

1143-68-418

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Skin cancer was the most commonly diagnosed cancer in the US in 2016. Melanoma accounts for only 1% of all skin cancer cases, but the vast majority of skin cancer deaths. This is a type of skin cancer caused by abnormal multiplication of pigment producing cells that give color to the skin: melanocytes. Melanoma is highly curable when detected in its earliest stages, it is more likely than other skin cancer to spread to other parts of the body. Melanoma, in their initial growth phases, and other benign moles are similarities in their characteristic, which makes the diagnosis difficult between what is malignant and what is benign for experienced dermatologists. Convolutional Neural Networks (CNNs) is one of the most popular deep learning techniques for image analysis. Nowadays, with the help of GPU-accelerated computing techniques, CNNs have been successfully applied to object recognition, recommender systems or image classification. In this work, two different deep learning based methods have been implemented on a computer for detection of melanoma lesions, which could assist a dermatologist in early diagnosis of this cancer. (Received August 20, 2018)