World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:11, No:04, 2017

Content-Based Mammograms Retrieval Based on Breast Density Criteria Using Bidimensional Empirical Mode Decomposition

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Abstract : Most medical images, and especially mammographies, are now stored in large databases. Retrieving a desired image is considered of great importance in order to find previous similar cases diagnosis. Our method is implemented to assist radiologists in retrieving mammographic images containing breast with similar density aspect as seen on the mammogram. This is becoming a challenge seeing the importance of density criteria in cancer provision and its effect on segmentation issues. We used the BEMD (Bidimensional Empirical Mode Decomposition) to characterize the content of images and Euclidean distance measure similarity between images. Through the experiments on the MIAS mammography image database, we confirm that the results are promising. The performance was evaluated using precision and recall curves comparing query and retrieved images. Computing recall-precision proved the effectiveness of applying the CBIR in the large mammographic image databases. We found a precision of 91.2% for mammography with a recall of 86.8%.

Keywords : BEMD, breast density, contend-based, image retrieval, mammography
Conference Title : ICMR 2017 : International Conference on Multimedia Retrieval
Conference Location : Paris, France
Conference Dates : April 18-19, 2017