عنوان مقاله:

Mass diagnosis in mammopgraphy images using novel FTRD features

محل انتشار:

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خلاصه مقاله:

In this paper, a novel group of features have been introduced for diagnosing the masses in mammography images. The goal is increasing the performance of CADx algorithms as well as decreasing computational complexity. The proposed features are proper descriptors of mass margin which are called Fourier Transform of Radial Distance (FTRD). The input ROI has been segmented manually by expert radiologists and subjected to some preprocessing stages. In order to extract the proposed features, the Radial Distance (RD) vectors of masseshave been extracted. In addition, the zero padding method has been utilized to equalize the length of the RD vectors. Then, the resulting vectors are transformed to the frequency domain. It is shown that the magnitude response of FTRD vectors can be appropriate descriptors of the mass margin. Furthermore, in order to make a trade-off between the computational complexity and performance of the overall system, several groups of FTRDfeatures with different lengths have been chosen and applied to an MLP classifier. Finally, the ROC curves have been plotted for each group of features and the performances have been evaluated. The most effective system yields an Az which is equal to 0.98. Moreover, the best achieved FPR is 5.56%.

کلمات کلیدی:

Computer aided diagnosis; Fourier transform;mammography; multi layer Perceptron; radial distance