

Ruthrash Hari

Robotics, Sensors, and AI Software Engineer
Permanent Resident of Canada. Citizen of India.

Email: ruthrash.hari@mail.utoronto.ca

Linkedin: [@Ruthrash](#)

Github: <https://github.com/Ruthrash>

EDUCATION

- University of Toronto** Toronto, Canada
• M.Eng - Electrical & Computer Engg. **with emphasis in Robotics** ; GPA: 3.95/4.0 *Sept 2018 - July 2020*
Relevant Courses: Robotics, Hybrid Systems & Control Applications, Mobile Robotics, Imitation Learning for Robotics, Perception for Robotics, Digital Image Processing
- National Institute of Technology, Tiruchirappalli** Tiruchirappalli, India
• Electrical and Electronics Engineering ; GPA: 8.36/10.0 *July 2014 - May 2018*
Thesis: Co-ordinated Trajectory Generation of Multiple Mobile Robots

SKILLS SUMMARY

- Software:** C++, Python, ROS, Gazebo, IsaacSim, PCL, OpenCV, Pytorch, LINUX, Git, Docker
- Hardware:** NVIDIA Jetson, Raspberry Pi, Arduino/ATMEGA Microcontrollers
- Robots and Sensors:** [Franka Emika Panda](#), [Race CarJ](#)¹, [Intel Realsense D415/D435](#), 2D/3D Lidars, [Yujin Kobuki](#), [EV3 Lego Mindstorms Kit](#)

PROFESSIONAL EXPERIENCE

- University of Toronto, Robotics Group Math & CS Dept., Mississauga, Canada**
- Robotics Laboratory Technician (Permanent, Full-time)** *Feb 2022-Present*
 - Robotics and Software Engineer of the Robotics Research Group.
 - * Development, test, and maintenance of software tooling for perception, control, and calibration algorithms for [Franka Emika Panda](#) & [Race CarJ](#) robots and their sensors used for research and teaching.
- QA Consultants, Toronto, Canada**
- Mobile Robots Software Engineer (Permanent, Full-time)** *Dec 2020 - Dec 2021*
 - Automated test route generation for verification of High-Definition(HD) maps.
 - * Database creation and concurrent parsing of HD map files of the US state of Michigan.
 - * Test route generation algorithm to satisfy client requirements.
 - * **Client:** [General Motors](#)
- QA Consultants, Toronto, Canada**
- Mobile Robots and Simulation Software Engineer (Part-time, Contractual)** *May 2019 - Nov 2020*
 - Automated Software-in-Loop functional testing of Autonomous Navigation Stacks for Mobile Robots using physics-based simulations
 - * Test plan creation, automated functional test scenario generation, and simulation in Gazebo
 - * **Clients:** [Cyberworks Robotics](#), [Crosswing Robotics](#)

RELEVANT EXPERIENCE & PROJECTS

- MPC Path tracking controller for a Mobile Robot** *Sep 2020*
 - Udacity Modern C++ [Nanodegree](#)
 - Developped and tested on simulated [Jackal Robot](#)
- Intelligent and Assistive Technology and Systems Lab, Toronto, Canada**
- MEng Project: People Recognition and Position Tracking System for Assistive Mobile Robots** *May 2019-July 2020*
 - Computer vision based Person Recognition and Position tracking in 3D using RGBD sensor.
 - Benchmarked using simulated and real-world datasets
- aUToronto, Toronto, Canada**
- Student Software Engineer** *Oct 2018 - Mar 2020*
 - Participating in the SAE Autodrive (Autonomous Driving) Competition among North American Universities.
 - Worked as a Software Engineer for the Controls Team and 3D Object Tracking team in 2019 and 2020 of the 4-year competition
- Mobile Robot Testbed, Interfacing Lego EV3 and ROS**
- Summer Research Intern, Guide: Dr. Bharath Bhikkaji, IIT Madras, India** *May 2016 -July 2016*
 - ROS driver program interfaces for a mobile robot made of Lego EV3 robot development kit for its actuators and sensors.
 - Differential-drive mechanism's dynamics and control were studied and various motion primitives were implemented on the test bed.

PUBLICATIONS

- Geometry Matching for Multi-Embodiment Grasping** **CORL 2023**
- M. Attarian, M.A. Asif, J. Liu, **Ruthrash Hari**, A. Garg, I. Gilitschenski, J. Thompson
- Policy-Guided Lazy Search with Feedback for Task and Motion Planning** **ICRA 2023**
- M. Khodeir, A. Sonwane, **Ruthrash Hari**, Florian Shkurti
- Proactive Robotic Assistance via Theory of Mind** **IROS 2022**
- M. Shvo, **Ruthrash Hari**, Z. O'Reilly, S. Abolore, Sze-Yuh, N. Wang, Sheila A. McIlraith

¹blue text is a link