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Computer Science > Learning

## Predicting the Severity of Breast Masses with Data Mining Methods

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Mammography is the most effective and available tool for breast cancer screening. However, the low positive predictive value of breast biopsy resulting from mammogram interpretation leads to approximately 70% unnecessary biopsies with benign outcomes. Data mining algorithms could be used to help physicians in their decisions to perform a breast biopsy on a suspicious lesion seen in a mammogram image or to perform a short term follow-up examination instead. In this research paper data mining classification algorithms; Decision Tree (DT), Artificial Neural Network (ANN), and Support Vector Machine (SVM) are analyzed on mammographic masses data set. The purpose of this study is to increase the ability of physicians to determine the severity (benign or malignant) of a mammographic mass lesion from BI-RADS attributes and the patient, s age. The whole data set is divided for training the models and test them by the ratio of 70:30% respectively and the performances of classification algorithms are compared through three statistical measures; sensitivity, specificity, and classification accuracy. Accuracy of DT, ANN and SVM are 78.12%, 80.56% and 81.25% of test samples respectively. Our analysis shows that out of these three classification models SVM predicts severity of breast cancer with least error rate and highest accuracy.

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