Automated Digital Mammogram Segmentation Using Dispersed Region Growing and Pectoral Muscle Sliding Window Algorithm

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Abstract : Early diagnosis of breast cancer can improve the survival rate by detecting cancer at an early stage. Breast region segmentation is an essential step in the analysis of digital mammograms. Accurate image segmentation leads to better detection of cancer. It aims at separating out Region of Interest (ROI) from rest of the image. The procedure begins with removal of labels, annotations and tags from the mammographic image using morphological opening method. Pectoral Muscle Sliding Window Algorithm (PMSWA) is used for removal of pectoral muscle from mammograms which is necessary as the intensity values of pectoral muscles are similar to that of ROI which makes it difficult to separate out. After removing the pectoral muscle, Dispersed Region Growing Algorithm (DRGA) is used for segmentation of mammogram which disperses seeds in different regions instead of a single bright region. To demonstrate the validity of our segmentation method, 322 mammographic images from Mammographic Image Analysis Society (MIAS) database are used. The dataset contains mediolateral oblique (MLO) view of mammograms. Experimental results on MIAS dataset show the effectiveness of our proposed method.