



A Prior-mask-guided Few-shot Learning for Skin Lesion Segmentation

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Abstract

The incidence of skin cancer, which has high mortality, is growing rapidly worldwide. Early detection of skin lesions is crucial for timely diagnosis and treatment to improve the patient survival rate. Computer vision technology based on deep convolutional neural network requires a large amount of labelled data. The cost of data acquisition and annotation is relatively high, especially for skin cancer segmentation tasks. Therefore, we propose a few-shot segmentation network for skin lesion segmentation, which requires only a few pixel-level annotations. First, the co-occurrence region between the support image and query image is obtained, which is used as a prior mask to exclude irrelevant background regions. Second, the results are concatenated and sent to the inference module to predict segmentation of the query image. Third, the proposed network is retrained by reversing the support and query role, which benefits from the symmetrical structure. Extensive experiments performed on ISIC-2017, ISIC-2019, and PH2 demonstrate that our method forms a promising framework for few-shot segmentation of skin lesion.

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