

Ensemble Classification via Sufficient Dimension Reduction

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Abstract: We propose an ensemble classification method for high-dimensional data by aggregating results of classifiers based on dimension reduction in randomly projected subspaces (DRIPS) of the features. We implement the method by the outer product gradients (OPG) method for dimension reduction and k -nearest neighbors (kNN) classifier. The method can select the tuning parameters, such as the efficient dimension and the number of neighbours for the classifier, efficiently. A voting method is proposed to aggregate the classification results for the final assignment of classification. The performance is compared with some of the popular classification methods using both simulated and many real data examples.