Indonesian Journal of Electrical Engineering and Computer Science
Vol. 5, No. 3, March 2017, pp. 577 ~ 588
DOI: 10.11591/ijeecs.v5.i3.pp577-583

Mammography Image Segmentation: Chan-Vese Active Contour and Localised Active Contour Approach

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Abstract

Breast cancer is one of the most common diseases diagnosed among female cancer patients. Early detection of breast cancer is needed to reduce the risk of fatality of this disease as no cure has been found yet for this illness. This research is conducted to improve the Gradient Vector Flow (GVF) Snake Active Contour segmentation technique in mammography segmentation. Segmentation of the mammogram image is done to segment lesions existence using Chan-Vese Active Contour and Localized Active Contour. Besides that, the effectiveness of these both methods are then compared and chosen to be the best method. Digital Database of Screening Mammograms (DDSM) is used for the purpose of screening. First, the images undergo pre-processing process using the Gaussian Low Pass Filter to remove unwanted noise. After that, contrast enhancement applied to the images. Segmentation of mammograms is then conducted by using Chan-Vese Active Contour and Localized Active Contour method. The result shows that Chan-Vese technique outperforms Localized Active Contour with 90% accuracy.

Keywords*: Mammogram image, Chan-Vese Active Contour, Localized Active Contour*

Received November 2, 2016; Revised February 8, 2017; Accepted February 24, 2017