# Kieran Lachmansingh

*Graduate Student Specializing in Robotics with High-Performance Computing*

Robotics and high-performance computing graduate driven to build **intelligent systems** that operate reliably in the real world. Combines **algorithm design, systems engineering, and performance optimization** to deliver scalable robotic solutions. Interested in applications across **automation, physical AI, and human-assistive technologies**.


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## SKILLS

**Programming**
*C++, C, Python, MATLAB/Simulink*

***Robotics Middleware***
*ROS & ROS2*

***Modelling & Design***
*AutoDesk, SolidEdge*

***Media & Tools***
*Camtasia, Inkscape*

## EDUCATION

### MASc. Robotics & High-Performance Computing

Queen's University 2023 – 2026

- Thesis: MATRIX: Manipulator Avoidance Trajectories via Reactive, Integrated eXtreme scale computing
- GPA: 4.08

### BASc. Electrical Engineering

Queen's University 2018 – 2023

- Dean's Scholar
- Graduated with First Class Honours
- GPA: 3.68

## PUBLICATIONS

### SHARP: Supercomputing for High-Speed Avoidance and Reactive Planning for Robotics

International Conference on Robotics and Automation Submission Accepted, June 2026

**Keywords:** *HPC, Robotics, Cloud Computing*

- Demonstrated that high-performance computing can enable millisecond-level reaction times for real-time robot motion planning.
- Showed that offloading heavy planning to HPC remains feasible despite network latency, achieving 23–30 ms planning times and 85–88% avoidance success.
- Provided a reproducible evaluation method and highlighted how hybrid onboard/HPC architectures can improve responsiveness in dynamic environments.

## EXPERIENCE

### Part-time AI Robotics Developer

Ingenuity Labs Research Institute & Taiga Robotics March 2026 – Present Remote

- Investigating use of Vision-Language-Action models for industrial applications.
- Developed a pipeline through teleoperation on simulation to develop datasets for training robots.
- Designed a system to create training datasets on real-world data through physical task execution using the end-effector.

### Student Engineering Intern

Ontario Power Generation May 2021 – May 2022 Pickering, Ontario

**Keywords:** *Nuclear Power, Computer Systems*

- Created programs to automate onerous tasks within Safety Related Systems Section.
- Coordinated Station Condition Reports for Electrical Computers and Control Department.
- Performed preliminary testing and preparation of test reports on Darlington Digital Control Computers project.

## OTHER ACTIVITIES AND PROJECTS

**Ingenuity Labs Racing Team – Mechanical Team Lead**
*Sep 2025 - Present*

***Robotics Capstone***
*Sep 2022 – Apr 2023*

***Musician***
*8 Years of Piano, 4 Years of Saxophone, Guitar*

***Athletics***
*15 Years of Karate, 4 Years of Weightlifting*

## ACHIEVEMENTS

**1st Degree Black Belt**