Siddarth Narasimhan

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Technical Skills: Python, C++, ROS, ROS2, PyTorch, Git, Autodesk Fusion

Education

University of Toronto – MASc. Robotics   Sep 2023 - Aug 2025
· **CGPA:** 4.0 / 4.0
· **Thesis:** Navigation and Control Policies for Robots using Diffusion and Large Foundation Models

University of Toronto – BASc. Engineering Science, Robotics and AI   Sep 2018 - Apr 2023
· **Major GPA:** 3.6 / 4.0
· **Thesis:** Contrastive Learning for Map Inference in 3D Environments via Trajectory Map Pretraining ↗

Publications

· **S. Narasimhan**, A. H. Tan, D. Choi, G. Nejat, "*OLiVia-Nav: An Online Lifelong Vision Language Approach for Mobile Robot Social Navigation*", **ICRA 2025** + LLHomeRobots @ CoRL 2024 **(Spotlight)** ↗

· A. H. Tan, **S. Narasimhan,** G. Nejat, "*4CNet: A Diffusion Approach to Map Prediction for Decentralized Multi-Robot Exploration*", **IEEE Transactions on Robotics 2025** ↗

Experience

Syncere – Lead Hardware and Software Engineer ↗   Sep 2024 – Feb 2025
· Led the hardware and software design of a 6DoF manipulator to perform household chores
· Implemented diffusion and large vision language model policies to perform precise object manipulation and sanitation tasks in various indoor settings, including bedrooms and washrooms

Advanced Micro Devices – Power Design / Firmware Engineer   May 2021 - Apr 2022
· Evaluated 50+ GPUs using metrics including power loss, over current protection, and dynamic response to identify component improvements, leading to a 15% boost in overall GPU performance
· Designed and implemented a script to automate the generation, transmission and reception of I2C/SMBUS byte packets, resulting in a 75% increase in error detection speed
· Received **Spotlight Award** for novel contributions and exceptional performance as a co-op student

Ministry of Transportation – Data Science Intern   Jun 2020 – Aug 2020
· Developed an intelligent transportation system, leveraging GPS data and deep learning to obtain live traffic volume estimates, resulting in 10% improvement in accuracy over state-of-the-art methods
· Designed a novel time-stamp detection and recognition pipeline with a 94% overall accuracy ↗

Ministry of Government and Consumer Services – Data Analyst   Jun 2018 – Aug 2019
· Designed a macro-powered database to analyze/summarize 5000+ transactions by ministries

Side Projects

· **RRT Playground:** An object-oriented C++ implementation of popular variants of the rapidly exploring random trees algorithm, including RRT, RRT*, Anytime RRT and Informed RRT* ↗

· **Robot Vision:** A custom 2D simulator for non-holonomic robots, integrating control, path-planning, localization and mapping algorithms, supported by rigorous mathematical formulations. ↗

· **Pu239:** Our capstone project, where we developed an autonomous drone capable of stable hover, waypoint navigation and obstacle avoidance. Our team had won the **award for smoothest flight.** ↗

Scholarships

· **ICRA Robotics and Automation Society Travel Grant** ($2k)   Feb 2025
· **NSERC HeRo CREATE Fellowship** ($10k)   Sep 2024