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A Novel Approach based on Radiomic and Convolutional Features for Breast Cancer Detection in Histological Images

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Resumo

Breast cancer requires an early diagnosis for an effective treatment. The histological examination of biopsy tissue allows for the detection of any developing cancer. Deep learning models can be built to assist in the process of detection of abnormalities, utilizing computer vision algorithms, radiomic features, and image processing techniques. This paper proposes a novel architecture for classifying breast biopsy samples as healthy or cancerous, utilizing radiomic and convolutional features simultaneously. The methodology involves extracting these features from histological images and processing them together through multi-residual encoder blocks, enriching their original representations. This approach enabled the model to achieve an accuracy of 95.93% in the detection of breast cancer in histological images. These results demonstrate the potential of the proposed architecture as a computer-aided diagnosis tool.

Palavras-chaves: Breast cancer, Computer-aided diagnosis, Convolutional features, Deep learning, Radiomic features