Dev Laxman Subramanian

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EDUCATION

Ph.D. in Psychology (Neuroscience Specialization), Cornell University — Aug '17 - Present, Ithaca, NY
• Sage Fellow (20% of doctoral students at Cornell)

M.S. in Applied Cognition and Neuroscience, The University of Texas at Dallas (GPA: 3.93/4.0) — Aug '15 - May '17, Dallas, TX
• Computational modeling specialization
• Selden Leavell Scholarship awarded.

B. Tech. in Electronics and Comm. Engineering, Maulana Azad National Institute of Technology — Jul '11 - May '15, Bhopal, India

RESEARCH EXPERIENCE

Researcher/Data Scientist — Aug '17 - Present
Behavioral Neuroscience area, Dept. of Psychology, Cornell, with Dr. David M. Smith — Ithaca, NY
Analyzing rodent electrophysiological recordings to understand the neural basis of Episodic memory.

- Discovered 'Time cells' in the Retrosplenial cortex and analyzed the mechanisms of temporal encoding in the Retrosplenial cortex.
- Applied various analytical methods including statistical models to compare the similarities and differences in the spatial and contextual memory encoding properties in the Hippocampus and the Retrosplenial Cortex.
- Decoded neural activity using Machine/deep learning approaches.
- Experience working with several different behavioral datasets collected in our lab.

Graduate researcher/Data Analyst — Sep '15 - May '17
Aging and Memory research lab of Dr. Lucien T. Thompson, UT Dallas — Dallas, TX
Studied the effects of D-Cycloserine on the Hippocampal Place cells in rats.

- Set up the electrophysiology recording system.
- Automated the spike sorting process to separate the neural spiking activity from noise.

TECHNICAL SKILLS

Neuroscience In vivo electrophysiology, Single-unit and population spiking analysis, Neural decoding, Signal processing, Spike sorting

Data analysis Neural data cleaning, Data visualization (seaborn, matplotlib), Hypothesis testing, Sampling, Correlation analysis, Statistical modeling (Linear Non-linear model, Hidden markov model), Dimensionality reduction, Information theoretic analysis, Bayesian decoding, Machine learning, Deep learning

Programming Languages Python, MATLAB, R, C, HTML, CSS

Software packages Adobe illustrator, DeepLabCut, Spikesort3D, SPSS

CERTIFICATIONS

Deep learning online summer school, Neuromatch Academy — Jul' 23
Advanced learning algorithms, Coursera — Oct '22
Supervised Machine learning: Regression and Classification, Coursera — Aug '22
Scientific computing and Python for Data science, Worldquant University — Sep '19
Computational Neuroscience summer school, Dartmouth College, Hanover, NH — Aug '19

PUBLICATIONS

Subramanian D.L., Miller A.M., Smith D.M. (2024) A Comparison of Hippocampal and Retrosplenial Cortical Spatial and Contextual Firing Patterns. Hippocampus (In press; here's the accepted final version)

Subramanian D.L. & Smith D.M. (2023) Time cells in the retrosplenial cortex. Society for Neuroscience (SFN) abstract (manuscript under review in Hippocampus; pre-print available on Biorxiv)

Smith D. M., Yang Y. Y., Subramanian D. L., Miller A. M. P., Bulkin D. A., & Law L. M. (2022) The limbic memory circuit and the neural basis of contextual memory. Neurobiology of Learning and Memory, 187