A Hierarchical Bayesian Approach to Inferring Mnemonic Status from the Brain

Submission ID   3000298

Submission Type   Poster

Topic   Cognitive Science

Status   Submitted

Submitter   Shannon Tubridy

Affiliation   New York University

SUBMISSION DETAILS

Presentation Type Poster Presentation

Presentation Abstract Summary One goal of cognitive science is to build theories of mental function that predict individual behavior. In this project we focus on predicting which word pairs in a list will be remembered at some point in the future. Contemporary approaches to this problem primarily utilize behavioral measures such as performance on quiz questions or judgements of learning. Our central hypothesis is that better prediction will come by jointly modeling both neural and behavioral data mediated by a computational cognitive model which captures the dynamics of memory retrieval over time. We lay out a framework theory for combining neural and behavioral data and present some preliminary data and simulations supportive of our approach.

Paper Upload (PDF) tubridyetal_ccn_2017.pdf

Co-author Information

* Presenting Author

First Name	Last Name	Affiliation	E-mail
Shannon *	Tubridy *	New York University	st704@nyu.edu
David	Halpern	New York University	david.halpern@nyu.edu
Lila	Davachi	New York University	lila.davachi@nyu.edu
Todd	Gureckis	New York University	todd.gureckis@nyu.edu

Keywords

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memory
fmri

cognitive model
joint modeling