

Tuesday, February 11, 2014

12:00 PM

Agenda:

1. Mechanics of shape data collection and analysis
 - a. Basic imaging data: FreeSurfer that was used in the subcortical volume meta-analysis
 - b. Initial sites: NU, FBIRN, Upenn, Indiana, COINS (maybe)
2. Site, Role, PI and programmer
 - a. USC: Mesh data scripts/QA/Radial distance/data aggregation/vertex-wise analysis, Paul Thompson, Boris Gutman
 - b. NU: QA/PCA/data aggregation/Data site Lei Wang, Kate Alpert
 - c. Indiana: Vertex-wise analysis/Data site, Li Shen, TBA
 - d. FBIRN: Data site, Theo Van Erp
 - e. Upenn, Data site, Ted Satterthwaite
 - f. COINS: Data site, Stefan Ehrlich, TBA - to be solicited
3. Scope of the ENIGMA subcortical shape meta/mega analysis, to be carried out in several stages
 - a. Mesh data collection:
 - i. Boris will be responsible for the scripts that generate mesh data. Mesh data will have corresponding nodes across subjects.
 - ii. The programmer at each site will be responding to emails and running the mesh-data scripts on their FreeSurfer data and sending the mesh data back to the shape coordinating sites (NU and USC), which will create an ftp site for data upload.
 - iii. Each site will also upload a group category file (indicating SCZ, CON).
 - b. Mesh data QC:
 - i. Boris and Kate each may have mesh data QA that can be run on the mesh data to detect outliers, which can be inspected and rejected if necessary.
- C. Initial SCZ-CON vertex-wise meta-analysis, no covariates
 - i. Subcortical volumes can be first calculated to confirm/verify volume meta-analysis results.

- ii. The uploaded mesh data can be further converted to formats that can calculate vertex-wise effect size through GLM. NU and USC will generate site/group-wise averages for such analyses.
 - iii. Li Shen and Boris Gutman will perform vertex-wise meta-analysis based on site data.
 - iv. We can start with hippocampus to make sure everything works. Then thalamus, then other subcortical structures.
- 4. Future steps: Once we confirm that straight-forward SCZ-CON comparison makes sense, more analyses can be done:
 - a. Adding other variables as covariates.
 - b. Different shape measures such as radial distance, PCA-based, harmonics-based.
 - c. The mesh data from all sites can be available for other people to propose analysis approaches.
- 5. Immediate goals and work assignments for each site
 - a. We want to write the first paper on performing cross-site shape analysis. The paper will include cross-site QC, vertex-wise meta-analysis comparing SCZ-CON with no covariates. Results should be visualized on the vertices.
 - b. Boris
 - i. Beta test scripts with Kate and Theo, then get the mesh scripts out.
 - ii. Make sure the mesh data that comes back are organized in a way that we can perform above procedures.
 - iii. QC with site data.
 - c. Kate
 - i. Work with Boris on converting mesh data to BYU format. This can be included in the mesh data script so all data that come back are already converted to BYU.
 - ii. Work with Lei on QC scripts, to be used by data site.
 - iii. Get Alex Kogan to make an ftp upload with password, with mirror site at USC.
 - iv. Initially all running at NU and USC:
 1. With BYU data, we can easily perform vertex-wise GLM for site data.

2. Create scripts for this to be done at data site rather than at NU and USC in the future.

d. Li

i. Work with Kate on passing the vertex-wise GLM results to meta-analysis.

Attendees:

- Lei Wang
- Paul Thompson
- Boris Gutman
- Kate Alpert
- Li Shen

Action Items:

See #5 "Immediate goals and work assignments for each site" above.

Timeline: two months.