Pre-processing of Mammography Image for Early Detection of Breast Cancer

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Abstract

Breast cancer is one of the most prevalent causes of death among women worldwide. Hence, the early detection helps to save the life of the women. Mammography is the basic screening test for breast cancer. It consists of many artefacts, which negatively influence in detection of breast cancer. Therefore, removing artefacts and enhancing the image quality is a required process in Computer Aided Diagnosis (CAD) system. The accuracy and efficiency of the CAD is increased by providing exact Region of Interest (ROI). Extracting ROI is a challenging task in preprocessing because the presence of pectoral muscle influences the detection of abnormality. Here, the proposed show that the wiener filter and Contrast Limited Adaptive Histogram Equalization (CLAHE) techniques efficiently aids for enhancing the quality of the image, thereby it also removes the unwanted background and the pectoral muscle by using thresholding and modified region growing technique respectively. Furthermore, the proposed algorithm was tested on mini-MIAS database; the result obtained was compared with completeness and correctness for pectoral muscle removal and was reported as 98% and 97% respectively. Collectively, these results suggest that the proposed method is well suited for improving the
quality of mammography image for Auto-CAD system.

References

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