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Project 2 - Group 7

Adaboost

Adaboost is a machine learning meta-algorithm. It is a boosting algorithm derived from Schapire’s boosting designed to minimize randomness and error. Schapire’s Boosting seeks to minimize the randomness found in bagging, but it is often too strict and restrictive, and thus it is not often possible to find enough examples that satisfy its requirements. Adaboost takes the core idea of Schapire’s boosting but examples are chosen probabilistically, allowing for a greater ease of selecting examples for the individual classifiers.

Adaboost creates classifiers one at a time, inducing each from a different training subset whose composition depends on the behavior of previous classifiers it has created. The training examples used are decided probabilistically as those on which the old classifiers would not perform well. Each example in the training set has a certain probability of being chosen, and those probabilities are altered with each induced classifier (examples that are repeatedly misclassified receive higher and higher probabilities). Another change from Schapire’s boosting is that Adaboost does not stop at three classifiers- it induces a great many classifiers and makes the final decision with weighted majority voting between them.

Implementation.

Results.