

JIBRAIL BHAGWANDASS

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SUMMARY

Mechanical Engineer (BASc, U of T – Mechatronics & Biology) with competition robotics, PID control, PCB design, and autonomous systems experience. Led a 20+ member national team to a top-36% global finish. Coursework in mechatronics, kinematics, FEA, and machine learning. Seeking a graduate robotics engineering role.

TECHNICAL SKILLS

SOLIDWORKS | CATIA | ANSYS FEA | AutoCAD | MATLAB | Python | Arduino C++ | PID Control | PCB Design | Sensor Fusion | 3D Printing | CNC Machining | GD&T | Bluebeam

PROJECTS

Team Captain – FIRST Global Robotics Competition

2019

Team Trinidad and Tobago | Dubai, UAE

- Led through full mechanical, electrical, and software integration for a competition robot designed and built in 6 weeks.
- Implemented PID-tuned motor control for consistent drive performance across uneven terrain and a fail-safe kill-switch system.
- Finished 69th of 191 countries (top 36%) and won the Safety Award, passing all inspections on first attempt.

Electrical Team – Rovers for Space Exploration

2022–2024

University of Toronto Engineering Design Team

- Designed compact PCB layouts that reduced board footprint ~20%, optimizing for thermal dissipation and signal integrity.
- Routed power, sensor, and communication subsystems for a multi-terrain rover competing in the Canadian International Rover Challenge.

Autonomous Maze-Solving Robot

2023

University of Toronto – Course Project

- Built an Arduino-based rover with ultrasonic/IR sensor fusion and a custom C++ pathfinding algorithm for autonomous navigation.
- Tuned PID control loops for differential-drive steering, achieving consistent maze completion under 90 seconds.
- Rapid-prototyped chassis and sensor mounts using 3D printing, iterating through 3 design revisions in under 2 weeks.

Structures & Fabrication – Blue-Sky Solar Racing

2022–2023

University of Toronto Engineering Design Team

- Achieved ~15% weight reduction via FEA (ANSYS/SOLIDWORKS Sim), topology optimization, and CFRP/aluminum material selection.
- CNC-machined aluminum brackets and fabricated carbon-fiber composite panels via hand layup for the 2023 World Solar Challenge vehicle.

Global Medic's Fire Skid – Mechanical Redesign

2023

University of Toronto – Community Partner Project

- Redesigned a portable fire-suppression system for pickup-truck deployment; validated structural integrity under dynamic loading via ANSYS FEA.

EXPERIENCE

Biomedical Engineer

Aug 2025 – Nov 2025

Eye See You Ophthalmic | Trinidad & Tobago

- Serviced, assembled, and calibrated 15+ electromechanical ophthalmic instruments across 5+ hospitals with zero post-service callbacks.
- Troubleshooted motors, optical assemblies, and control boards under clinical time constraints; coordinated with international OEM engineers.

HVAC Engineer

Sep 2023 – Sep 2024

HTS Engineering Ltd | Toronto, ON

- Engineered mechanical systems for a \$20M+ commercial portfolio including Scotiabank Arena; produced BIM models in AutoCAD/Bluebeam.
- Coordinated with architects, contractors, and sales teams to align designs with budget and schedule constraints.

EDUCATION

BASc, Mechanical Engineering | Minor: Robotics

2025

University of Toronto – Specialization: Mechatronics & Biology | Certificate in Business

Key Courses: Mechatronics Systems Design, Kinematics & Dynamics, Finite Element Methods, Control Systems, Machine Learning

CERTIFICATIONS

CSWA (Dassault Systèmes) | Google Project Management | Google Introduction to AI