ABSTRACT FOR SEMINAR

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Topic: Filter Method Ensemble with Neural Networks

Abstract: The main concept behind designing a multiple classifier system is to combine a number of classifiers such that the resulting system succeeds to topple the individual classifiers by pooling together the decisions of all classifiers. Uniting relatively simple pattern recognition models with limited performance is commonly found in the literature. It performs better when each learner be trained well, but different learners have different working principles which adds diversity in the ensemble. In many cases different feature sets also give different results on a particular dataset. In this paper, we first select three subsets of features using three different filter methods namely Mutual Information (MI) or Information gain, Chi-square, and Anova F-Test. As all these methods are filter methods they mainly work on statistical computation and thus are not dependent on any classifiers. Then with the selected features we build three learning models using Multi-layer Perceptron (MLP) based classifier. Class membership values provided by these three classifiers for each sample are concatenated which is then fed to next MLP based classifier. Experimentation performed on five UCI Machine Learning Repository, namely Arrhythmia, Ionosphere, Hill-Valley, Waveform, Horse Colic shows the effectiveness of the proposed ensemble model. The proposed method achieves comparable accuracy on most of the datasets compared to the state-of-the-art ensemble methods like boosting.