Application Research of Computer Image Processing Based on Bayesian Algorithm

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Abstract. Computer image processing technology has been widely used in the field of image processing, design and manufacturing and industrial manufacturing. The Bayesian algorithm optimization for computer image processing can give full play to the advantages of computer image processing technology. In this paper, the overview of computer image processing technology and the development status at home and abroad and the application of computer image processing technology are explained, and the Bayesian-MCMC algorithm in the application of computer image processing is discussed, for the reader's reference.

Keywords: Bayesian Algorithm, Computer Image, Production Efficiency, 3d Design

1. Introduction
With the development of information technology, computer image processing technology is widely used in various industries. By using the Bayesian algorithm, computer image processing can improve the speed of processing information and effectively improve the efficiency of calculation. Therefore, in computer image processing, it is necessary to make full use of the advantage of the Bayesian algorithm to effectively complete the image processing process.

2. Overview of computer image processing technology and its development status at home and abroad

2.1. Overview of computer image processing technology
The development of computer technology has brought certain changes to people's life, study and entertainment, and people's life has also become more and more intelligent. With the development demand of society, computer image technology has been shipped to all walks of life, in many industries can see, feel the computer technology to the development of human society has brought great contribution. Computer technology has the advantages of informationization and speed, which can complete the unfinished work in work and life through data processing operation and improve people's work efficiency [1]. With the development of information technology, the development of computer image processing technology is faster and faster, in the 1980s and 1990s image processing is still a more complex work. New computer image processing technology has changed this situation, data image processing becomes more and more simple. At present, computer image processing
technology can not only display images but also optimize multiple images to ensure the efficiency of image processing to a certain extent. Computer image processing technology needs to analyze and process image data through computer. Computer image processing technology emerged in the 1980s, when technicians were able to use computers to complete 2d and 3D design and modification work (Figure 1:3D kitchen design).

Figure 1. 3d design of kitchen.

2.2. Development of computer image processing technology at home and abroad
In recent years, computer image processing technology has been applied to various sectors of society. Image digitization technology is a turning point in the development of computer technology. In the past decades, image mathematicization technology has made some achievements in many industries. Images are the foundation of human vision, and they can help simplify the interaction between computers and vision. In the 1970s, the main difficulty with computer image processing was how to make images colorful. And the technicians need to use the image algorithm and computer technology to optimize the image first to improve the quality of the image. Thus it can be seen that the computer image processing computer starts from the image adding technology, which has certain significance for the later image processing [2]. For example, images taken by astronomy enthusiasts through telescopes are blurry until they are processed by computers. However, after the shooting, it becomes very clear after the correction of computer image processing technology and the process of noise. The picture of the sky that sees on the net commonly is the photograph that has been processed through computer image. Computer-imaging techniques are also widely used in medicine, such as CT scans, which can help doctors better understand what is wrong with a patient's bones [3].

3. Application of computer image processing technology

3.1. Agricultural applications
At present, most of the modern agricultural production process in China usually uses mechanical equipment to replace manual operations. For example, when agricultural products mature in some regions, picking robots are usually adopted instead of the traditional manual picking method. The transformation of manual picking method through mechanization can significantly improve the work quality and efficiency. In the process of designing the picking robot, it is necessary to make full use of the computer image processing technology and make a clear positioning in the space based on the types of agricultural products. Through the use of computer image processing technology to promote the product information, specifications are clearly extracted. In order to ensure the accuracy of the work, the staff also need to strengthen the extensive application of computer image processing technology. During the picking process, if an obstacle is encountered, the robot needs to scientifically and accurately identify and judge it, and continue to carry out relevant work. Actual development process of agriculture, most of the technical personnel often need to be in combination with the
practical development of agriculture, and analyzing the specific issues at the same time, also need to different kinds of agricultural products to develop different types of picking robot, the need to guarantee the normal harvest work smoothly and implementation, it requires relevant personage can strengthen computer image processing technology is widely used [4]. For our country agricultural development process, the wide application of picking robot is a most important not to be ignored, on the one hand can make agricultural automation level, and further improve the degree of automation, on the other hand also can greatly reduce the intensity of the working people, at the same time can improve the quality and production efficiency of agricultural production.

3.2. Transportation applications
In current transportation, domestic computer image processing technology has been widely used, such as traffic light camera, traffic monitoring system and speed detection camera, etc., which are relatively common and familiar equipment in daily life. Through the use of computer image processing technology can effectively maintain the traffic order, but also for the traffic situation to carry out scientific and effective monitoring, for violations of the first time to ensure a clear record and shooting, which is currently an important evidence for the punishment of violations. Therefore, it can be seen that the application of computer image processing technology in the current traffic, not only can effectively ensure the good traffic order, but also can effectively guarantee the traffic safety of the masses. Is not hard to find, the current traffic field application of computer image processing technology is one of the main measures can not be ignored, through the use of computer image processing technology can transform ever rely on artificial to maintain traffic order, at the same time, it can guarantee good traffic order, effectively avoid traffic accident traffic electronic police (figure 2).

![Figure 2. Traffic electronic police.](image)

3.3. Application of remote sensing technology
In the current remote sensing technology, computer image processing technology is a key technology that cannot be ignored. In the current military, industrial and agricultural development process, it is necessary to further strengthen the extensive application of remote sensing technology. In real life, computer graphics processing technology is often involved. At the same time, computer image recognition technology should be adopted to successfully complete the work. In the process of applying remote sensing technology, good application of computer image processing technology is required to ensure the rapid generation of collected images and the good processing and extraction of digital information. To sum up, in the current process of applying remote sensing technology, computer image processing technology should be strongly supported, and to strengthen information processing, computers should be fully involved in this process (FIG. 3 Uav remote sensing technology).
4. Application of Bayesian-MCMC algorithm in computer Image Processing

4.1. the Bayesian formula
The Bayesian algorithm is called Bayesian classification algorithm. Variables are randomly processed on the basis of probability. The uncertainty factors in the image are expressed in the way of probability, and then the Bayesian-MCMC algorithm is used to classify the image.

4.2. Probability calculation
Likelihood function is the key to Bayesian algorithm classification, which will directly affect the inversion effect. The observation error is a part of the high in the model. Combined with the model calculation, its expression formula is:

\[ Y = f(x) + E \]  

(1)

X is the model; Y is the measured value and E is the observed value; F is the forward operator.
In the Bayesian algorithm, probability density function is required for expression, and prior distribution is used for uniform distribution. For multi-parameter inversion, the Bayesian algorithm needs to know the posterior distribution first, obtain an explicit expression formula, and carry out parameter estimation in the posterior distribution space, which is the most important part of the Bayesian algorithm. When the Bayesian algorithm is used for image processing, the MCMC algorithm is required to sample the posterior distribution space [5].

4.3. Computer image processing
Computer image processing technology is a new type of technology, combining computer application technology and modern information technology, using certain technical measures, image processing. In the process of image processing, the process of image processing can be regarded as a two-dimensional rectangle, which needs to be scanned, sampled and quantified in the process of generating two-dimensional rectangle. When scanning images, the sequence of image scanning should be reasonably grasped to ensure that the sequence is the same as that set by the implementation. In the process of sampling, it is necessary to measure the gray value of the image pixel, and the acquisition process can only be realized with the help of photoelectric sensor [6]. When special attention is needed, in the process of computer image processing, the main purpose of sampling is to obtain the gray value of the graph. Finally, the image is processed with quantization and the measured gray value is converted into integral value. From the professional perspective of computer image processing, the rectangle scanning technology is needed to scan the processed image, and the obtained image is formed into a matrix.

5. Conclusion
To sum up, the Bayesian-MCMC algorithm can be used in computer image processing to improve the image processing capacity and improve the ability of computer image processing. In addition, the designer can optimize the Bayesian-MCMC algorithm to achieve better effect of image processing.
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