





In the flowchart, particles are number of MLP hidden layer neurons and position is MSE of network.

MSE and regression of five different networks and the best network are shown in table 1. As shown this table, the architecture of best network is 50-26-50, with 0.00798381 MSE and 94% accuracy.

One predicted ECG signal for healthy person is shown in figures 6. These results obtained from the best MLP neural network (50-26-50) and another network with 50-41-50 architecture. In this procedure, 20 seconds of signal are predicted in 0.5 second.

TABLE I  
MSE AND REGRESSION OF DIFFERENT NETWORKS

Number of Neurons in Hidden Layer	MSE	Regression
19	0.01073576	0.78
24	0.00839905	0.90
26	0.00798381	0.94
37	0.00817835	0.92
41	0.00916798	0.84
44	0.00855093	0.82

V. CONCLUSION

In this paper, PSO algorithm is proposed and applied to selecting of MLP neural network architecture. This algorithm compares the MSE of different networks and it chooses the neural network with minimum MSE. Results show that PSO algorithm can be used as an alternative way in selecting network architecture. Therefore, the best neural network architecture is 50-26-50 to prediction of ECG signals. The accuracy of the predicted ECG signal is 94%.

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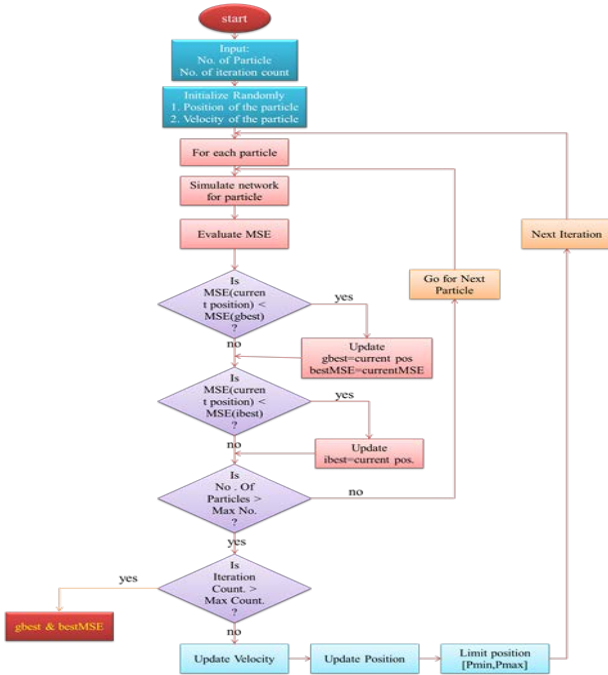


Fig. 5 the proposed flowchart for selection of best neural network

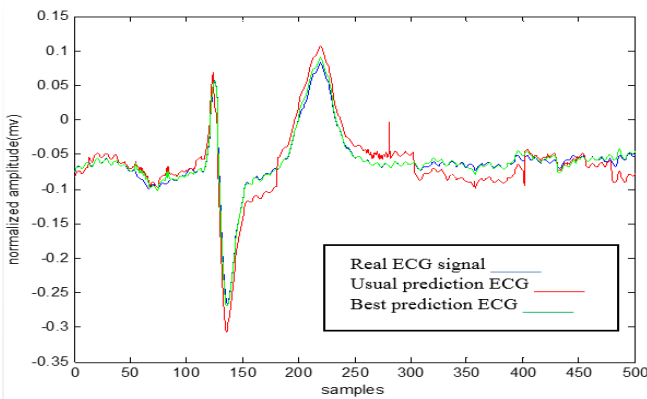


Fig. 6 Results Of The Best MLP Neural Network And A Usual Network

