AADITYA PRASAD

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EDUCATION

Massachussetts Institute of Technology September 2024 - (Expected) June 2029
Doctor of Philosophy, Brain & Cognitive Sciences GPA: 3.771/4.00

University of California, San Diego September 2022 - March 2024
Masters of Science, Data Science GPA: 3.771/4.00

University of California, San Diego September 2019 - June 2022
Bachelor of Science, Bioinformatics GPA: 3.649/4.00

EXPERIENCE

Flatiron Institute - Center for Computational Neuroscience June 2023 - August 2023
Summer Research Associate, Laboratory for Neural Statistics

- Lead efforts to design **multimodal deep learning** approaches to **ultrasonic sound source localizations** in longitudinal behavioral videos for the study of the neuroethology of rodent vocalizations.
- Designed **contrastive audio-visual pretraining** network on a **single** gpu with $<$ **10 gb** of VRAM using **gradient caching**
- Developed Audio-Visual based **active speaker detection network** in animals using **cross attention** which achieved **state-of-the-art accuracy of over 90%**

Salk Institute for Biological Studies November 2021 - Present
Undergraduate Researcher, Talmo & Manor Labs

- Currently designing a **deep-learning** based tool using **transformers** for **automatic** multiple objects tracking in biological videos such as animal behavior and live cell microscopy experiments
- Spearheaded project focused on understanding the role of natural image statistics in the formation of biologically plausible neural representations of **convolutional neural network**(CNN) models of the mouse visual cortex 1
- Trained **self-supervised** CNNs such as **AlexNet** with **contrastive learning** objectives like **SimCLR** with **PyTorch**, and **torchvision**.
- Leveraged **deep learning** model based on a **U-Net** architecture with a **novel** auxiliary learning tasks known as **local shape descriptors**(LSDs) for **automatic 3d instance and semantic segmentation** of neuronal mitochondrial populations in electron microscopy imaging

Jacobs School of Engineering: CSE Department January 2021 - June 2022
Computer Science Tutor

- Tutored CSE 100: **Advanced Data Structures** taught by Professor Niema Moshiri and Paul Cao for 4 consecutive quarters as well as CSE 6R: **Introduction to Computer Science and Object-Oriented Programming: Python** during its first offering
- Lead lab hours for **one-on-one** teaching and helping students with code, **stress-tested** programming assignments and **proof-read** written tests, answered questions on class discussion board

TECHNICAL STRENGTHS

Languages	Python, Java, C++, R, Bash
Libraries & Tools	Git, Continuous Integration (git actions), Unit Testing (pytest), PyTorch, Tensorflow/Keras, WandB, Scikit-Learn, Numpy, Pandas, Seaborn, Matplotlib

PUBLICATIONS

1. **Prasad, A.**, Manor, U., & Pereira, T. (2022). Exploring the role of image domains in self-supervised DNN models of rodent brains. *The 4th Shared Visual Representations in Human and Machine Intelligence Workshop at the Thirty-sixth Conference on Neural Information Processing Systems, New Orleans.*