].

2. The application of computer image processing

2.1 Application of computer image processing technology in education

The digital image processing is very intelligent. In the field of teaching, some research on the teaching process of image and mathematics can be applied to the image processing technology. For example, when teaching the mathematical lattice image, the combination of the computer's real-time image processing and data can make teachers' teaching more vivid and show to students in a visual way. Compared with the traditional blackboard teaching, the computer's image visualization and precision make teaching more accurate and scientific. It also improves the teaching efficiency of teachers.

2.2 Application of computer image processing technology in criminal investigation

With the rapid development of computer technology, some criminals have more and more sophisticated means of committing crimes. Computer image processing technology plays a very important role. The normal human eye can't recognize the tiny changes of fingerprint lines at all. At this time, image processing plays its role. No matter how small the changes are, the tiny differences can be identified through image processing, so that the conspiracy of lawbreakers can be easily identified, so that the cases can be quickly detected through fingerprint identification.

2.3 Application of computer image processing technology in traffic safety

Nowadays, with the development of transportation, vehicles have gradually become the necessities of people's life. With the increasing number of vehicles, people pay more and more attention to traffic safety. The state has also promulgated many laws to solve the traffic safety problems. But this can not fundamentally solve the problem. Some people lead to road traffic accidents due to drunk driving, and they are lucky enough to choose to escape. Although most people can not escape from the punishment of the law, some people can still escape the sentence of the law due to lack of evidence. Computer image processing technology can play a great role in traffic safety. It can ensure the orderly driving of vehicles in the traffic lane through traffic lights. It can take pictures of vehicles driving on the road through the camera under the traffic lights. It can make the pictures clearer through computer image processing technology. In this way, some lucky drivers are afraid to rush into the traffic. The behavior of lights and image processing technology also provide a favorable guarantee for road safety^[3].

2.4 Application of computer image processing technology in medicine

Nowadays, in order to maximize their own interests, some illegal businesses do not hesitate to damage the body of consumers. They add all kinds of additives and harmful substances to the food, so that people's body is greatly damaged, the body is gradually attacked by additives and harmful substances, and some diseases are gradually produced. In recent years, some strange diseases gradually appear in people's lives. Additives cause gene mutations in some patients, and cancer patients increase year by year. At first, there was no way for medical staff to solve it, but with the development of the times and the progress of science and technology, computer image processing technology was gradually applied to medicine, using image processing technology can identify the shape of patients' chromosomes and cancer cells of cancer patients. In this way, the medical staff can provide very convenient conditions for the identification of these diseases^[4]. Through image processing, the patient's internal mutated cells and cancer cells can be displayed on the computer very clearly, which increases a huge possibility for our country's medical treatment to overcome the symptoms of cancer and other gene mutations.

2.5 Aerospace applications

Digital image processing technology has been widely used in astronomy, especially with the development of VLSI. The emergence of computers has increased the speed of digital image processing technology, especially the complexity of image information processing in astronomy. If the computer technology has not made a breakthrough, the digital processing of astronomical images may take several years. Now with the improvement of computer processing speed, this kind of digital image processing technology is often upgraded to a few days or even hours, so in the aspect of aerospace, the application of digital image technology has developed very rapidly. For example, now the image processing of the moon and mars can reflect the landscape of mars and the moon by analyzing the details on the image.

In addition, the current global positioning system, to a large extent, also has the shadow of digital image processing technology, because through the change of the position of a point in the image, scholars can determine the moving position of this point, and then they can accurately find this point through the positioning system. Moreover, digital image processing technology can accurately broadcast the weather forecast and judge the possible mineral resources by analyzing the photos taken by satellite, which plays an important role in urban planning and disaster monitoring^[5].

2.6 Application of computer image processing technology in agriculture

The reason why the living standard of human beings rises so fast is that our work efficiency has been greatly improved with the rapid development of science. Modern agriculture is gradually replacing manual work with mechanical work. For example, in fruit picking, agricultural picking robot is used to pick fruit, in which computer image processing technology is used. For example, when picking strawberries, the image processing technology will default the program to red color, and all strawberries will be picked quickly by the picking robot, so that the effect will be improved a lot^[6].

3. Conclusion

All in all, the computer digital image processing technology is very advanced and scientific, and is gradually widely used by people. Although its technology is still in the cognitive stage in the application of agriculture and other aspects in China, there is a long way to go from the practical application, but under the background of the rapid development of domestic science and technology, the development of computer processing technology plays an important role irreversible effect. In the process of human life from automation to intelligence, computer image processing technology is absolutely necessary. This paper mainly discusses the application and development of computer image technology. For computer image processing technology, further investigation and research are needed.

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