Detection and Classification of Tumors in a Digital Mammogram

Abstract

Mammography is an effective way that has demonstrated the ability to detect breast cancer at early stages with high sensitivity and specificity. Due to textural variation in image intensity, diagnosis performance varies from 60% to 80% in manual reading of mammogram. This paper demonstrates a novel approach for classifying mammograms by computer aided design using image processing and data mining techniques. This experiment consists of four stages namely preprocessing, segmentation, extraction of features and classification. In preprocessing the breast image is standardized. Then suspicious regions of cancer are acquired from mammogram by K-means clustering technique. Features are extracted from these region and are given as input to the pretrained decision tree based classifier, which in turn classifies the mammogram into normal, benign and malignant. The system has very high accuracy and has
been verified with the ground truth given in the database (mini-MIAS database & DDSM). The false negative rate was as very low compared to the other existing methods.

References

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