

From a Health Economics Perspective: Applied Researching Model and Design in Computational Neuroscience and Necessary Mathematical Modeling in Preventive Medical Creation

Jun Luo¹, Yi Qin¹, Xue Zhang², Liangyu Li³

1. Saharov Institute of ecology, national university of Belarus, Minsk 220030, Belarus.

2. Singapore Management University School of Economics, 178903, Singapore.

3. Belarusian National University Business School, Minsk 220030, Belarus.

Abstract: The simulation computer model of human medical neuroscience is widely used in artificial intelligence. The extensive use of medical robots in China has made the simulation model of neuroscience have a broader stage in economic development. Especially in preventive medicine, the research team has more uses for identifying the practice in various fields of medicine and setting procedures for surgical robots, we try to analyze the commonly used neural network models of preventive medical robots from the simulation of human neuroscience, and discuss them according to the principles of economics and finance.

Keywords: Artificial Intelligence; Neuroscience; Medical Robots

Introduction

The basic unit of human neuroscience is neurons. Neurons are an important part of the network for information transmission in the human brain. Neural networks are a set of specific algorithms, which have completely changed the field of machine learning. They are all modelled for human neuroscience. Inspired by biological neural networks, the author thinks that at present, deep neural networks have been proven to be very effective. Neural networks themselves are general function approximations, which is why they can be applied to machine learning of almost any complex mapping from input to output space.^[1]

In recent years, with the rapid development of clinical medicine and computer science, frequent breakthroughs in a variety of technologies, and gradual generalization in the application field, the development of the medical industry has attracted much attention.^[2]

The current medical robot, as the deepening of the application in the medical field in the era of artificial intelligence, can effectively help doctors carry out a series of medical diagnosis and auxiliary treatment, and promote the development of medical information under the effective relief of the problem of medical resource tension.

Medical robots belong to the category of special service robots in service robots. Different from other robots, medical robots are responsible for some of the functions of diagnosis and treatment, which is equivalent to the super intelligent equipment used for semi autonomous or fully autonomous medical work in hospitals, clinics or auxiliary medical treatment. Although it can complete service work beneficial to human health, However, it is still possible that the loopholes in the program will cause harm to human life, so it has considerable particularity. In the reference of the materials, we found that robots have a wide range of types and functions. At present, we found that they can be divided into surgical robots, rehabilitation robots, auxiliary robots and medical service robots.^{[3][4][5]}

The author analyzes and combs the neural network models that may be used in medical robots, and looks forward to relevant medical fields. We now take orthopedic surgery as an example.^[6]

1. Cross related research on neural convolution network model

Principle of neural convolution network model. The essence of convolution network model is that computers can extract meanings from pictures. In fact, the establishment of convolution neural network model is the establishment of picture recognition mechanism. When the patient has a fracture, we establish a data set for the relevant X-ray and CT films, which is the basis for the computer to extract data from the pictures. We build such a data set to provide the machine with automatic programming for continuous optimization. Secondly, the relevant exploratory data analysis is carried out to optimize the relevant mechanisms of diagnosis and learning. We mark the CT images of femoral neck fracture, determine their size and pixel, and use R language to set the size of all images of this data set. It is very important to unify the size of all stored data. This is related to the setting of rationalization of work efficiency before data processing and processing, which is conducive to its work.^[7]

We can try to process relevant images, such as different degrees of flipping, for machine recognition and learning, in order to design the training model and improve the sample size. We can carry out image recognition modeling of femoral neck fracture.

We can try to build a simple CNN model. The process is as follows. After the input layer, we can design the volume base layer, the largest pool layer, the dense layer and the dense output layer. We can train this model through data.

We can conduct more in-depth model design for this model. His computing structure is also more complex. To put it simply, such a convolutional neural network is more suitable for judging surgical indications. There are often some errors in many self judging machine learning convolutional neural networks, but the particularity of medicine can not completely replace doctors with robots for diagnosis, which can be assisted.^[8]

2. Design concept of feedforward neural network

Artificial neural network (ANN) is used as an automatic method to solve many problems in many engineering and scientific disciplines, and plays a very important role in medicine. However, to build a prudent and reliable ANN, we must provide a lot of relevant data. And in this study, we analyzed the scope of artificial neural network in the geothermal reservoir system structure. Especially in this field, we try to solve the joint inversion problem through feedforward neural network (FNN) technology. Moreover, the medical device man is the product of the integration of precision manufacturing, automatic control and clinical medicine. It is the pearl in the crown of the robot field, and has the characteristics of high technology, high threshold and high added value. We can try to design the robot's feedforward neural network model in orthopedic surgery, especially in the robot architecture, because only doctors with clinical medical background can have experience and experience in surgery. The main design fields should be the incision of surgery, the medication based on good prognosis, and the recommendation of very suitable consumables, such as various implants for orthopaedic surgery.^{[9][10]}

3. Economic discussion

In terms of macroeconomics, we analyze the national income of the whole country and believe that China has the soil to produce and use such robots. As a whole, the Chinese government has a large amount of materials to support the health investment and medical consumption groups. At present, through statistics and analysis of the law of economic development, we believe that robots have a relatively strong development space in the development of medicine. In microeconomics, we find that China's per capita GDP has reached the average level of the world, and East China has also reached the per capita GDP level of developed countries in the world. It has strong purchasing power and productivity.^{[11][12]}

Conclusion

We believe that carrying out relevant basic scientific research is of great medical significance in China's research field. With the support of the Party and the state, many scientific research institutions and research institutes in China should deepen their learning and fully use medical robots as early as possible to protect the health of the people all over the country.

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