

EFFECT OF NUMBER OF HIDDEN LAYERS AND PROCESSING ELEMENTS ON THE PREDICTIVE PERFORMANCE OF THE NEURAL NETWORK

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Text:

Artificial neural networks (ANNs) were built with only differences in number of hidden layers and processing elements in hidden layers. Case study data of the coronary artery diseases patient were collected, converted into numericals and used as inputs and outputs for training and testing these networks. The input data includes physical examination and life style data, ethnicity, serum test results and results of all other procedure used for confirmed diagnosis. Surgical intervention undertaken, prescribed treatments and followup results were used as output. All networks were trained equally using 1370 data. The training was satisfactory for all networks with error 0.0001 indicates a model of coronary artery complications has been simulated. The networks were tested with using the new test data and compared for predictive performance. The results of testing showed that increasing the number of processing elements in hidden layers increases the predictive performance better, than increasing the number of hidden layers. The results indicates that the processing elements in hidden layer contributes more to the intelligency of the network than the hidden layer as a whole. The study would be useful in designing the diagnostic equipments based on artificial neural networks.