

Medical Neural Classifier Based on Improved Genetic Algorithm

Authors : Fadzil Ahmad, Noor Ashidi Mat Isa

Abstract : This study introduces an improved genetic algorithm procedure that focuses search around near optimal solution corresponded to a group of elite chromosome. This is achieved through a novel crossover technique known as Segmented Multi Chromosome Crossover. It preserves the highly important information contained in a gene segment of elite chromosome and allows an offspring to carry information from gene segment of multiple chromosomes. In this way the algorithm has better possibility to effectively explore the solution space. The improved GA is applied for the automatic and simultaneous parameter optimization and feature selection of artificial neural network in pattern recognition of medical problem, the cancer and diabetes disease. The experimental result shows that the average classification accuracy of the cancer and diabetes dataset has improved by 0.1% and 0.3% respectively using the new algorithm.

Keywords : genetic algorithm, artificial neural network, pattern classification, classification accuracy

Conference Title : ICBCBBE 2015 : International Conference on Bioinformatics, Computational Biology and Biomedical Engineering

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015