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Abstract

Breast cancer is a leading cause of cancer death among women. Many studies have shown that mammography is the most effective method for early detection of abnormalities such as microcalcification and mass. In the study on breast cancer, it is observed that architectural distortion is the most commonly missed abnormality in false-negative cases. Mass detection also poses a big challenge in detection because of its varying shape and density, as it is highly connected to the surrounding parenchymal tissue density. This paper proposes a new method for improving detection of architectural distortion and mass in mammographic images using Gabor wavelets and Adaptive Neuro-Fuzzy based classification. Segmentation of the abnormality is done using Otsu's thresholding. The segmented image is operated with Gabor filter. Feature extraction is done from the output images by forming Gray Level Co-occurrence Matrix (GLCM). Classification is done using Adaptive Neuro-Fuzzy Inference System (ANFIS). The Regions of Interest (RoI) of 40 images are used for training and testing using ANFIS. The sensitivity obtained is about 80% in case of images with architectural distortion and 50% in case of images with mass. The specificity obtained is about 83% for both the cases.

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Index Terms

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Keywords

Anfis Architectural Distortion Breast Cancer Gabor Wavelet Mammography Mass