

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.

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).

Below are some publications relevant to the study you just participated in:

Favila, S. E., Chanales, A. J., & Kuhl, B. A. (2016). Experience-dependent hippocampal pattern differentiation prevents interference during subsequent learning. *Nature Communications*, 7(1), 1-10. <https://doi.org/10.1038/ncomms11066>

Wanjia, G., Favila, S.E., Kim, G. *et al.* Abrupt hippocampal remapping signals resolution of memory interference. *Nature Communications*. 12, 4816 (2021). <https://doi.org/10.1038/s41467-021-25126-0>