Siddarth Narasimhan

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Technical Skills: Python, C++, ROS, ROS2, PyTorch, Isaac Gym, Omniverse, Git, Autodesk Fusion
Sensor Technologies: LiDAR (Velodyne, Ouster), IMU, Stereo Camera (RealSense, ZED), GPS

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**, G. Nejat, "*Multi-Robot Person Search using 4D Gaussian Splatting*", **IEEE Robotics and Automation Letters 2025** (In Progress)
- **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% increase in GPU power efficiency.
- 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 object detection 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.

Personal Projects

- **Koch VLM Benchmarks:** Implemented state-of-the-art VLM frameworks (ReKep, Pi0) on the Koch_v1.1 manipulator to enable zero-shot, prompt-driven object manipulation.
- **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

- **IEEE Robotics and Automation Society** ($2k) Feb 2025
- **NSERC Healthcare Robotics (HeRo) CREATE Fellowship** ($10k) Sep 2024
- **Municipal Engineers Association Bursary** ($2k) Jun 2018