

# Longitudinal segmentation

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May 11th, 2017

# What I have been doing I

- ▶ Cascaded network
- ▶ Balanced dataset
- ▶ Deformation fields
- ▶ PD-2, T2-w, FLAIR
- ▶ Subtraction layers

## What I have been doing II

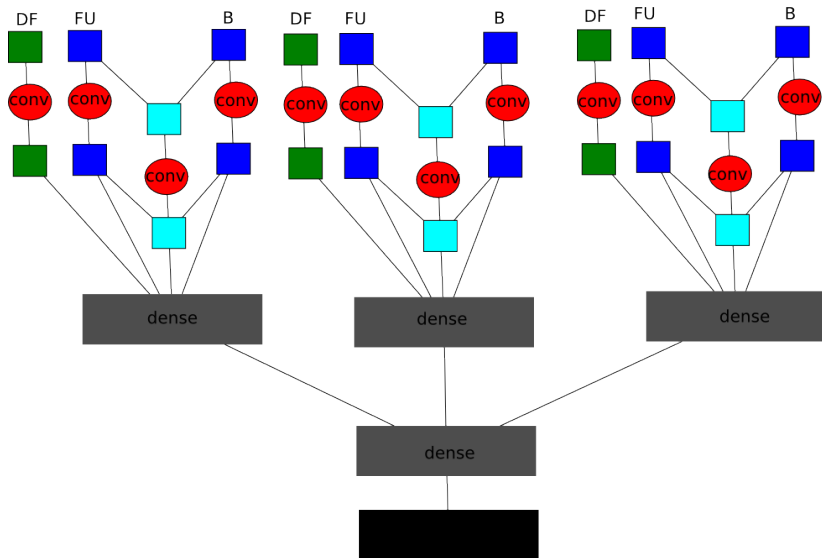


Figure 1: Scheme

# What I am doing

- ▶ Unbalance the second CNN
  - ▶ 250k parameters
  - ▶ Positives all (10k samples)
  - ▶ Negatives all voxels with  $p_{lesion} > 0.5$  (250-400k samples)
- ▶ “Transfer learning” with unbalanced data
  - ▶ 150k parameters
  - ▶ Positives all (10k)
  - ▶ Negatives from iter 1 + voxels with  $p_{lesion} > 0.5$  (250-400k samples)

## Example

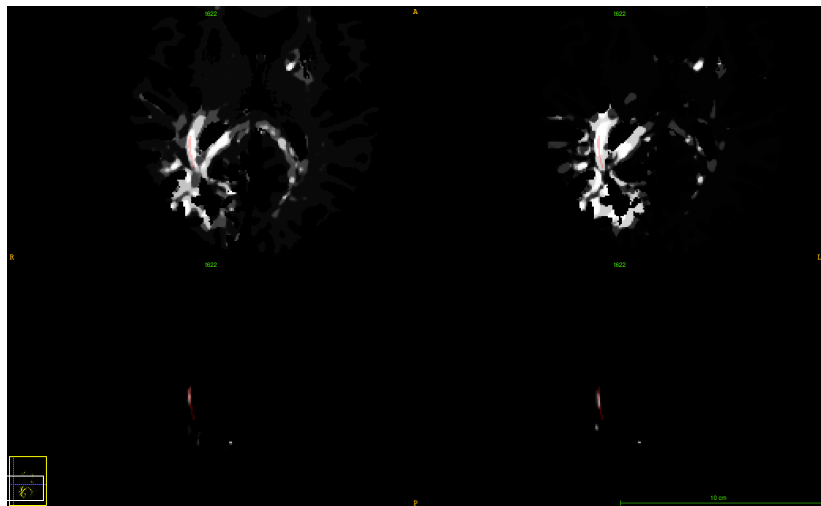


Figure 2: a) Iter 1, b) Iter 2 balanced, c) Iter 2 unbalanced, d) Iter 2 “transfer”

# Results

- ▶ Still working on it but...
- ▶ A lot of 0.7 segmentation DSC