

Naga Tarun Moturi

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EDUCATION

McMaster University

Automation Systems Engineering II Co-op

Hamilton, ON

Expected Apr 2028

EXPERIENCE

McMaster Formula Electric FSAE

Firmware & Software Developer

Hamilton, ON

Sept 2024 – Present

- Developed embedded firmware using **C++**, **MATLAB**, and **STM32** microcontrollers, optimizing motor control and vehicle efficiency.
- Converted MATLAB Simulink models of the battery management system (BMS) into code, ensuring seamless integration with the electric vehicle's embedded system.
- Collaborated with the battery integration team to design and test safety-critical features, improving vehicle performance and ensuring compliance with industry standards.

Brightsparks Academy

Software Developer Intern

Cupertino, CA

June 2024 – August 2024

- Implemented **front-end** features using **React.js**, enhancing the UI for websites at BrightSparks Academy.
- Contributed to **back-end development** using **Firebase & Firestore** databases, including setting up and managing APIs.
- Developed and maintained mobile applications for both Android and iOS platforms using **React Native**, contributing to the full development lifecycle from conceptualization to deployment on app stores.

PROJECTS

AI-Powered Automotive Dashboard

February 2025 – June 2025

- Developed a comprehensive automotive dashboard using **React**, **TypeScript**, and advanced AI integration, demonstrating cutting-edge connected vehicle software capabilities.
- Implemented real-time predictive maintenance algorithms with machine learning diagnostics, reducing potential vehicle downtime by 30-40%.
- Built **voice-controlled AI assistant** with speech recognition and natural language processing, ensuring hands-free operation for driver safety compliance.
- Created intelligent navigation system with traffic optimization and fuel efficiency algorithms, showcasing automotive industry problem-solving skills.

Formula 1 Battery Monitor

Jan 2025 - March 2025

- Developed a modular C++ battery monitoring application based on a converted **Simulink** model, implementing complex **state machines** to manage contactor logic, precharge sequencing, and safety overrides.
- Wrote unit tests in **Google Test** to validate 20+ edge cases including SOC depletion, relay feedback loss, and thermal fault handling.
- Visualized command vs. feedback behavior across all states using **Matplotlib**, verifying system response timing and safe operating thresholds.

Arduino Sumobot

Nov 2024 - Jan 2025

- Designed the chassis for a Sumobot using **SOLIDWORKS**, incorporating a Bluetooth **HC-05** chip for wireless control.
- Programmed control logic using **Arduino**, enabling precise navigation and smooth operation.
- Engineered both hardware and software components, ensuring seamless integration for optimal performance.

SKILLS

Languages: Python, Java, JavaScript, HTML/CSS, React.js, C++, C#, TypeScript, SQL, NoSQL, CMake, MATLAB, numpy, Arduino, Node, Embedded Firmware (STM32, AVR)

Other Skills: CAD, Electronics, Git, GitHub, Linux, Bash, Simulink, HC-05, ESP32, Raspberry Pi 3, STM32