

# Application of Computer Image Processing Technology in Clinical Medicine

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**Abstract:** With the continuous innovation and development of science and technology, technology has been applied to various fields. Among them, computer image processing technology has a relatively high application value in the medical research and clinical fields, and can largely assist the diagnosis and treatment of clinical disorders. The purpose of this research is to find out the application status of computational image processing technology in clinical medicine. First, the article explains the functions of computer image processing technology in clinical medicine. Secondly, detailed analysis is made on the application of computer image processing technology in clinical medicine. Finally, the future development trend of the application of computer image processing technology in clinical medicine is pointed out. It is hoped that the content of the article analysis and the exploration strategy can assist the widespread application of computer image processing technology.

## 1. Introduction

At present, with the continuous upgrading and improvement of science and technology, the application of these technologies to the diagnosis and treatment of medical clinical diseases can largely guarantee the effect of disease cure. In the past medical clinical technology, it is difficult to assist the treatment of diseases only by relying on image processing technology. Applying advanced computer image processing technology to the clinic can better assist. The quality of disease cure can also guarantee the high safety of the entire treatment process. After the continuous application of image processing technology, more technical processing has been developed and promoted. In order to better ensure that patients' personal illness information and medical information are comprehensive during the treatment process, computer processing is used in clinical medicine. Technology can accurately assist in the treatment and care of disorders. Based on this situation, the article conducts a detailed analysis and discussion of the practical content of clinical medical computer processing technology.

## 2. Functions of Computer Image Processing Technology in Clinical Medicine

### 2.1. Improve the accuracy of patient diagnosis

In the current clinical medicine, the diagnosis of the disease mainly depends on some theoretical knowledge and the medical staff's own work experience to diagnose the patient's disease, but these diagnostic methods in the actual application process rely only on the doctor's work experience to diagnose Disease, lack of certain objectivity [1]. For some doctors with rich work experience, the diagnosis accuracy of the disease is relatively high, but for some doctors with less work experience,

it is likely that the diagnosis of the disease is wrong, which seriously treats the subsequent illness. The application of computer image processing technology to clinical medicine can assist doctors in conducting comprehensive examinations of patients. And by processing and analyzing the images of the examination results, the lesions of the patient's disease can be more determined, and it can better assist the doctor in treating the patient's disease [2]. Therefore, through this analysis, we can understand that the use of more advanced computer image processing technology can greatly improve the accuracy of doctors' diagnosis of patients' conditions. With the help of such technology, some doctors with less work experience can also accurately determine the patient's condition.

## **2.2. Assisted medical staff to perform the operation smoothly**

In the current medical field, especially in the treatment of clinical conditions, some of the more advanced detection technologies and imaging technologies are used, but compared to computer-intelligent image processing technology. Some technologies do not have strong feasibility in practical applications, and they cannot assist in deeper disease treatment [3]. The application of computer image processing technology to the patient's surgical treatment process can better enable the medical staff participating in the operation to understand the patient's specific symptoms and potential surgical risks, so that a more complete surgical plan can be formulated. Not only can it greatly improve the cure of the patient's symptoms after surgery, but it can also reduce the potential risks caused by surgery [4]. From this perspective, we can understand that the application of computer image processing technology to clinical medical surgery can better promote the smooth operation of the surgery.

## **3. Application of Computer Image Processing Technology in Clinical Medicine**

### **3.1. Application of diagnostic assistance**

After China's economic reform and opening up, it has carried out in-depth exchanges with other countries in the fields of science and technology and medicine. Due to the relatively advanced science and medicine in some western countries, the proposed quantitative medicine is also much earlier than China. In 1966, computer-aided diagnosis, CAD medical image diagnosis technology, appeared. In practical applications, it is mainly clinical and imaging data, through computer logical thinking, and then assisting doctors to make a diagnosis of the disease [5]. After the continuous innovation and development of China's economic science and medical field, the diagnostic technology for medical use is getting more and more advanced, especially after the development of artificial intelligence technology, the depth recognition, mining, and processing functions of images are more complete, which belongs to the medical auxiliary diagnosis Important methods and methods, CAD as an important direction for the development of medical imaging diagnosis [6]. With accurate quantitative calculation and high repeatability, it will not cause calculation fatigue. Early diagnosis for the pathological changes of tuberculosis and the development of breast cancer is more successful [7]. At the same time, in the context of cloud computing technology and big data technology, the medical diagnostic function of CAD improves other important auxiliary functions. This can greatly improve the accuracy of disease diagnosis and reduce the number of misdiagnosis and missed the diagnosis situation in hospitals.

### **3.2. The application of endoscope technology**

Endoscopy technology refers to minimally invasive surgical techniques by avoiding surgical detection, and then replaces traditional surgical examinations and treatments. With the support of advanced technology, the diagnosis and treatment of patients' diseases are supported by the

application of endoscopic technology. It is of great significance, for example, the application of image processing technology in the diagnosis and treatment of ENT in clinical medicine, through the use of optical fiber non-invasive equipment, can play an important role in the treatment and detection of ENT disorders [8]. With the rapid and rapid development of contemporary medical science and technology, it has provided more convenient conditions for the diagnosis and treatment of patients' diseases. During the examination and surgery, the wound is getting smaller and smaller, and it has a better effect after the examination and after the order. This is due to the application of endoscope technology. In practical applications, an endoscope is mainly connected to a miniature TV camera to form an endoscope or endoscope, and then video and video are recorded on the positive internal organs of the human body or other body parts, which can better assist The doctor understands the specific condition of the patient's condition. Endoscope technology is currently used in the examination and treatment of clinical conditions in rhinopathy, orthopedics, intracranial, nerve, abdominal cavity and other fields.

### **3.3. Application in ultrasound medical imaging**

There are various image processing methods used in ultrasound imaging, such as smoothing the image, processing the image as color, analyzing the texture of the image, segmenting the content of the image, and processing the sharpening of the image. Applying image processing technology to ultrasound medical imaging can better assist ultrasound examination. For example, computer image processing technology is applied to B-ultrasound images. In actual application, there will be some noise in the B-ultrasound image, and these will affect the pixels of the image or the entire captured image, so it cannot help the doctor to check the patient's illness. Therefore, in the process of ultrasound examination, image processing technology is used to optimize the effect of the entire image by removing desiccation. It can better understand the position and development of the patient's disease for the corresponding doctor, and then make it more accurate. Judgment of illness. In the B-mode image, because most of the shots belong to the patient's internal conditions, there will be some grainy or other textures after the shooting, the ultrasonic particles are processed, and then the specific development of the disease is checked by analyzing the texture.

## **4. The Future Development of the Use of Computer Image Processing Technology in Clinical Medicine**

With the continuous innovation and development of science and technology, the computer image processing technology used in clinical medicine will become more and more advanced, and at the same time, it will have higher convenience in actual operation. This is because China's current research and development team for some computer technology is growing, and the number of highly qualified personnel in this team is increasing. With such abundant resources, the research and development of computer image processing technology will become more and more advanced. At the same time, with the continuous upgrade of other detection equipment in clinical medicine, intelligent computer image processing technology can improve the accuracy of diagnosis and treatment of patient conditions. In addition, after the continuous innovation and development of computer technology, some computer image processing technologies will be simplified in the application process in specific fields, so that there will be more and clinical medical staff, which can complete the image processing through simple operations, It is also of great significance for the popularization and application of computer image processing technology. Therefore, in clinical medicine, the development trend of future application of computer image processing technology is universal and convenient.

## 5. Conclusion

Through the discussion of the article, we can understand that in the current examination and treatment of clinical conditions, through the reasonable use of computer image processing technology, it can better assist doctors to analyze patient information pictures taken by corresponding imaging equipment. In medical diagnosis and treatment, image processing technology can be used. In the future development, clinical computer image processing technology will be more and more advanced, and it will have higher convenience in practical applications. Under the continuous development of clinical medicine and clinical medical technology, computer image processing technology will be able to Achieve universal application.

## References

- [1] Ding Suijuan. Application and analysis of computer image processing technology in the diagnosis of TCM skin diseases [J]. Computer Knowledge and Technology, 2018, 20 (4): 102-103.
- [2] Jiang Yongming. Application value of MSCTA image post-processing technology to intracranial aneurysms [J]. Laboratory Medicine and Clinic, 2017, 14 (21): 3189-3190.
- [3] Cai Huaiyu, Zhang Weiqian, Chen Xiaodong. Image Processing Methods for Ophthalmic Optical Coherence Tomography [J]. China Optical, 2019, 12 (4): 731-740.
- [4] Kuang Lishan, Li Hua, Qin Yongchun. Application of multi-slice spiral CT image post-processing technology in bone and joint trauma [J]. Contemporary Medicine, 2019 (16).
- [5] Wang Lei, Zhang Ying, Cai Ailu. Application of high-resolution blood flow imaging combined with time-space correlation imaging technology in the examination of normal fetal venous catheters [J]. Chinese Journal of Clinical Medical Imaging, 2018, 29 (6): 423-426.
- [6] Liu Sanchun, Shen Longshan, Zhou Zhihui. Application value of 128-slice spiral CT thin-layer post-processing technology in the diagnosis and surgical evaluation of renal tumors [J]. Journal of Bengbu Medical College, 2018, 43 (4).
- [7] Wang Qian, Zhang Si, Zhang Ke. Application of 3D printing technology in clinical medicine [J]. Journal of PLA Medical Journal, 2019 (8): 112-116.
- [8] Wang Hong, Yang Wei. Clinical application of contrast-enhanced ultrasound image processing technology in focal liver lesions [J]. Chinese Journal of Ultrasound Imaging, 2018, 27 (7): 638-641.