

# Multi-UDense-Net: Brain Segmentation for multi-modal

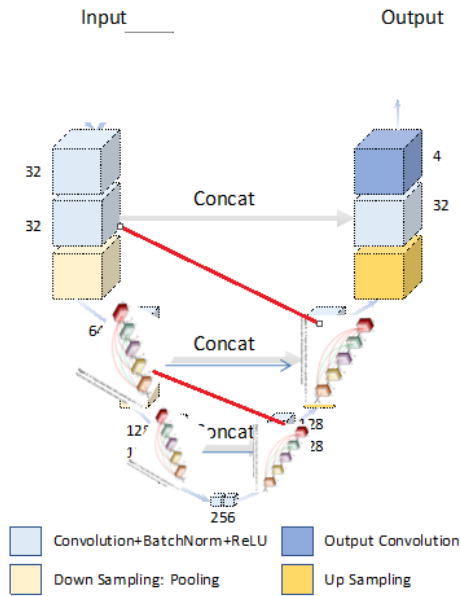
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- Our algorithm is automatic. Input size is 48x64x64 and the average time spent per scan is around 4min for automatic algorithm.
- We used the combination from start-of-the-art model and achieved good performance results. We scanned all 3 modality T1, T1\_IR, T2\_FLAIR.

From 3D-Unet, DenseNet, HyperDenseNet model (also called cross-link). We combine them in order 3D-Unet, DenseNet, Cross-link. Inside, Unet is standard model, we replace Convs in the contracting path of Unet to DenseNet. Then we add cross connections from contracting path to expansive path, as follows:

From the begin of contracting path, after up-sampling at the first layer, we made two calculations. The first, concatenate with symmetric layer in the expansive path. The second, concatenate with early layer that just concatenate at the first calculation of the contracting path. The end, we combined the results in just two steps. And we continue to do the same calculations twice for the second layer, third layer...until the last layer.

- **Structure of the algorithm:**



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- The average runtime for my algorithm is 4minutes for every subject in TestData of MBrainS13.
- Our model achived 87.74% about DSC performance on validation.

The end