

Catherine Rasgaitis

Biomedical Engineering PhD Student @ Johns Hopkins University

253-993-9270 | crasgai1@jh.edu | [linkedin.com/in/catherine-rasgaitis](https://www.linkedin.com/in/catherine-rasgaitis) | crasgaitis.github.io

EDUCATION

Johns Hopkins University - Baltimore, MD

Aug 2025 - TBD

Doctor of Philosophy (Ph.D.) in Biomedical Engineering

University of Washington - Seattle, WA

Sep 2022 - Jun 2025

Bachelor of Science in Computer Science; Minor in Neural Engineering

GPA: 3.7

President of Synaptech; Vice President of SPACE

EXPERIENCE

Rotation PhD Student

Aug 2025 – Present

Kanold Laboratory @ Johns Hopkins University

Baltimore, MD

- Analyze calcium imaging data to quantify neural response patterns during presentation of Shepard tone sequences (controlled auditory hallucinations) and probe tonotopic map function.
- Perform cranial window surgeries and two photon imaging experiments

Research Fellow (SURFiN)

Sep 2024 – Jun 2025

Svoboda Lab @ Allen Institute for Neural Dynamics

Seattle, WA

- Design and evaluate novel compression methods for light sheet microscopy volumes.

Research Assistant

Oct 2023 – Jun 2025

Noble Lab @ University of Washington

Seattle, WA

- Develop the state-of-the-art TwinC model for predicting Hi-C contact maps for intra and interchromosomal loci.
- Interpret traditionally blackbox models using xAI methods to better understand predictions.

Research Assistant

Oct 2022 – Jun 2025

Orsborn Lab @ University of Washington

Seattle, WA

- Code and debug a tablet-based “target tracking task/game” for rhesus macaque subjects (monkeys).
- Supervise and train naive subjects to interact with tablet and learn task.
- Design and optimize machine-learning models to predict subjects’ future task performance from previous performance, task difficulty, enthusiasm, etc. Develop an algorithm for automatic changes to task difficulty.

Oceanographer

Aug 2024 - Dec 2024

Regional Cabled Array @ Ocean Observatories Initiative

300 mi offshore of Newport, OR

- Work and live aboard the R/V Atlantis during the VISIONS 2024 research expedition.
- Assist with underwater photography, logging biology, core sampling, and constructing water flow instruments.
- Use variational autoencoders to analyze and reconstruct whale calls from hydrophone recordings.

Research Intern

Jun 2024 – Aug 2024

Hou Lab @ Cold Spring Harbor Laboratory

Cold Spring Harbor, NY

- Build Cheephys3D, a novel software tool to generate three-dimensional models of facial muscles alongside subcortical neural recordings in mice. Also created a command line tool for synchronizing signals.
- Design a pair of autoregressive models to predict time series of (1) future neural states and (2) future facial muscular states of mice. Compare the models’ hidden state matrices using statistical shape analysis.
- Design a decoder model to directly predict geometric facial features from neural time series data.

Research Assistant

Jan 2024 – Jun 2024

Makeability Lab @ University of Washington

Seattle, WA

- Build EARLL, an embodied AR-based language-learning app to interface with the HoloLens2. (Published in UIST)
- Design depth estimation heuristics for grab detection; run experiments for real-time image segmentation.

AI Intern

Jun 2023 – Aug 2023

Deep Space Network (DSN) @ NASA Jet Propulsion Laboratory

Pasadena, CA

- Leverage behavioral cloning and inverse reinforcement learning methods to automate the scheduling of mission communications on the DSN. Build gym to run tests and evaluate various RL architectures.
- Build a web scraper to extract data from mission wiki pages to interface with Meta’s LLaMA model. Conducted various experiments to query the LLM about mission requirements and ultimately augment inputs to RL model.

Languages: Python, MATLAB, SQL, HTML/CSS/JavaScript, TypeScript, Java, C, C++

Also familiar with embedded systems/microcontrollers, prototyping, and computer aided design.