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Colored computer aided diagnosis system for breast mammography

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Breast Cancer is the most common and life threatening cancer among women. Mammography is a key screening tool for breast abnormalities detection. It is an effective way that has demonstrated the ability to detect breast cancer at early stages, because it allows identification of tumor before being palpable. Radiologists may miss the breast abnormality due to the textural variation of breast tissues intensity in mammogram. So, radiologists may result in false-positive or false-negative results. Efforts in developing the Computer Aided Detection/Diagnosis (CAD) systems for mammogram analysis improve the diagnostic accuracy by radiologists. This study developed an algorithm to read mammograms automatically with colors. It proposed the use of discrete wavelet decomposition technique using Symlet wavelet as a feature extraction, and the linear discriminant analysis (LDA) as a classifier in order to discriminate the extracted features to find out this detection. The algorithm achieved 98.8% accuracy, 95.0% sensitivity in breast tissue classification. This accuracy has been verified with the ground truth given in the mini-MIAS database. So, this algorithm will help radiologists for a true diagnosis and decrease the number of the missing cancerous regions or unnecessary biopsies which are very stressful for women, it can help in early detection of breast cancer, and following treatment can significantly improve the chance of survival for patients with breast cancer. So, it will save women lives.

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