

AN EFFICIENT TECHNIQUE TO ENHANCE MAMMOGRAM IMAGE USING CURVELET TRANSFORM

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ABSTRACT

One of the most significant causes of increased women death rate in the world is due to Breast cancer. Mammography is the most effective method for early detection of breast diseases. The main aim of mammography is to identify small, non-palpable cancers during its premature stage. On the other hand, mammograms are extremely complex to deduce being the fact that the pathological transformations of the breast are slight and their visibility is very poor with low contrast and noise. Mammograms have the valuable information such as micro calcifications and masses, which are extremely complicated to identify because mammograms are of low-contrast. It is necessary to enhance the mammogram images because the mammogram images are very noisy, low-contrast, blur and fuzzy, for accurate identification and early diagnosis of breast cancer.

In this paper, proposed an efficient technique to enhance mammogram image using curvelet transform. The curvelet transform is a recent extension of ridgelet transform that overcome ridgelet weaknesses in medical image segmentation. Curvelet is proven to be particularly effective at detecting image activity along curves instead of radial directions which are the most comprising objects of medical images. Curvelet transform is an expansion of wavelet and ridgelet transforms which aims to deal with exciting fact occurring along curves. Curvelet transforms has been tested on mammogram images and results are compared with those obtained from the other transforms. Tests indicate that using curvelet significantly reduces the surrounding noise in the images.

KEYWORDS: Breast Cancer, Mammography, Image Enhancement, Curvelet Transform, Multi-Resolution Image