

# Brief Description for MRBrainS18 - HUST-LRDE

Canpei Hu, Yongchao Xu

August 15, 2018

We use a HED-like [1] FCN structure with VGG16 as backbone, with carefully preprocessing. We use preprocessed T1,IR,FLAIR volumes.

**Preprocessing:** 1) histogram equalization(only for T1); 2) stack 3 continue slices as a RGB image; 3) rotate for  $[0, \pm 5, \pm 10, \pm 15]$  for data augmentation; 4) crop to reduce background in image and ensure width and height can be divided by 16; shown in 1

**Pipeline:** Following [2], which is a HED-like [1] structure. It is an succinct and efficient decoder, which can handle little object better. Simply pass image in 3 modalities through 3 streams of VGG, and concat them in every stage, shown in 2.

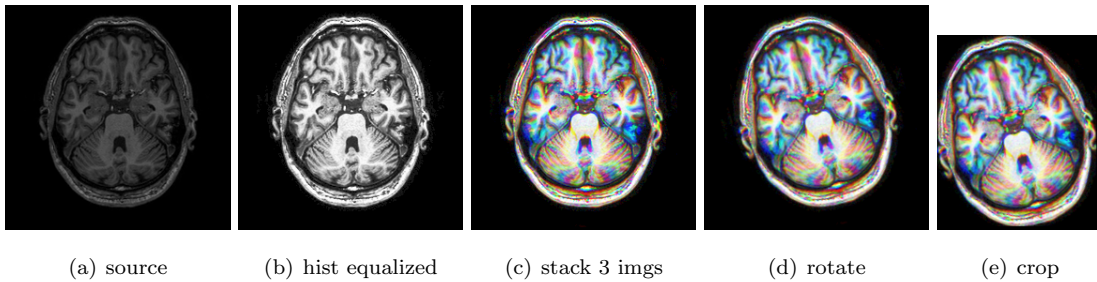


Figure 1: preprocess

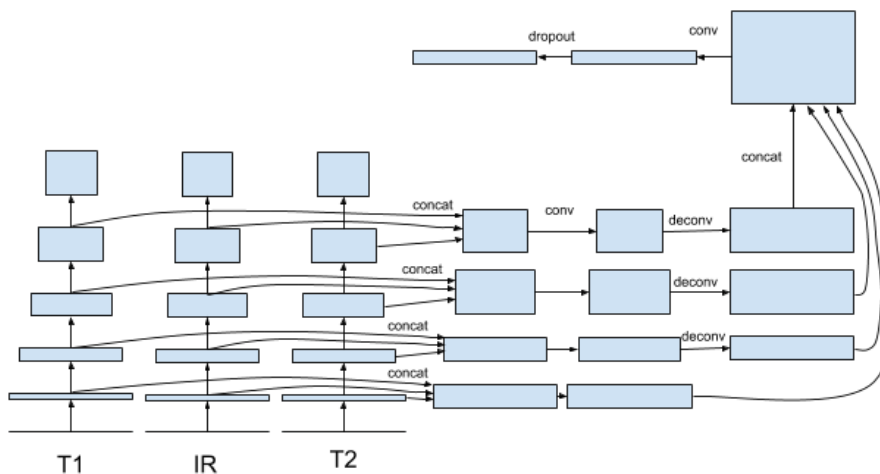


Figure 2: pipeline

## References

- [1] Saining Xie and Zhuowen Tu. Holistically-nested edge detection. In *IEEE International Conference on Computer Vision*, pages 3–18, 2016.
- [2] Yongchao Xu, Thierry Géraud, Isabelle Bloch, and Télécom ParisTech LTCI. From neonatal to adult brain mr image segmentation in a few seconds using 3d-like fully convolutional network and transfer learning. In *Proceedings of the 23rd IEEE International Conference on Image Processing (ICIP), Beijing, China*, pages 4417–4421, 2017.