

## **Final Project**

**Presentation date: 5/2/13 (during class time)**

**Paper due date: 5/3/13**

The goal of the final project is to have hand-on experience to design your experiment, implement an E-Prime paradigm, collect your own data, analyze and present them. The whole class will finish this project together. Each student will analyze the data of his/her own brain.

The final project should be summarized in a peer-reviewed journal format as following:

- (1) **Introduction:** Please include some review of literature related to the project. Please state the specific hypotheses that you want to test in this project.
- (2) **Methods:** Describe the experiments, including the number of subjects you scanned, the stimuli, E-Prime program, data acquisition, and how you analyzed the data.
- (3) **Results:** (a) group results, (b) results of each subject (each student shows his/her own data).
- (4) **Discussion:** Discuss your preliminary results and why your methods can answer your cognitive neuroscience questions. What are the limitations?

For the writing, you can use my Indoor-Outdoor paper as an example. I will look for clarity, completeness, and most importantly how well you apply what you have learned in my fMRI class.

## Design Details

Part I) stimulus-based fMRI

Design:

Two runs

Each run 7-8 minutes.

Block design,

Stimulation type 1 (easy math):  $2 + 6 + 2 = ?$

Stimulation type 2 (difficult math):  $2 + 6 \times 2 = ?$

Feedback at end of block.

2.5 sec per trial.

TR = 2.5 sec.

How many trials?

Contrast of interest: difficult math – easy math

Modify the scripts in the Lab “fMRI Block Experiment Design” for the design.

Part II)

Two runs of 7-min resting-state fMRI.