Sreyas Adiraju
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EDUCATION

Columbia University, Columbia College, New York, NY
Bachelor of Arts, Neuroscience and Behavior   Expected May 2025
Bachelor of Arts, Applied Mathematics
GPA: 4.0599, Phi Beta Kappa

Relevant Coursework: Neurobiology I/II, Dynamical Systems, Neurogenetics, Statistical Inference, Probability Theory, Topology, Cognitive Neuroscience, Analysis I/II, Philosophy of Science

HONORS AND GRANTS

I.I. Rabi Scholars Program (2021 – Present)
Dean's List, Columbia College (2021 – Present)
National Merit Scholars Semifinalist (2021)
Honorable Mention, The Mathematical Contest in Modeling (2021)
Platinum Division, USA Computing Olympiad (2019 – 2021)
Four-time Qualifier, American Invitational Mathematics Exam (2018 – 2021)

RESEARCH EXPERIENCE

Columbia University, Zuckerman Institute for Mind, Brain, and Behavior
Student Researcher, August 2022 – Present
Advisor: Elias Issa
Developing a novel approach for self-supervised learning of visual representations based on latent-space prediction over egocentric and allocentric motion. Training deep neural networks in PyTorch and developing probes of representational geometry. Created an ImageNet-scale dataset of parametrically generated naturalistic scenes for building computer vision models. Designed stimuli for marmoset viewing experiments.

LMU Munich, Astrophysics, Cosmology, and Artificial Intelligence
Summer Research Student, May 2022 – August 2022
Advisor: Daniel Grün
Developed convolutional neural networks for inferring thermal parameters from simulated Lyman-alpha forest absorption spectra. Designed a 1d-convolutional neural network architecture suitable for the task and created models capable of producing a posterior distribution over inferred parameters. Performed model training and hyperparameter optimization in Tensorflow/Keras.

PRESENTATIONS

Senior Seminar, Department of Applied Mathematics, Columbia University, New York, NY, November 2024. Sreyas Adiraju, Nicole Kim, Somin Lee; Chris Wiggins. "Modeling Drug Sensitivity and Pharmacogenomic Interactions with GDSC2" (presentation).

Consciousness and Attention, Department of Psychology, Columbia University, New York, NY, May 2024. Sreyas Adiraju; Alfredo Spagna. "Towards a Theory of Phenomenal Transitions in Binocular Rivalry" (term paper).

Columbia Science Scholars Reception, Columbia University, New York, NY, April 2024. Sreyas Adiraju; Elias Issa. "Biologically Plausible Self-Supervised Learning with Augmented Prediction" (poster).

Undergraduate Research Symposium, Columbia University, New York, NY, October 2023. Sreyas Adiraju; Elias Issa. "Exploring Augmented Prediction for Self-Supervised Models of Primate Visual Cortex" (poster).

Theory Seminar, University Observatory Munich, LMU Munich, June 2022. Sreyas Adiraju. "Deep Learning for the Lyman-Alpha Forest" (presentation).

PUBLICATIONS

Nayak, P., Walther, M., Gruen, D., & **Adiraju, S.** (2024). LyαNNA: A deep learning field-level inference machine for the Lyman-α forest. *Astronomy & Astrophysics*. https://doi.org/10.1051/0004-6361/202348485

TEACHING EXPERIENCE

BIOL 3005: Neurobiology II – Circuit and Systems Neuroscience (Columbia)
Teaching Assistant to Prof. Darcy Kelley, January 2025 – Present
Teaching recitation section designed to introduce students to research papers that supplement course material. Facilitating paper discussions and teaching students to read research from the field. Organizing exam review sessions and assisting in course administration.

APMA 4101: Dynamical Systems (Columbia)
Teaching Assistant to Prof. Xuenan Li, January 2025 – Present
Assisting students with homework and reviewing course content in weekly office hours. Grading homework submissions and exam problems.

TECHNICAL SKILLS

Python programming, Data analysis and visualization in Python, Statistical/machine learning, Deep learning in PyTorch and Tensorflow/Keras, Distributed training in PyTorch, C++ programming, Java programing, Scientific computing, Mathematical and algorithmic problem-solving, Mathematical modeling