Calvin Karthik

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Education

McMaster University — Hamilton, ON
Bachelor of Computer Engineering (Co-op), ***Dean's Honour Roll (2025)*** — *Sept. 2024 – Apr. 2028*

Experience

McMaster Exoskeleton: Electrical Subteam — Jul. 2025 – Present
McMaster University — *Hamilton, ON*

- Will be contributing to **PCB schematic capture** and layout in **Altium Designer**, as well as **soldering** and assembly of sensor and power modules.
- Will support integration of **power systems** and **sensor modules** within the exoskeleton framework to ensure reliable connections with actuators and controllers.
- Will participate in **prototyping** and validation of electrical subsystems to enhance safety, modularity, and maintainability.

McMaster Exoskeleton: Systems Packaging & Mech-Elec Integration Team Nov. 2024 – Jun. 2025
McMaster University — *Hamilton, ON*

- Designed compact enclosures for **multiplexors**, enabling secure, modular attachment to the exoskeleton harness.
- Collaborating with both mechanical and electrical sub-teams to streamline integration of **Raspberry Pi** units, multiplexors, and wiring-improving modularity, **system reliability**, and maintainability.
- Supporting cross-functional builds and rapid prototyping efforts to meet evolving design specs for a human-assistive exoskeleton, with a focus on structural, electrical, and ergonomic optimization.

Scientific Research | | — May 2022 – May 2023
Trent University — *Peterborough, ON*

- Researched the impact of mushroom substrate on biogas; published in the **Canadian Science Fair Journal.**
- Achieved **13 awards**, including the **Best Project in Canada** and **3rd place internationally**.
- Presented at major competitions, including the **Canada-Wide Science Fair** (CWSF), **European Union Contest for Young Scientists** (EUCYS), and **International Science and Engineering Fair** (ISEF).

McMaster SumoBot: Electrical/Software Specialist — Dec. 2024 – Jan. 2025
McMaster University — *Hamilton, ON*

- Designed and assembled electrical systems within a moving robot with **dual motors** and a **breadboard** with an **Arduino Nano**, enhancing skills in embedded systems and **sensor-based robotics.**

Projects

PawGress: AI Powered Habit Manager | | *JavaScript, TypeScript, React Native, Git, Cohere API* — Jan 2025

- Built a gamified habit app in **React Native** with an animated dog avatar, integrating **Cohere API** for personalized habit suggestions and AI-driven feedback.
- Gained expertise in **JavaScript, TypeScript, React Native, API integration**, and cross-platform development while solving connectivity challenges.

Airport Baggage Control System Prototype | *Python, Autodesk Inventor, PrusaSlicer* — Sept. 2024 – Dec. 2024

- Designed and implemented a Python-based passenger check-in system integrated with a physical baggage handling prototype, utilizing Autodesk Inventor, PrusaSlicer, and 3D printing.

Awards and Achievements

Regeneron ISEF (May 2022): 3rd Place Award in Energy: Sustainable Materials and Design; EUCYS (Oct 2021): Award from the Ministry of Universities of Salamanca Spain; YSC CWSF (May 2021): Best Project Award in Discovery, Energy Challenge Award, Gold Excellence Award, Renewable Energy Award; BWXT Nuclear STEM Award (June 2024); Dynacast Engineering Award (June 2024); Senior Academic Achievement Award: Physics (IB) (June 2024); The Faculty of Engineering Award of Excellence (July 2024)

Technical Skills

Languages: Python, SQL, C/C++, HTML/CSS, JavaScript, TypeScript, Matlab
Tools: React Native, Node.js, Altium Designer, Cohere API, Autodesk Inventor, SolidWorks, Git, Granta
Interests: High Performance Computing, Power Systems, Embedded/Control Systems, Full Stack Development