

# JEREMY SCHROETER

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## EDUCATION

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### University of Washington

Oct 2020 - Jun 2023

B.S. Neuroscience

Overall GPA: 3.69

**Core classes:** Cellular and Molecular Neuroscience, Systems and Behavioral Neuroscience, Quantitative Methods in Neuroscience, Computational Models for Cognitive Neuroscience, Advanced Linear Algebra, Machine Learning, Machine Learning for Neuroscience

## PUBLICATIONS/POSTERS

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Shaker, J., **Schroeter, J.**, Birman, D., Steinmetz, N. The midbrain reticular formation integrates sensory, premotor, and context information during flexible visual decisions. *Paper in preparation*

Shaker, J., **Schroeter, J.**, Birman, D., Steinmetz, N. Computation of context in the midbrain reticular nucleus during perceptual decision-making *SfN 2023*

Shaker, J., **Schroeter, J.**, Birman, D., Steinmetz, N. Subdivisions of the midbrain reticular nucleus contain distinct connectivity, gene expression, and roles in context-dependent perceptual decision-making *SfN 2024*

## RESEARCH EXPERIENCE

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### Parcellation of the midbrain reticular formation

Mar. 2024 - Present

*Supervised by Professor Nick Steinmetz*

Developing algorithms for parcellation of the midbrain reticular formation using spatial transcriptomics, distributions of coding neurons and viral neuronal tracing data. Using these methods to discover previously unidentified subregions of the MRF.

### Behavioral modeling of a reverse contingency task

Mar. 2023 - Present

*Supervised by Professor Nick Steinmetz*

Developed and assessed a set of behavioral models to predict choices on a reverse contingency perceptual decision making task. Analyzed these models to better understand behavioral strategies and extracted a latent variable from these models to regress against neural data.

### Accelerating convolutions for sparse image arrays

Jan. 2023 - Mar. 2023

*Supervised by Professor Matt Golub*

Developed and benchmarked algorithms for leveraging sparsity constraints to accelerate convolutional neural networks.

### Hierarchical variational autoencoders for protein inpainting

Mar. 2022 - Jan. 2023

*Supervised by Professor David Baker, Dr. David Juergens, and Dr. Joseph Watson*

Developed and tested deep learning models for learning distributions over 2D representations of protein structures to assist in protein inpainting.

## TEACHING EXPERIENCE

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### University of Washington

Winter, Autumn 2024

*Instructor, NEUSCI440/490 Intro to Neural Data Analysis*

Designed and taught a quantitative companion course for the undergraduate neuroscience labs. Introduced students to the Python programming language, scientific computing, visualization, and neural data analysis. Developed a Python library for students to load data, perform spike sorting, and conduct analyses.

## SKILLS

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**Programming** Python, Python scientific computing ecosystem, PyTorch  
**Electrophysiology** Neuropixels trajectory planning, Neuropixels 1.0/2.0/2.4