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. Student
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

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.

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

Awards and Grants

Jerome L. Stein Memorial Award for Undergraduate Excellence (2020)
Katherine T. Romer Undergraduate Teaching and Research Award (2019)

Teaching and Mentorship

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

Applied Math Peer Advisor
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
Volunteer editor for an undergraduate neuroscience journal.

Doctor for a Day Neurosurgery/Neurology Workshop Volunteer
Spring 2023
Helped lead hands-on neuroanatomy workshop for Seattle-area students of color interested in healthcare careers.

Brown Brain Bee Coordinator
Head Coordinator · 2018 - 2020, Publicity Coordinator · 2017 - 2018
Coordinated an outreach program for high school students in Rhode Island, where volunteers teach free neuroscience weekly classes at Brown and after school at local high schools in preparation for the RI Brain Bee. Organized the Brown Brain Fair event as part of Brain Awareness Week.

Brown Elementary Afterschool Mentoring (BEAM) Program Mentor
Fall 2016