Abstract

Mammography is the most efficient method for breast cancer early detection. Clusters of microcalcifications are the sign of breast cancer and their early detection is the key to improve
breast cancer prognosis. Microcalcifications appear in mammogram as tiny granular points, which are difficult to observe by radiologists due to their small size. An efficient method for automatic and accurate detection of clustered microcalcifications in digitized mammograms is the use of Computer Aided Diagnosis (CAD) systems. This paper presents a novel approach based on multiscale products of eigenvalues of Hessian matrix. The detection of microcalcifications is achieved by decomposing the mammograms by filter bank based on Hessian matrix into different frequency sub-bands, suppressing the low-frequency subband, and finally reconstructing the subbands containing only significant high frequencies features. The significant features are obtained by multiscale products. Preliminary results indicate that the proposed scheme is better in suppressing the background and detecting the microcalcification clusters than any other detection methods.

Reference

A Computer Aided Diagnosis System for Microcalcification Cluster Detection in Digital Mammogram


Index Terms

Computer Science  Signal Processing
Key words

Computer Aided Diagnosis (CAD)  Hessian matrix
Multiscale product

Microcalcification detection