Combination of U-Net and Densely Connected Convoluational Networks

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Abstract. Brain lesion segmentation is an advanced challenging problem which has been handled by only experienced clinician and could not be localized using a single brain imaging method. Thus, it is essential to analyze it as multi modality sense. To address this challenge, we take convolutional neural network, specially U-Net[1], 3D U-Net [2], and Densely Connected Convolutional Network[3]. In feature selection, first of all, we searched the best combination of multi data sets and the best number of convolutional neural layers considering computation cost, accuracy, and overfitting problem. With different numbers of image dataset combination, each different image of training data is ensembled to learn at the front of the bridge part between encoding (convolution layer) and decoding (deconvolution layer) in the proposed network. Furthermore, we consider the type of data extraction of the images (2D and 3D patch) and refining the result such as conditional random field (CRF).

I am the corresponding author of the abstract and in the name of all co-authors I declare that MICCAI has the right to distribute the submitted material to MICCAI members and workshop, challenge and MICCAI conference attendees.

References

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