

Evolving neural networks using a genetic algorithm for heartbeat classification

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Abstract :

This study investigates the effectiveness of a genetic algorithm (GA) evolved neural network (NN) classifier and its application to the classification of premature ventricular contraction (PVC) beats. As there is no standard procedure to determine the network structure for complicated cases, generally the design of the NN would be dependent on the user's experience. To prevent this problem, we propose a neural classifier that uses a GA for the determination of optimal connections between neurons for better recognition. The MIT-BIH arrhythmia database is employed to evaluate its accuracy. First, the topology of the NN was determined using the trial and error method. Second, the genetic operators were carefully designed to optimize the neural network structure. Performance and accuracy of the two techniques are presented and compared.

Source : <http://www.ncbi.nlm.nih.gov/pubmed/21574910>