عنوان مقاله:

A Semi-Supervised Method for Tumor Segmentation in Mammogram Images

محل انتشار:

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نویسندگان:

Hanie Azary - *School of Computer Engineering, Iran University of Science and Engineering*

Monireh Abdoos - *Faculty of Computer Science and Engineering, Shahid Beheshti University, Tehran, Iran*

خلاصه مقاله:

Background: Breast cancer is one of the most common cancers in women. Mammogram images have an important role in the treatment of various states of this cancer. In recent years, machine learning methods have been widely used for tumor segmentation in mammogram images. Pixelbased segmentation methods have been presented using both supervised and unsupervised learning approaches. Supervised learning methods are usually fast and accurate, but they usually use a large number of labeled data. Besides, providing these samples is very hard and usually expensive. Unsupervised learning methods do not require the labels of the training data for decision making and they completely ignore the prior knowledge that may lead to a low performance. Semi-supervised learning methods which use a small number of labeled data solve the problem of providing the high number of samples in supervised methods, while they usually result in a higher accuracy in comparison to the unsupervised methods. Methods: In this study, we used a semisupervised method for tumor segmentation in which the pixel information is used for the classification. The static and gray level run length matrix features for each pixel are considered as the features, and Fisher discriminant analysis (FDA) is used for feature reduction. A cotraining algorithm based on support vector machine and Bayes classifiers is proposed for tumor segmentation on MIAS data set. Results and Conclusion: The .results show that the proposed method outperforms both supervised methods

کلمات کلیدی:

Bayes classifier, co-training algorithm, mammogram images, support vector machine classifier, tumor segmentation