Nalini A. Ramanathan

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Experienced researcher with a strong interdisciplinary background in economics, neuroscience, and computer science. I am pursuing a Ph.D. in neuroinspired AI to explore how principles of neural computation can be leveraged to build more efficient and robust machine learning models. My goal is to apply this unique expertise to complex problems in artificial intelligence and computational neuroscience.

Education

New York University, New York, NY — **September 2024 - June 2026**
M.S. in Computer Science — ***GPA**: 4.00 of 4.00*
Thesis: *Neuron-to-Neuron Hybrid Spiking Neural Networks*
Thesis Advisors: Dr. Erdem Varol (PI, Neuroinformatics Lab), Maren Eberle (current PhD student)

Dartmouth College, Hanover, NH — **September 2015 - June 2019**
B.A. in Economics with High Honors — ***GPA**: 3.87 of 4.00*
Thesis: *Labor Effects of Offshorable Service Exports in the United States*
Readers: Robert W. Staiger, Teresa C. Fort, Treb Allen (advisor)

Relevant Courses: Linear Algebra, Econometrics, Intro to Computational Neuroscience, Adv. Topics in Microeconomics/Macroeconomics/Econometrics

Awards & Honors

Merit Scholarship, NYU	2024-2026
Magna Cum Laude (Top 15%), Dartmouth College	2019
Phi Beta Kappa, Dartmouth College	2019
High Honors in Economics by vote of department on the basis of outstanding independent work	2019
Designated Presidential Scholar on Completion of Economics Honors Program	2019
Second and Third Honor Groups, Dartmouth College (awarded annually to top 15% and 35% of class)	2015-2019
Citations in French 003 and French 10.17 for Meritorious Performance, Dartmouth College	2017-2018
James O. Freedman Presidential Scholar for Funded Economics Research	2017
Pennsylvania Governor's School for the Sciences (fully funded)	2014
University of Pittsburgh Department of Neuroscience Sponsorship (PRSEF 2013)	2013

Research

NYU Neuroinformatics Lab, New York, NY — **August 2024-Present**
Student Researcher

- Independent project developing a novel hybrid Nonspiking-Spiking Neural Network architecture based on neuroscience principles with an Exploratory Landscape Analysis component
- Supported PhD research by modifying and running baseline models (BrainBERT) to predict brain regions associated with LFP electrophysiology data

Economics Department, Hanover, NH — **August 2017-May 2018**
Undergraduate Research Assistant

- Supported Prof. Taryn Dinkleman's research in economic development, including a study on the relationship between politicians' birthplaces and electricity distribution in sub-Saharan Africa and a study on education strategies in Chile
- Independent research on impact of state-wide Indian policies on development outcomes using data provided by Prof. Paul Novosad, labor effects of offshorable service exports as part of thesis under Prof. Treb Allen

Department of Neurobiology, Pittsburgh, PA — **September 2012-May 2013**
High School Research Assistant

- Studied the role of extracellular matrix molecules in axon regeneration using chick embryo as a model organism, assisting with lab procedure, carrying out literature review, and presenting research at science fairs

Relevant Work Experience

Altman Solon - Analytics Innovation, New York, NY — **October 2021-August 2024**
Senior Consultant, Machine Learning Team (promoted in March 2023)

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- Designed and built a prototype for an instance segmentation Computer Vision model, achieving over 90% accuracy and a 30% reduction in the false positive rate, demonstrating the viability of this advanced technique for future use cases
- Refined a geospatial approach for acquiring satellite imagery using PostgreSQL and planned its integration into a production codebase, which led to a 13% reduction in the false negative rate
- Contributed to the productionization of a Google StreetView-data driven computer vision pipeline using PySpark and Databricks, reducing team's manual workload and execution time (2-3 days per run)

Consultant, Machine Learning Team (October 2021- March 2023)

- Designed and led the development of a log-level Multi-Touch Attribution (MTA) marketing model for a Fortune 500 telecom company. This involved comprehensive Exploratory Data Analysis and the development of a Higher Order Markov Model to validate the impact of advertising campaign
- Acted as Project Manager for a team of four engineers, guiding the productionization of an internal Natural Language Processing (NLP) tool, which led to five new client engagements

Altman Solon - Strategy Consulting, New York, NY **Summer 2018; September 2019-October 2021**

Consultant; Promoted from Analyst in March 2021; Intern in 2018

- Engaged in structured problem-solving and expert interviews to evaluate and assess emerging technologies like 5G, cloud and security solutions, identifying key trends and potential applications and presenting to VP/C-suite stakeholders

Teaching

NYU Computer Science Department, New York, NY **September 2025**

Graduate Teaching Assistant: Computer Vision (CS-GY 6643)

Dartmouth Economics Department, Hanover, NH **2016-2018**

Study Group Leader, Intro Statistics

Tutor - CS1, Statistics

Publications and Presentations

He, T., Patel, M., Li, C., Maslarova, A., Vöröslakos, M., **Ramanathan, N**., Hung, W., Buzsaki, G., & Varol, E. (2025). "Self supervised learning for in vivo localization of microelectrode arrays using raw local field potential." *Submitted to NeurIPS 2025.*

Ramanathan, N., Allen, T**.** (2019). "Labor Effects of Offshorable Service Exports in the United States." *Carroll Round Proceedings XVIII.*

Ramanathan, N., Yip, Y**.** (2013). "The role of extracellular matrix molecules in axon regeneration." *Pittsburgh Regional Science and Engineering Fair.*

Skills

Programming: Python, SQL (including Geospatial SQL), C++, Java, Julia

Databases & Platforms: Databricks, AWS, Azure, Snowflake

Frameworks: Agile/SCRUM, Waterfall, Django, dbt