基于卷积神经网络的乳腺疾病检测算法

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摘　要：为提高计算机辅助乳腺疾病检测的准确率，提出一种基于卷积神经网络的乳腺疾病检测算法.首先，分别从卷积神经网络中提取图像的浅层特征与深层特征并对其进行加权融合；其次，通过在卷积神经网络中构建空间金字塔池化层，实现了卷积神经网络的多尺度输入；最后，在 Mammographic Image Analysis Society(MIAS)数据集上进行验证实验.实验结果表明，本文提出的乳腺疾病检测算法平均准确率高达 94.93%，与其他乳腺疾病检测算法进行对比实验可知，本文提出的乳腺疾病检测算法具有更高的检测准确率.

关键词：卷积神经网络；特征融合；空间金字塔池化；尺度无关；乳腺疾病检测

Detection algorithm of breast disease based on convolution neural network

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Abstract：In order to improve the accuracy of computer-aided breast disease detection， a breast disease detection algorithm based on convolution neural network is proposed. Firstly， the shallow and deep features of the images are extracted from the convolution neural network，and then fuse them in a weighted way. Secondly， the multi-scale input of the convolution neural network is realized by using the spatial Pyramid pool algorithm. Finally， the algorithm is tested on the Mammographic Image Analysis Society (MIAS) data set. The experimental results show that the average accuracy rate of the breast disease detection algorithm is up to 93.32%. Compared with other breast disease detection algorithms， the breast disease detection algorithm proposed in this paper has higher detection accuracy.

Key words ： convolutional neural network;features fusion;spatial pyramid pooling;scale-independent;detection of breast disease

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