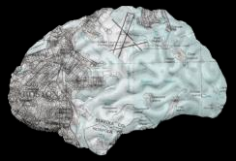




Memory, Attention, and Perception (MAP) Lab

PI: Scott D. Slotnick



In the MAP lab, we investigate the cognitive neuroscience of visual memory and visual attention, capitalizing on the well-known functional-anatomic organization of visual perception. We employ multiple techniques, including behavioral studies, computational modeling, fMRI, EEG, and TMS, to shed light on the complex nature of processing in the human mind and brain. Our research often runs counter to the majority view, with a focus on novel cognitive/neural processes and debated topics, which makes the MAP lab an interesting place to work!

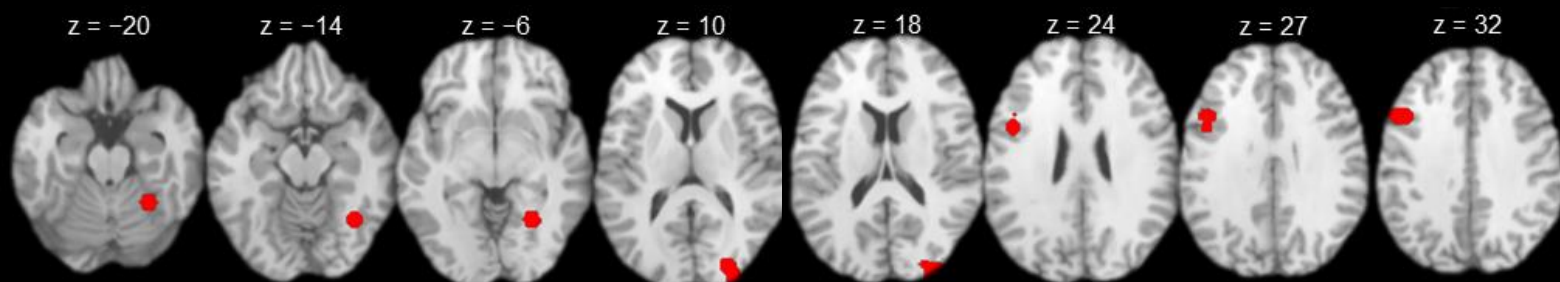
Some recent work from our lab includes:

Fritch et al. (2020). The anterior hippocampus is associated with spatial memory encoding.

In this functional magnetic resonance imaging study, we distinguished between the hypothesis linking encoding to the anterior hippocampus and the hypothesis linking spatial memory to the posterior hippocampus. We conducted a multi-voxel pattern analysis to assess whether there were distinct patterns of activity associated with the encoding of abstract shapes in four visual quadrants (upper-left, upper-right, lower-left, and lower-right) within the anterior or posterior hippocampus. Classification accuracy for items at encoding was significantly above chance in the anterior, but not posterior hippocampus indicating that spatial memory encoding is associated with patterns of activity in the anterior hippocampus.

Spets & Slotnick (2020). Are there sex differences in brain activity during long-term memory? A systematic review and fMRI activation likelihood estimation meta-analysis.

The degree to which sex differences exist in the brain is a current topic of debate. In this paper we sought to identify whether specific brain regions were associated with sex difference across a variety of long-term memory types. An activation likelihood estimation (ALE) meta-analysis was conducted to identify brain regions activated by a greater degree by females than males or males than females. This analysis revealed sex differences (male > female) in the lateral prefrontal cortex, visual processing regions, parahippocampal cortex, and the cerebellum. These findings question the widespread practice of collapsing across sex in the field of cognitive neuroscience.



Results of the ALE meta-analysis. Male > female long-term memory activity in red.

MAP Lab is currently full and is not accepting RAs at this time