

# Brain MRI Segmentation Using Fully Convolutional Network

We applied a fully convolutional network with the use of hypercolumns. A paper describing the methods is currently in preparation and will be made public as soon as possible. A short summarized description of the method is given in the following.

The method is fully automatic, and only requires the thick-slice T1-weighted scan (T1 sequences). We begin with enhancing the contrast with histogram equalization, then pass each slice to a fully convolutional network. During inference, the regions that do not superpose importantly with the brain mask given by the inference result of the 24th slice (middle of the brain) are automatically considered as background. The training process is based on the provided train images with classical dataset augmentation strategies. The provided label structures (0-8 for each tissue) are used. The average runtime during test is less than **2 seconds** averaged on all the 15 test images using one NVIDIA GeForce GTX 1080 GPU.