Lateralization in Brain Function

The brain is lateralized for some percepts, including faces [1], while not lateralized for others.

Are representations in lateralized regions less redundant (different and informative representations in both hemispheres) than those in not-lateralized regions?

Organizational inconsistencies between hemispheres make homologous ROI selection difficult.

This project develops a coordinate system that builds off inter-hemispheric anatomical consistencies, and applies standard MVPA techniques to corresponding ROIs to determine lateralized information redundancy.

Visual Task

The data [2] for this project was collected from subjects that viewed 4 different types of stimulus (faces, words, numbers, tools/objects), followed by a task of deciding if the two stimuli examples shown were different, or just a rotation of the same stimulus.

MVPA Searchlights

To analyze the redundancy in representations between corresponding ROIs, standard Multi-Voxel Pattern Analysis (MVPA) searchlight techniques are applied to each hemisphere’s ROI data separately, and to the combination of the corresponding ROI data.

Acknowledgements: This work was possible due to the CNBC uPNC summer research program and the LENS lab of Dr. Marc Coutanche.

References: