

# Rohan Banerjee

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## EDUCATION

### Cornell University

Ithaca, NY

Ph.D. Candidate, Computer Science, GPA: 4.0/4.0

September 2020 – present (expected: May 2026)

*Relevant Coursework:* Model-Based State Estimation, Robot Manipulation, Machine Learning Theory, Deep Probabilistic and Generative Models, Matrix Computations

### Massachusetts Institute of Technology (MIT)

Cambridge, MA

M.Eng. in Electrical Engineering and Computer Science, GPA: 4.5/5.0

June 2019

S.B. in Electrical Engineering and Computer Science, GPA: 4.9/5.0

June 2018

*Relevant Coursework:* Statistical Learning Theory and Applications, Robotics: Science and Systems, Bayesian Modeling and Inference, Machine Learning, Inference and Information, Design and Analysis of Algorithms, Computational Cognitive Science, Discrete-Time Signal Processing, Elements of Software Construction, Computation Structures

## EXPERIENCE

### Cornell University

Ithaca, NY

Ph.D. Candidate

September 2020 – present

- Principal Investigators: Prof. Sarah Dean and Prof. Tapomayukh Bhattacharjee (March 2023 – present). Research area: Developing human-in-the-loop interactive learning algorithms for failure recovery in robot-assisted bite acquisition.
- Skills: Developing active learning algorithms; training supervised linear models for predicting querying workload; training contextual bandit policies
- Mentored students on GPT and RT-1 prompt engineering, fine-tuning, and uncertainty quantification.
- Principal Investigator: Prof. Mark Campbell (September 2020 – October 2022); Developed reinforcement learning (RL) algorithms for autonomous navigation that are robust to environment variations

### Massachusetts Institute of Technology

Cambridge, MA

Research Engineer

June 2019 – April 2020

M.Eng. Researcher

March 2018 – June 2019

- Principal Investigator: Prof. Daniela Rus
- Refined autonomous driving simulation platform based on CARLA open-source driving simulator
- Validated research algorithms in simulation for vehicle navigation, dynamic obstacle avoidance, and end-to-end learning
- Investigated learning algorithms for LIDAR-based rural road detection

### Autoliv (now Veoneer)

Lowell, MA

Intern, Advanced Sensing Group

June – August 2017

- Developed mapping algorithm for Lidar data (Velodyne VLP-64) using point cloud registration to maintain coherent point cloud history and advance lane/object tracking algorithms
- Investigated mapping/registration techniques with lower-resolution (Velodyne VLP-32) Lidar data to improve point cloud data resolution
- Investigated ego-motion estimation techniques with VLP-64 data to support vehicle localization

### Massachusetts Institute of Technology

Cambridge, MA

SuperUROP Advanced Undergraduate Research Program

September 2016 – May 2017

- Principal Investigator: Dr. Jim Glass
- Contributed to the development of a conversational robotic system that can acknowledge speaking subjects
- Converted offline Voice Activity Detector module into real-time streaming module
- Researched techniques for integrating visual face detection and audio source localization

## SKILLS

**Algorithms:** Active learning, supervised machine learning, contextual bandits, reinforcement learning

**Software engineering:** Continuous integration (CI)

**Robotics:** Position control, Robot geometry/coordinate transformations

**Programming Languages:** Python, MATLAB, C++, Java, C, HTML, LaTeX

**Frameworks/Libraries:** PyTorch, ROS, Scikit-learn