

Sourabh Prasad

Robotics Engineer

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Robotics Engineer specializing in autonomous systems and learning-based control. Combines reinforcement learning for cross-embodiment generalization, multi-modal perception, and ROS2 software engineering with hands-on embedded and control experience deploying robots in the field.

EDUCATION

Master of Engineering (Robotics & AI Emphasis)

University of Toronto, St. George

Sep 2023 – Aug 2025 | Canada

Bachelor of Technology in Mechatronics (Robotics & Automation Specialization)

Manipal Academy of Higher Education

Sep 2018 – Jun 2022 | UAE

PROFESSIONAL EXPERIENCE

Co-Founder

Hygia Robotics

May 2025 – Jan 2026 | Canada

- Co-founded a 2-person robotics startup building an assistive feeding device, leading product definition from 50+ user interviews through a prioritized technical spec and system architecture across a 12-month feasibility roadmap.

Embedded System Engineer

Sentient Labs

Apr 2021 – Dec 2022 | UAE

- Built a multi-channel, fault-tolerant teleoperation stack for a USV, leveraging MAVROS and MAVLink to bridge ROS-level commands to an onboard ArduPilot flight controller across layered MQTT, P2P-VPN, and redundant radio paths.
- Engineered a low-latency multi-camera streaming architecture (<200ms end-to-end) using GStreamer and AWS, enabling reliable real-time teleoperation.
- Developed the embedded control stack for a custom grasping manipulator, building low-level stepper-motor control and kinematics on ROS2/Micro-ROS with MoveIt2 planning to achieve an 80% autonomous grasp success rate.
- Containerized the complete robotics software stack with Docker, enabling reproducible, one-command deployment across development machines and onboard vehicle compute and eliminating environment-specific setup failures.

PROJECTS

MEng Research Project

University of Toronto

Jan 2025 – Aug 2025

- Built a hierarchical navigation framework for quadruped robots, integrating a foundation-model visual planner (NoMaD) with a novel cross-embodied locomotion controller to enable embodiment-agnostic deployment.
- Trained a cross-embodied locomotion controller via PPO in NVIDIA Isaac Sim, achieving robust transfer to unseen robot morphologies through extensive morphology and domain randomization.
- Demonstrated zero-shot cross-embodiment generalization in simulation, achieving 71–100% success across 4 terrain types when evaluated on unseen commercial-robot morphologies never encountered during training.

RGB-T Sensor Fusion

University of Toronto

Sep 2023 – Dec 2023

- Architected a multi-modal late-fusion perception pipeline (RGB and thermal) using fine-tuned YOLOv5 and a custom MLP rescore network to improve detection reliability in low-light conditions.
- Improved pedestrian-detection average precision by 28% through multi-modal fusion, delivering measurable safety gains for autonomous vision systems.

SKILLS

Methods & Domains

Deep Reinforcement Learning, Computer Vision, Multi-Modal Sensor Fusion, Motion Planning, Manipulation & Grasping, Perception, Real-Time & Embedded Control, Teleoperation

Robotics & ML

ROS/ROS2, Micro-ROS, MoveIt2, PyTorch, Isaac Lab, rsl_rl, GStreamer, NVIDIA Isaac Sim

Tools & Hardware

Linux, Docker, Git, CI/CD, AWS, ESP32, Teensy, Arduino, SOLIDWORKS (CSWA)

Languages

C, C++, Python, MATLAB