Selecting the Best RBF Neural Network Using PSO Algorithm for ECG Signal Prediction

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Abstract : In this paper, has been presented a stable method for predicting the ECG signals through the RBF neural networks, by the PSO algorithm. In spite of quasi-periodic ECG signal from a healthy person, there are distortions in electro cardiographic data for a patient. Therefore, there is no precise mathematical model for prediction. Here, we have exploited neural networks that are capable of complicated nonlinear mapping. Although the architecture and spread of RBF networks are usually selected through trial and error, the PSO algorithm has been used for choosing the best neural network. In this way, 2 second of a recorded ECG signal is employed to predict duration of 20 second in advance. Our simulations show that PSO algorithm can find the RBF neural network with minimum MSE and the accuracy of the predicted ECG signal is 97 %.

Keywords : electrocardiogram, RBF artificial neural network, PSO algorithm, predict, accuracy

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