Robust Textural Approach for False Positive Reduction in Mammographic Mass

Abstract

In the last few years and over the last decade, different algorithms have been introduced for mass detection in digital mammograms. However, approximately all the proposed methods present a high number corresponding to false positive. In this paper, we propose a novel approach dealing with the problem of false positive reduction. This proposal is based on the use of a textural approach for the description of the masses texture properties. The least square estimation is applied to minimize the local difference in order to obtain more stable directional features, this scheme is called adaptative LBP (ALBP) to improve the features extracted using LBP efficiently. Artificial Neural Network (ANN) are used for the classification of the breast tissue. The evaluation of this approach is based on 1792 Regions Of Interest (ROIs) obtained from the Digital Database Of Screening Mammography (DDSM). The obtained results show that the proposed textural approach is effective in feature extraction and allows mass false positive reduction. Moreover, this proposal demonstrates better performance where compared to the methods of the state of the art.
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References


Index Terms

Computer Science          Bio-medical Sciences

Keywords

Mass    Adaptative Local Binary Pattern    false positive reduction    classification