Abstract

The bioinformatics field is concerned with processing medical data for information and knowledge extraction. The problem comes more interesting when dealing with uncertain data which is very common in the medicine diagnostic area. The medical data is processed inside the human brain to produce the appropriate diagnoses. The artificial neural networks are simulations to the human thinking. The rough neural networks are special networks that are capable of dealing with rough boundaries of uncertainness through rough neurons. This research tries to solve the diagnostic problems using the classification capabilities of the rough neural networks. The medical training data, after preprocessing to remove unnecessary attributes, are applied to the rough neural network structure so as to update the connection weights iteratively and produce the final network that give a good accuracy rates. The testing data are used to measure these accuracy rates. The input data are transformed into its lower and upper boundaries by multiplying them by the input weights so there are no need for preparing rough data in advance. The illustrations of the proposed model and its sub modules along with the experimental results and comparisons with the neural network in diagnosing medical knowledge from the breast cancer data set for a number of experiments with different training set sizes are declared.
An Intelligent Model in Bioinformatics based on Rough-Neural Computing

References

- Frank Chiang and Robin Braun . 2004. Intelligent Failure Domain Prediction in Complex Telecommunication Networks with Hybrid Rough Sets and Adaptive Neural Nets,in 3rd international information and telecommunication technologies symposium, Sao Carlos Federal University.

Index Terms

Computer Science

Artificial Intelligence

Keywords

Uncertain knowledge

Rough Neural Networks