

Srihari Ganesh

EDUCATION

Harvard University

Master of Arts (AM) in Statistics

May 2024

GPA: 4.0

- Graduate Coursework: Machine Learning (MIT), Reinforcement Learning, Statistical Inference, Bayesian Data Analysis, Probability.

Bachelor of Arts (AB) in Chemical & Physical Biology and Mathematics

GPA: 4.0

- Awards: Phi Beta Kappa Junior 24 (top 24/1700 in class), John Harvard Scholar (top 5% of class), Detur Book Prize.

RESEARCH EXPERIENCE

MIT Computer Science & Artificial Intelligence Laboratory

Undergraduate Computational Biology Researcher

Advisor: Prof. Regina Barzilay (EECS)

February 2023 – present

- Developing denoising diffusion probabilistic models (DDPMs) in PyTorch for symmetric protein complex generation.
- Modified AlphaFold structure module architecture to process protein complexes more efficiently.
- 2023 Herchel Smith Undergraduate Science Research Program fellow. Submitted written conference-style report of findings. Presented at Harvard Undergraduate Research Opportunities in Science (HUROS) fair.

Harvard Medical School

Undergraduate Computational Biology Researcher

Advisor: Prof. Debora Marks (Systems Biology)

March 2022 – January 2023

- Used Potts mixture models to cluster a multiple sequence alignment (MSA) and perform direct coupling analysis.
- Implemented expectation-maximization (EM) using Python and the PLMC evolutionary couplings pipeline.
- Found that EM algorithm was not better than baseline on biological system across hyperparameter sweep.
- Received 2022 Summer Harvard College Research Program (HCRP) funding. Submitted written summary of findings.

Harvard University Molecular & Cellular Biology

Undergraduate Systems Biology Researcher

Advisor: Prof. Philippe Cluzel (MCB, Applied Physics)

December 2020 – August 2021

- Experimentally showed that *E. coli* strains of varied protein burden can coexist in long-term stationary phase (LTSP).
- Computationally implemented a differential equations simulation in Python for LTSP evolutionary dynamics.
- Hypothesized that oscillating protein burden allows strains of high and low average burdens to coexist.
- Received 2021 Program for Research in Science and Engineering (PRISE) funding. Presented findings to advisor weekly and to peers at summer symposium.

TEACHING EXPERIENCE

Teaching Fellow

Statistics 110: Introduction to Probability

(Fall term) September 2021 – present

Computer Science 181: Machine Learning

January 2023 – May 2023

- Plan and teach weekly review session (recitation) and office hours. Grade problem sets and exams.
- Statistics 110: Rated 4.95/5 by 21 students, received Derek Bok Center Certificate of Distinction in Teaching.
- Computer Science 181: Rated 5/5 by 11 students.

Course Assistant

Chemistry 20 & 30: Organic Chemistry

January 2022 – December 2022

- Hosted weekly office hours. Guided students during lecture breakout sessions.

LEADERSHIP

Co-President

Group for Undergraduates in Statistics at Harvard (GUSH)

May 2022 – April 2023

- Led board of 15 undergraduates in promoting community in the Harvard Statistics department.
- Contacted panelists, publicized event, and secured funding for women's panel with 30 attendees.
- Organized annual mentorship program between students and processed reimbursements.
- Recruited panelists/attendees and coordinated pre-semester Zoom courses panels and R workshops with over 40 attendees.