

# Sophie D. Allen

Tallahassee, Florida

☎ +1 863-832-4277 | ✉ sda20a@fsu.edu | 🏠 <https://sophiea317.github.io/>

## Education

### Florida State University

BS PSYCHOLOGY AND BIOMATHEMATICS

- 3.86 GPA

Tallahassee, Florida

June 2020 - Present

## Research Experience

### Summer Internship | Department of Psychology, University of Toronto

Toronto, ON

ADVISOR: DR. MORGAN BARENSE

May 2023 - Present

- Contributed to the project titled “Understanding the role of anterolateral entorhinal cortex in configural” under the supervision of Natalia Ladyka-Wojcik.
- Utilized ITK-SNAP to manually segment specific regions in the Medial Temporal Lobe 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 circuit 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 performed comprehensive 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 - 2024	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, Washington, 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, Washington, 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

---

2023 - 2024 **Pi Mu Epsilon**, Vice President of Communications

2022 - 2024 **Psi Chi**, Member

2020 - 2024 **Center for Academic Retention and Enhancement (CARE)**, 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 Experiences

---

### Barista & Baker

LA FLORIDA COFFEE & WINE

Tallahassee, FL

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.