

# **BOOSTING, BAGGING AND FIXED FUSION METHODS PERFORMANCE FOR AIDING DIAGNOSIS**

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## **Abstract**

Multiple classifier fusion may generate more accurate classification than each of the constituent classifiers. The aim was to examine the ensemble performance by the comparison of boosting, bagging and fixed fusion methods for aiding diagnosis. Real-life medical data set for thyroid diseases recognition was applied. Different fixed combined classifiers (mean, average, product, minimum, maximum, and majority vote) built on parametric and nonparametric Bayesian discriminant methods have been employed. No very significant improvement of recognition rates by a fixed classifier combination was achieved on the examined data. The best performance was obtained for resampling methods with classification trees, for both the bagging and the boosting combining methods. The bagging and the boosting logistic regression methods have proven less efficient than the bagging or the boosting of neural networks. Difference between the bagging and the boosting performance for the examined data set was not obtained.

**Keywords:** thyroid disease diagnosis, combining classifiers performance, bagging, boosting, trees, logistic regression, neural networks