ER-flow Application Description Template

Application Name: Trac-all

Application domain: Medical Imaging

Brief description of application

Trac-all is a tool for automatic reconstruction of a set of major white-matter pathways from diffusion-weighted MR images. It uses global probabilistic tractography with anatomical priors. Prior distributions on the neighboring anatomical structures of each pathway are derived from an atlas and combined with the FreeSurfer cortical parcellation and subcortical segmentation of the subject that is being analyzed to constrain the tractography solutions. This obviates the need for user interaction, *e.g.,* to draw ROIs manually or to set thresholds on path angle and length, and thus automates the application of tractography to large datasets. (see http://freesurfer.net/fswiki/Tracula for more information).

Data:
input data format: compressed output of FreeSurfer, DTI Preprocessing and BedpostX
output data format: an archive containing the results of the various steps
sample data: lfn:/grid/vlemed/AMC-e-BioScience/medical-imaging/tracula/sample-data/
application http://freesurfer.net/fswiki/trac-all
documentation http://freesurfer.net/fswiki/trac-all

Execution environment
DCI: (EGI, SRM/LFC, vlemed VO)
middleware: gLite, CVMFS workflow system: WS-PGRADE

Execution characteristics
input: 3x100MB, 1 to hundreds output: 150MB, many organized
processing time (per unit): 2 - 6 hours
memory usage: n.a. disk usage: ~2GB

Target users
Neuroscientists, radiologists, psychiatrists of the AMC Brain Imaging Center
http://www.lebic-amc.nl

number of users: 10+
user type: end-user

Usage scenario for workflow in the ER-FLOW
This workflow has been implemented and published on the SHIWA repository with appropriate documentation, metadata and sample data. Due to licensing of Freesurfer, only vlemed VO members can run application.
Users start Trac-all from the AMC science gateways. Additionally, the workflow can be accessed and executed via the SHIWA Portal by external users.

Contact information (workflow developers)
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