



RESEARCH ARTICLE

Supervised Neural Network using Maximum-Margin (MM) Principle

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Abstract— This paper presents a method to build binary classifier using supervised neural network. Support Vector Machine (SVM), which is based on the concept of maximum margin, is also used to build binary classifier, however it is mathematically complex. Neural Network (NN) is a simpler alternative and more suitable for parallel processing. This paper presents Maximum margin algorithm (MMGD_X), which stretches out the distance between two classes (margin) to its maximum limit. It uses back-propagation method for error calculation and also uses gradient descent with adaptive learning rate to increase learning rate of network. In MMGD_X, area under receiver operating characteristics (ROC) curve (AUC), is applied for stopping criterion. Real time benchmark data sets are used for experiments that enable comparison with other state-of-art classifiers.

Key Terms: - supervised neural networks; classifier; Maximum margin; AUC

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