

Debriefing

In the Princeton Computational Memory lab, we use computational models to explore how the brain gives rise to learning and memory phenomena, and then we test the predictions of these models using neuroimaging studies where we decode people's thoughts as they learn and remember. With other Princeton researchers, we are also developing new machine learning methods for analyzing distributed patterns of neural activity. We use these new analysis tools to track how thoughts and memories change over time.

The study you participated in will help us to answer questions such as "How do stored memories change as a function of experience?" and "What causes the neural patterns underlying memories to become stronger or weaker, more or less similar?" To address these questions, we explore the role of competitive dynamics in shaping learning. We hypothesize that when memories compete, high levels of memory activation lead to memory strengthening and integration of the competing neural patterns, whereas moderate levels of memory activation cause weakening of the memories and differentiation of the competing neural patterns.

If you have any questions about the research, please visit our lab's website at <http://compmem.princeton.edu/research/> and/or contact the lead researcher for the experiment you just completed, Dr. Paul Scotti (scottibrain@gmail.com).