Abstract

The present paper introduces destructive neural network learning techniques and presents the analysis of the convergence rate of the error in a neural network with and without threshold. Also, a constructive algorithm for rule extraction based on a trained neural network using Gene Expression Programming (GEP) is proposed. The rules are not an easy task due to the large number of examples entered to the input layer. Thus, we can use GEP to encode the rules in the form of logic expression. Finally, the proposed model is evaluated on different public-domain datasets and compared with standard learning models from WEKA, and then the results accentuate that the set of rules extraction from the proposed method is more accurate and brief compared with those achieved by the other models.

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**Index Terms**

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