Study and Analysis of Multi-Label Classification Methods in Data Mining

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Abstract

Multi-label classification is major research problem in machine learning domain. Multi-label classification is nothing but the variants of classification problem in which different target labels should be allocated to every instance. Multi-label classification is different from the multiclass classification. In general, multi-label classification is defined as problem of searching model which maps the input to binary vectors, rather than outputs in scalars. Basically there are two different techniques for handling the multi-label classification problem such as techniques of problem transformation and techniques of algorithm adaptation. In problem transformation approaches, multi-label classification problem is transformed to binary classification problems set and this can be further processed through single class classifiers. In algorithm adaptation approaches, algorithms are adapted in order to perform the multi-label classification directly. In this paper, different multi-label classification algorithms are studied and evaluated with current research problems. Methods such as binary relevance (BR), high-order approaches, hierarchical tree based algorithms, and the most recent method called ML-Forest are studied and evaluated with different real time datasets such as medical, emotions, yeast etc.
References


Index Terms

Computer Science

Information Sciences

Keywords

BR, HOMER, TSA, ML-Forest, Multi-label classification, datasets, accuracy