

Shruti Garg

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www.linkedin.com/in/srg914

Languages: Hindi + English (native), Mandarin (conversational)

Education

University of Pennsylvania <i>PhD Computer and Information Science</i>	Philadelphia, PA 2032
Massachusetts Institute of Technology (MIT) <i>M.Eng + B.Sc Electrical Engg and CS, GPA: 4.8/5.0</i>	Cambridge, MA 2025
Edison High School Academy Valedictorian, Scholar @ Columbia University Science Honors Program , Research Scholar at NJ Governor's School of Engg and Tech. (2019) @ Rutgers University	NJ, 2020

Research Experience

MIT Robot Locomotion Group CSAIL <i>Mentor: Thomas Cohn, PI: Prof. Russell Tedrake, thesis link</i> https://dspace.mit.edu/handle/1721.1/164827 Optimizing Manipulation Trajectories under non-isometric parameterizations + Motion Planning for Constrained Bimanual Manipulation. IK for Teleoperation of non-holonomic manipulators First author journal paper published in RAL and presented in IROS Hangzhou 2025. Funded as a MIT EECS Lincoln Laboratory Undergraduate Research and Innovation Scholar	Cambridge, MA Sept23 - Oct25 Drake, Python+some jax, Optimization and Motion Planning
MIT Distributed Robotics Lab <i>Mentor: Lillian T Chin, PI: Prof. Daniela Rus</i> Tactile Sensing in Blind Grasping : sensor design and fabrication process, electronics and hardware integration. implemented planning and task execution to test sensor performance in gripping and picking	Cambridge, MA Sept22 - May 2023 fabrication, ROS, Docker
IISc ARTPARK <i>Worked with Prof. Amrutur Bharadwaj. Spent 2 months at a startup incubator out of India's premier research institution. Visited a number of customers who wanted lab automation and understood their needs + constraints. Interfaced with startup for teleoperation and data collection</i>	MIT MISTI Intern Bengaluru, India July- Aug '25
MIT Hacking Medicine sentiment analysis to identify early signifiers of success at hackathons	Spring 2021
NJ Governor's School of Engineering and Technology @ Rutgers University, research presented at IEEE MIT Undergraduate Research Technology Conference 2019.	NJ 2019

Industry Experience

NVIDIA Debugging issues on hardware and in simulation blocking deployment - Inference optimization for GR00T / Cosmos models - Pre-release benchmarking infra for Isaac ROS - Deploying GR00T foundation model on Edge compute aka Thor - System Monitors - Proof of Concept for the Greenwave Monitors	Robotics Systems Software Engineer Santa Clara, CA Jun 24 - Sept 24, Sep 25 - Sep 26 bash scripting, systems work ROS, c++
Anduril Industries <i>gimbal simulator</i> tracer bullet approach: extending a rust daemon across interfaces/product different stacks to deliver a smooth synthetic video feed. (Did not know about rust before starting this project!) <i>remote access to hardware testing stack for Roadrunner</i> a NUC NixOS remote host for to access the mission PC and control the power supply	Robotics Software Intern Costa Mesa, CA Summer 2023 Rust, NixOS, systems work

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Honest AI (ML real estate startup)

SWE and Machine Learning Intern

London, UK

ETL pipeline to prepare London Housing Data for a Language model powered real estate search tool. Communicated with external data providers to acquire an appropriately extended data set.

Summer 2022

Viziverse (early Augmented Reality startup)

Pose detection & tracking

Boston, Spring

Worked with the founder to deliver a self-contained **first stage prototype from ground up for pitching to Angel investors**. OpenCV, python, integrating ML models.

2022

Publications

S. Garg, T. Cohn, R. Tedrake, "Planning Shorter Paths in Graphs of Convex Sets by Undistorting Parametrized Configuration Spaces," *IEEE Robotics and Automation Letters*, 2025. Presented at *IROS 2025*

Teaching Experience

6.4210 Robotic Manipulation: Perception Planning and Control

Teaching Assistant

MIT

Running OH, grading, advising student projects, revising and prepping problem sets.

Fall 2024

6.310 Dynamical System Modeling and Control Design

Lab Assistant

MIT

Staffed OH and Lab sessions, helping students with labs and class concepts.

Spring 2024

Awards/Funding

- **MIT EECS | Lincoln Laboratory Undergraduate Research and Innovation Scholar** | \$6000 for research on Bimanual Manipulation with the Robot Locomotion Group (Sept 2023 - May 2024)
- **Lockheed Martin STEM Scholarship (2020-2024)** | \$10,000/yr for undergraduate studies at MIT
- **MIT Global Languages Department-China (2024)** | \$3000 to study Chinese in Taiwan for 1 month
- **MIT International Science and Technology Initiative-India** | \$2600 for internship at IISc ARTPARK startup incubator
- **MIT International Science and Technology Initiative-UK** | \$3000 to assist startup with machine learning applications in housing, Summer 2022

Leadership, People Skills and Teaching

Student Government in East Campus (residential dormitory @ MIT)

2021-2022

- **Executive Board (Treasurer)** Oversaw a 60k+ budget used by many committees and events. Advocated for residents and negotiated to achieve smooth operation of a building of 300+ people and an active counterculture hub. Chaired multiple other smaller task groups + committees.
- Organized MIT's Pumpkin Drop 2021 oversaw operations and approvals for dropping 100 pumpkins off the top of Tang Hall.
- **Hall Chair, Resident Peer Mentor** for my floor. Major point of communication between students and administration.
- **REX Chair** managed safety approvals and execution of student designed and lead builds including a rollercoaster.

Arcturus Robotics- MIT's Autonomous Boat Team

Electrical Engineering Lead

Fall 2022 -

Njord Competition, Trondheim Norway

Summer 2023

In 2 months between competitions : overhauled our boat's electrical design, organized team for tight deadlines for (electrically) building multiple new boats, designed and integrated subsystems a MOSFET based signaling tower controller to indicate drive modes.

Hardware debugging and teamwork :)

Jointly responsible for all electrical systems on board [our boat](#) for RoboBoat 2023 in Florida. Team won best technical design along with other awards.