

عنوان مقاله:

Calcification detection in mammograms using deep convolutional neural network

محل انتشار:

پنجمین کنگره بین المللی سرطان (سال: 1400)

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خلاصه مقاله:

Introduction: Breast cancer is the most common type of cancer, and mammography is the main screening test for breast cancer. To assist radiologists in detecting breast cancer from mammograms, computer aided detection (CAD) systems have been developed. Due to recent improvements in software and hardware resources as well as access to larger datasets, there is a growing interest in improving the performance of CAD systems. Methods: This study proposes a deep convolutional neural networks (CNN) for automatic detection of the location of calcifications in mammograms. For this purpose, a ResNet CNN was fine-tuned on ۱۵۴۲ mammographic images, and was then tested on ۳۲۲ images, from the DDSM dataset. Results: The proposed model was applied on ۱۶۰×۱۶۰ patches of each image to identify if it contains calcification. Moreover, the proposed model was tested on ۱۰ mammograms from our in-house dataset. The results showed ۹۱% accuracy in detecting the location of calcifications. Conclusion: These promising results highlight the potential of deep learning in automated detection of breast cancer which can improve CAD systems performance.

کلمات کلیدی:

Deep learning, convolutional neural network, mammography, breast cancer, CAD, calcification

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