

Optimisation of the Input Layer Structure for Feedforward Narx Neural Networks

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Abstract : This paper presents an optimization method for reducing the number of input channels and the complexity of the feed-forward NARX neural network (NN) without compromising the accuracy of the NN model. By utilizing the correlation analysis method, the most significant regressors are selected to form the input layer of the NN structure. An application of vehicle dynamic model identification is also presented in this paper to demonstrate the optimization technique and the optimal input layer structure and the optimal number of neurons for the neural network is investigated.

Keywords : correlation analysis, F-ratio, levenberg-marquardt, MSE, NARX, neural network, optimisation

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