Kiran Ramlogan

647-525-3350 | kiran.ramlogan@mail.utoronto.ca | linkedin.com/in/kiran-ramlogan

Education

University of Toronto Sept. 2023 – Apr. 2028

Third year Engineering Science student specializing in Electrical Engineering. CGPA: 3.69 *Toronto, ON*

- Dean's List Recipient - Fall 2023, Winter 2023, Fall 2024 - GPA: 3.9, 3.78, 3.73

Experience

Optics Research Assistant May 2025 – Aug. 2025

National University of Singapore (NUS) *Singapore*

- Worked in the Optical Materials and Devices (OMAD) lab benchmarking the quantum diamond magnetometer
- Designed a three dimensional Helmholtz coil to generate a uniform 10mT magnetic field for spectral line splitting and a microstrip patch antenna to excite TR12 defects in diamond for optical readout
- Received funding from Engineering Science Research Opportunity Program (ESROP) and Mitacs Globalink Research Award (GRA)

Electrical Subsystem Member Oct. 2023 – Present

University of Toronto Aerospace Team (UTAT) *Toronto, ON*

- Planned out architecture, drafted schematics, and created layouts using Altium Designer for a Maximum Power Point Tracking (MPPT) system for the FINCH satellite using switching converters, power monitors, digital potentiometers and ideal diodes
- Designed, soldered, and tested a step-down switching converter for the satellite with over 90% power efficiency with low weight and a compact design
- Mentored three new members and guided them through buck converter design by reviewing schematics and layouts
- Performed testing of satellite onboard computer system CAN bus communication protocol by writing firmware for the STM32 microcontroller and probing with an oscilloscope
- Learned digital signal processing with GNU Radio and interfaced with the bladeRF SDR platform to receive FM radio. Also completed requirements for amateur radio operator basic qualification

Environmental Monitoring Research Assistant Dec. 2024 – Present

Environment and Climate Change Canada (ECCC) *North York, ON*

- Interfaced with the Polyphemus Air Quality Modeling System to identify and locate methane sources in Ontario
- Contributed to the source locating system by writing Python code that fixed errors with High-Resolution Rapid Refresh (HRRR) data used for atmospheric stability class blending
- Ran code and analyzed data using the government of Canada's High Performance Computing supercomputers, gaining experience with Linux, Bash, and Git

Projects

ODMR Antenna | *Ansys HFSS, Altium Designer* Jun. 2025 – Aug. 2025

- Designed a microwave circular patch antenna with a tapered feedline and parasitic element resembling a split-ring resonator to achieve a low broadband resonance frequency at a small size
- Antenna planned to be used for Optically Detected Magnetic Resonance (ODMR) experiments to excite TR12 defects in diamond to optically read out quantum spin state
- Used parametric sweeps and optimization algorithms in Ansys HFSS to minimize input reflection coefficient and maximize bandwidth. Designed PCB in Altium Designer.

Fire Safety Robotic Arm | *Raspberry Pi, Fusion 360, Soldering, Power Budgeting* Jan. 2025 – Apr. 2025

- Designed and built the electrical system for a SCARA robotic arm with three axes of movement for second year engineering design course to pick up high fire risk branches receiving an A grade
- Ensured two microcontrollers, five motors, and a time of flight sensor received adequate power from two buck converters, utilizing proper grounding techniques, sufficient decoupling, and safe wiring techniques
- Worked with five other engineering students collaborating on CAD modeling, documentation, and presentations

Technical Skills

Languages: Python, C/C++, C#, System Verilog, Bash, HTML/CSS, R
Software: Altium Designer, Ansys HFSS, LTSpice, MATLAB, STM32CubeIDE, GNU Radio, AutoCAD, Fusion 360