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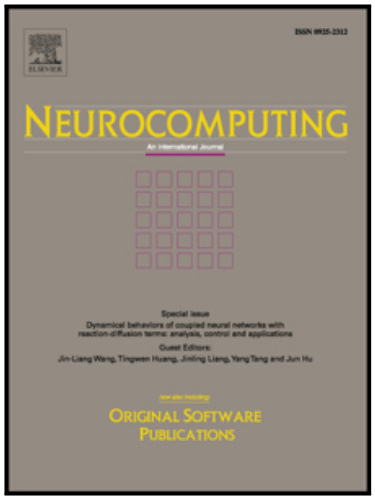

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Efficient Tree Classifiers for Large Scale Datasets

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Abstract

Classification plays a significant role in production activities and lives. In this era of big data, it is especially important to design efficient classifiers with high classification accuracy for large scale datasets. In this paper, we propose a randomly partitioned and a Principal Component Analysis (PCA)-partitioned multivariate decision tree classifiers, of which the training time is quite short and the classification accuracy is quite high. Approximately balanced trees are created in the form of a full binary tree based on two simple ways of generating multivariate combination weights and a median-based method to select the divide value having ensured the efficiency and effectiveness of the proposed algorithms. Extensive experiments conducted on a series of large datasets have demonstrated that the proposed methods are superior to other classifiers in most cases.

Keywords: big data, classification, multivariate decision tree

1. Introduction

As it is one of the many important techniques in data mining, classification plays a significant role in helping humans understand things and comprehend nature. Simply because of this, classification has drawn a large interest among the various academic communities, such as, in statistics, machine learning, pattern recognition, data mining, and so on. Studies on classification have been applied in many different domains,

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