Sophie D. Allen

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Education

Florida State University *Tallahassee, Florida*
BS Psychology and Biomathematics *June 2020 - Present*
- 3.86/4.00 GPA

Research Experience

Summer Internship | Department of Psychology, University of Toronto *Toronto, ON*
Advisor: Dr. Morgan Barense *May 2023 - Present*
- Contributed to the project "Understanding the role of anterolateral entorhinal cortex in configural processing across the lifespan." supervised by Natalia Ladyka-Wojcik.
- Utilized ITK-SNAP to manually segment specific regions in the Medial Temporal Lobe (MTL) across 50 participants.
- Independently undertook the reconfiguration of a entorhinal-hippocampal circuit computational model.

Research Assistant | Department of Scientific Computing, Florida State University *Tallahassee, FL*
Advisors: Dr. Alan Lemmon and Dr. Emily Lemmon *Oct. 2021 - Present*
- Contributed to the project "Modeling neural circuits to understand incipient speciation in Chorus Frogs."
- Applied advanced optimization techniques, including the Nelder-Mead optimization, within MATLAB to refine a neural amphibian model by incorporating behavioral data.
- Designed a graphical interface to showcase neuron spiking in the female Chorus Frog's midbrain in response to male calls.

Research Assistant | Department of Psychology, Florida State University *Tallahassee, FL*
Advisor: Dr. Chris Martin *Jan. 2021 - Present*
- Coordinated the research project "Differential engagement of dorsal and ventral medial prefrontal cortex in retrieval of semantic and episodic memory."
- Utilized MATLAB to generate word lists used as stimuli and employed E-Prime3 to create fMRI experimental designs.
- Conducted fMRI data collection and programmed a pipeline to perform data analysis using AFNI, FSL, MATLAB, and CONN.
- Manually segmented the hippocampus and perirhinal cortex in 30 participants and developed Bash scripts to create probabilistic segmentations using FSL.
- Programmed a pipeline using Bash scripting and MATLAB to conduct representational similarity analyses on fMRI data.

Research Assistant | Department of Psychology, Florida State University *Tallahassee, FL*
Advisor: Dr. Chris Patrick *July 2021 - May 2023*
- Applied 64-channel EEG caps and other biometric sensors (EMG, SCR, EKG) and recorded psychophysiological data using Neuroscan Curry8 program.
- Trained and supervised a team of undergraduate students, providing instruction on study protocol, participant interaction, EEG cap application, and data collection software.
- Processed Event Related Potentials (ERPs) from EEG data using Brain Vision Analyzer (BVA).

Honours, Awards, Grants & Scholarships

2023	**The Tyler Center For Global Studies IDEA Grant**, Florida State University	*$ 4,000*
2022	**Gilman Scholar**, Benjamin A. Gilman International Scholarship Program	*$ 4,000*
Fall 2022	**Dean's List**, Florida State University	
2022 - 2023	**1st Generation Matching Grant**, American Endowment Foundation	*$ 3,000*
2022 - 2023	**Goldwater Scholar**, The Barry Goldwater Scholarship and Excellence in Education Program	*$ 7,400*
2021 - 2022	**Wilson Family Endowed Scholarship**, Florida State University	*$ 3,000*
2020 - 2023	**President's Lists**, Florida State University	
2020 - 2023	**Florida Medallion Scholar**, Florida Bright Futures Scholarship Program	*$ 25,600*

Manuscripts

Allen, S.D., Connolly, C.G., Martin, C.B., (*in prep*). Differential engagement of dorsal and ventral medial prefrontal cortex in retrieval of semantic and episodic memory.

Posters

Allen, S.D., Connolly, C.G., & Martin, C.B., (*abstract under review*). Differential engagement of dorsal and ventral medial prefrontal cortex in retrieval of semantic and episodic memory. Neuroscience 2023, Society for Neuroscience, Washingtion, D.C.

Ladyka-Wojcik, N., **Allen, S.D.**, Liang, J.C., Olsen, R.K., Ryan, J.D., & Barense, M.D., (*abstract under review*). Understanding the role of anterolateral entorhinal cortex in configural processing across the lifespan. Neuroscience 2023, Society for Neuroscience, Washingtion, D.C.

Allen, S.D., Martin, C.B. (2023). The neural basis of cognitive control in task-relevant long-term memory retrieval. Undergraduate Research Symposium, Florida State University, Tallahassee, FL.

Allen, S.D., Lemmon, A. (2023). Modeling neural circuits to understand incipient speciation in Chorus Frogs. Computational Exposition, Florida State University, Tallahassee, FL.

Allen, S.D., Martin, C.B. (2022). The neural basis of task-relevant memory retrieval. Undergraduate Research Symposium, Florida State University, Tallahassee, FL.

Technical Skills

Programming Languages: MATLAB, Bash, Python, R, Julia, LaTeX, SAS, SPSS
Neuroimaging Software: AFNI, FSL, CONN, ITK-SNAP, BVA, Curry8
Experiment Programming: E-Prime3, Qualtrics, GorillaSC, PsychoPy

Outreach & Service

May 2023 **Math Fun Day**, Station Volunteer
April 2022 **Homeschooled Group Science Class**, Neuroscience Teacher
March 2022 **Brain Fair**, Station Volunteer

On-Campus Involvement

Pi Mu Epsilon | Mathematics Honor Society | Vice President of Communications
Psi Chi | Psychology Honor Society | Member
C.A.R.E. | Program for First Generation College Students | Member

Professional Development

MTL Segmentation Workshop. Attended a comprehensive three-day tutorial focused on manual MTL segmentation led by Dr. Rosana Olsen at the University of Toronto. The workshop took place from May 24th to May 26th, 2023.

Undergraduate Research Opportunity Program (UROP). Participated during the Fall 2021 and Spring 2022 semesters, attending bi-weekly research colloquia. Collaborated with and received mentorship from Dr. Chris Martin for a research project. Successfully presented my research findings at the culmination of the Spring 2022 semester.

Other Work Experience

Barista & Baker *Tallahassee, FL*
La Florida Coffee & Wine *June 2022 - Present*

- Coffee Brewing Expertise: Proficient in the art of pulling impeccable espresso shots and crafting stunning latte art.
- Bakery Skills: Skilled in crafting a variety of pastries, muffins, cookies, and bread.
- Wine Connoisseurship: Demonstrating a keen understanding of pouring techniques, ensuring a flawless 5 oz. pour.