

A comparison of FSL's FAST and dipy's TissueClassifierHMRF

Try to figure out this two functions have the same effect when segment the input image

Because FSL's FAST and dipy's TissueClassifierHMRF Code according to the same article. So I guess this two function have the same effect. I need to confirm this idea next week, and I write a tutorials of FAST and dipy's TissueClassifierHMRF. The article is:

*Zhang, Y. and Brady, M. and Smith, S. Segmentation of brain MR images through a hidden Markov random field model and the expectation-maximization algorithm. IEEE Trans Med Imag, 20(1):45-57, 2001.*

FSL's FAST

FMRIB's Automated Segmentation Tool (FAST) can segment a 3D image of brain into different tissue types (Grey Matter, White Matter, CSF, etc.). Before running fast an image of a head should first be brain-extracted, using BET. The resulting brain-only image can then be fed into FAST.

<https://fsl.fmrib.ox.ac.uk/fsl/fslwiki/FAST>

Dipy's TissueClassifierHMRF

This is a class contains the methods Classifier.

Classify (self, image, nclasses, beta, tolerance=None, max\_iter=None)

This method can segment image into initial\_segmentation (ndarray), final\_segmentation (ndarray), PVE (ndarray)

<https://github.com/nipy/dipy/blob/master/dipy/segment/tissue.py>

Also there is an example of how to use the methods classifier

[https://github.com/nipy/dipy/blob/master/doc/examples/tissue\\_classification.py](https://github.com/nipy/dipy/blob/master/doc/examples/tissue_classification.py)

Maybe I need one more week to figure out whether FAST can be replaced by dipy's TissueClassifierHMRF