

MR image Segmentation based on Fusion Weighted network

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Abstract. MR image segmentation has practical significance, and it is very helpful for the diagnosis, treatment and follow-up of many neurological diseases. This paper argues that MR image segmentation needs to design segmentation models based on its 3D characteristics and fusing different features such as T1, T1_IR and T2_FLAIR slices. Firstly, we design a 3D U-net network with three down-sampling operations. Then, we add a weighting module to the network. Compared with the last submission, we have added the network a new weight fusion to better integrate the features of T1, T1_IR and T2_FLAIR. Finally, we added supplementary supervision for better learning. Our results are much better than the last submitted results in the 5 fold validation set. Our algorithm is fully automated and designed specifically for this competition. Firstly, we cut the disease picture into $32*32*32$ blocks, so the input size will be [BWHDC], and then send it directly into the network to output the corresponding segmentation results. Finally, the network only takes about ten minutes to test. Our training and testing are done on a GPU of NVIDIA GTX 1080Ti.

Compared with previous submission, we have change these

- 1, We use dense block rather than convolution
- 2, We use less feature map, because we think our previous methods are overfitting.