

# Sarah Pugliese

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## Education

**University of Washington**, Graduate Program in Neuroscience  
Seattle, WA · 2022 - present

**Brown University**, Sc.B. in Applied Mathematics-Biology  
Providence, RI · 2016 - 2020

## Research Experience

**Tuthill Lab and Brunton Lab**, Ph.D. Candidate

University of Washington · Seattle, WA · September 2022 – present

Integrating connectome datasets and a biomechanical model to study the circuit basis of leg motor control in the *Drosophila melanogaster* ventral nerve cord.

**Flavell Lab**, Research Support Associate

Massachusetts Institute of Technology · Cambridge, MA · June 2020 - July 2022

Investigated neural circuit mechanisms of persistent behavioral changes in *C. elegans*. Approached research questions using optogenetics and chemical stimuli in combination with behavioral quantification, calcium imaging, and molecular cloning techniques. Implemented new behavioral analysis pipelines for this project and others in the lab.

**Jones Lab**, Undergraduate Researcher

Brown University · Providence, RI · June 2017 – June 2020

Used a computational model to study the correspondence between simulated activity patterns in cortical networks and canonical EEG/MEG waveforms. Generated novel predictions about EEG/MEG signatures of strong excitatory drive to a cortical region after improving the lab's model layer 5 pyramidal cell biophysics.

**Engineering Design Research Laboratory**, REU in Mathematics

Indiana University-Purdue University Indianapolis · Indianapolis, IN · June - July 2018

Applied phase field models to topology optimization problems as a participant in a NSF-funded research experience for undergraduates (REU) focused on mathematical applications to medical sciences and bioengineering.

## Publications

### Published articles

- Dag U, Nwabudike I, Kang D, Gomes MA, Kim J, Atanas AA, Bueno E, Estrem C, **Pugliese S**, Wang Z, Towlson E, Flavell SW. Dissecting the functional organization of the *C. elegans* serotonergic system at whole-brain scale. *Cell*. 2023;186(12):2574-2592.e20. doi:10.1016/j.cell.2023.04.023
- Law RG, **Pugliese S**, Shin H, Sliva DD, Lee S, Neymotin S, Moore C, Jones SR. Thalamocortical Mechanisms Regulating the Relationship between Transient Beta Events and Human Tactile Perception. *Cereb Cortex*. 2022 Feb 8;32(4):668-688. doi: 10.1093/cercor/bhab221.

### Preprints

- Kramer TS, Wan FK, **Pugliese SM**, Atanas AA, Hiser AW, Luo J, Bueno E, Flavell SW. Neural Sequences Underlying Directed Turning in *C. elegans*. *bioRxiv*, 2024:2024.08.11.607076. doi:10.1101/2024.08.11.607076

## Awards and Grants

Honorable Mention, NSF Graduate Research Fellowship Program (2024)

Jerome L. Stein Memorial Award for Undergraduate Excellence (2020)

Katherine T. Romer Undergraduate Teaching and Research Award (2019)

## **Teaching and Mentorship**

Teaching Intern, University of Washington  
BIOL 461: Neurobiology · Spring 2024, Winter 2025

Undergraduate Teaching Assistant, Brown University  
APMA 1710: Information Theory · Fall 2019  
NEUR 0680: Introduction to Computational Neuroscience · Fall 2018  
APMA 0330: Methods of Applied Mathematics I · Fall 2017

Applied Math Peer Advisor, Brown University  
Fall 2018 - Spring 2020

## **Training and Workshops Attended**

Connectomics from micro- to meso- and macro-scales, CAJAL Advanced Neuroscience Training Programme ·  
Bordeaux, France · September - October 2023

## **Community and Outreach Activities**

Graduate Student Editor, Grey Matters Journal, 2023 - present  
DIY Science Zone volunteer, GeekGirlCon, Fall 2024  
Volunteer with Neurosci Community Outreach Group (NCOG), STEM Pals STEM Expo, Fall 2024  
"Record Electricity from Your Muscles!" workshop co-presenter, Expanding Your Horizons (EYH) Conference at  
Edmonds College, Spring 2024  
UW Brain Awareness Open House organizer and contributor, Spring 2024  
PacSci BrainFest volunteer, Pacific Science Center, Spring 2024  
Volunteer with NCOG, STEAM Night at Woodside Elementary School, Fall 2023  
Panelist, CoNECT Open House, Fall 2023  
Neuroanatomy station volunteer, Doctor for a Day Neurosurgery/Neurology Workshop, Spring 2023  
Head coordinator, Brown Brain Bee, 2018 - 2020  
Publicity coordinator, Brown Brain Bee, 2017 - 2018  
Mentor, Brown Elementary Afterschool Mentoring (BEAM) Program, Fall 2016

## **Service**

Neuroscience and Biophysics (NBIO) Graduate Student Representative, Fall 2024 - present  
Seminar Committee, UW Graduate Program in Neuroscience, Fall 2022 - present