Abstract

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Multi-Modal Multi-Stream UNET Model for Liver Segmentation

Computer Segmentation has become an important field of interest in the recent years, especially when it comes to medical images. Segmentation of medical images such as MRI images and CT images can benefit diagnosis accuracy, speed up diagnosis and decrease workload. One of the most used models in the medical images segmentation are the UNET based models, it was proven multiple of times that it can provide high percentage of accuracy. It has been shown that learning from one more modality at a time can enhance greatly the segmentation precision, however most of available multiple modalities datasets are not big enough for training complex architectures. Lately, it has been shown that using multiple modalities with multiple streams architectures can provide higher accuracy than single modality and single stream architecture. In this paper it will be presented the value of dual streams architectures and triple streams architectures when processing multiple modalities. Results shows in this work that dual streams can achieve dice of 0.97 on CT images and 0.89 on MRI images, and in triple streams architectures can achieve dice of 0.97 on CT images and 0.96 on MRI images. To the best of our knowledge these are the best results till now.