ENIGMA Shape Stats Quick Guide

This short guide is meant to guide you through the steps needed to compute statistical maps on vertex-wise measures generated with the ENGIMA-Shape (a.k.a. “Medial Demons”) package. The entire package, including the statistical analysis portion, can be downloaded here: <http://bit.ly/1RSoUyP>

The basic steps are as follows:

1. Download the shape package. If you have not done so already, follow instructions to generate surface data from your FreeSurfer parcellations, and record visual quality human rating (AutoQA.sh).

In your Rscripts directory (part of the shape zip file you downloaded):

1. Modify and run a new copy of the **configure\_shape\_4stats\_{your working group disorder}\_EXAMPLE.sh** file. The example variable settings and comments should make this fairly straight-forward. Only a few lines need changing to customize for your data. For detailed instructions, see the README document.

Once run successfully, this will generate several scripts in your shape output directory. You will need to run some of them in the following order:

**IMPRTANT**: Please make sure you QA\_Status file has headers like this:

SubjID,T1,R10,R11,R12,R13,R17,R18,R26,R49,R50,R51,R52,R53,R54,R58

Allowed variations are ROI\_{id} and ROI{id}. Else, your QC will not be used.

If you simply marked failed subjects using the alterative format, you will need to convert this to a rating format, e.g. by adapting ENIGMA\_shape\_qa\_rearrange.R

1. Run **configure\_data\_{your cohort name}.sh** script. This should take roughly 0.5 – 1 seconds per subject. See the README for what this does.
2. Run the two **mass\_uv\_regr\_** scripts with q-sub as follows:

**qsub -t 1-14 .../{shape output directory}/mass\_uv\_regr\_IGC\_shapes\_{your cohort name}\_uni.sh**

**qsub -t 1-14 .../{shape output directory}/mass\_uv\_regr\_IGC\_shapes\_{your cohort name}\_bil.sh**

If you do not wish to use qsub, you can run this serially. See the README for how to modify the scripts to do this (one-line change in each.)

1. Run **collect\_shape\_stats\_${cohort}.sh** script, which will generate two files in your shape output directory:

**shape\_stats\_2send\_${model\_list}\_${cohort}\_uni.tar.gz**

**shape\_stats\_2send\_${model\_list}\_${cohort}\_bil.tar.gz**

These files represent all the group-level vertex wise information from your study we will need for meta-analysis in ENGIMA. Please send these to the IGC shape team (Artemis Zavliangos-Petropulu, Boris Gutman, Chris Ching)