HINT Tutorial

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Downloading HINT and the example data

The current version of HINT can be downloaded from github at:
`https://github.com/Emory-CBIS/HINT`

The tutorial data, as well as these slides, can be downloaded from github at:
`https://github.com/JoshLukemire/HINTTutorial`

Opening the toolbox

- Navigate to the HINT folder you downloaded from github
- Open the "hint.m" file in Matlab
- Click run to start up the GUI

HINT GUI

The HINT GUI consists of three panels, each corresponding to a part of an hc-ICA analysis.

1. Prepare Analysis
2. Run Analysis
3. Visualize

The prepare analysis panel is where the bulk of the work takes place. Here you will:

- Specify and analysis folder and prefix
- Load the data and setup the model
- Preprocess the data
- Obtain an initial guess for the EM algorithm
- Remove unwanted independent components from the analysis

Example Data

IN THIS SLIDE FILL OUT THE OUTPUT FOLDER AND THE PREFIX, SHOW EXAMPLE OF OUTPUT FOLDER, SHOW EXAMPLE LOG

Loading the data

You have two options for loading the data. First, you can start a new analysis by inputting the nifti files, the mask, and the covariates. Alternatively, if you have already run an hc-ICA analysis before and want to modify it, you can load the previous analysis. FIRST DO BASIC VERSION, THEN LATER INI REDO WILL DO LOAD SAVED ANALYSIS

Loading the data

IMAGE OF LOAD DATA WINDOW GOES HERE, IN PRESENTATION WILL SWITCH TO MATLAB

Model Specification

Now that the data is loaded, we need to specify the model. Click on the CHECK FINAL BUTTON NAME

Model Specification

IMAGE OF MODEL SPEC WINDOW WITH EXPLANATIONS GOES HERE

Model Specification

IMAGE OF MODEL SPEC WINDOW WITH AFTER SPECIFYING INTERACTIONS GOES HERE

Analyses in HINT require the data to be demeaned and prewhitening. The toolbox handles this in the XXX sub-panel. SHOW IMAGE OF THAT PANEL HERE. It is here that you select the number of principal components for the initial data reduction, as well as the total number of independent components in the model.

The EM algorithm requires an initial guess to XXXXXXXX. INCLUDE IMAGE, EXPLAIN DONE USING GIFT TOOLBOX AND THAT THIS IS WHERE NUMPCA MATTERS.

SHOW OUTPUT VIEWER

stuff goes here

THINGS TO SHOW: 1 POPULATION LEVEL VIEWER, MASK CREATION; 2 COVARIATE VIEWER, CONTRASTS; 3 SUB POP VIEWER, SHOW SIDE BY SIDE COMPARISON

FOR THIS EXAMPLE, HAVE THEM CLOSE OUT MATLAB, REOPEN AND LOAD THE RUNINFO FILE, THEN HAVE THEM REESTIMATE THE INTIAL GUESS AND RMEOVE ONE OF THE ICS. THEN HAVE THEM RUN IT FROM A SCRIPT ANALYSIS AND SHOW THEMM THE COMPILE RESULTS OPTION. THIS IS ALSO A GOOD TIME TO SHOW THE ITERATION RESULT SAVING.