

MARCO VOLPINI

Burlington, ON — Waterloo, ON

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Education

University of Waterloo

BASc in Electrical Engineering

Sep. 2023 – Apr 2028

Waterloo, ON

Technical Skills

Programming: C/C++, Python, VHDL, Verilog, Linux Command Line, JavaScript, SQL

Electrical and PCB: Altium Designer, SPICE / LTspice, circuit design, schematic review, PCB design, oscilloscopes

Power and Controls: PLC Programming, Studio 5000, HMI Development, SKM PowerTools, Single Line Diagrams, short circuit studies, arc flash analysis, protection and coordination, battery and BMS systems

Mechanical / Simulation / Tools: MATLAB, SolidWorks, FEMM32, Power BI, Soldering, Excel

Experience

UW Formula Electric

May 2026 – Present

Electrical Design Engineer

Waterloo, ON

- Contributing to Electrical and Tractive subteams for the 2026 Formula Electric vehicle, with current work focused on PCB design and electrical systems development in Altium.
- Building familiarity with automotive electrical design practices, high-voltage tractive systems, and student racing team development workflows.

Eaton

Jan 2026 – May 2026

Power Systems Engineering Intern

Kitchener, ON

- Performed short-circuit, arc flash, coordination, and power systems analysis to support electrical studies for industrial and commercial power distribution systems.
- Reviewed single-line diagrams, electrical schematics, and protection/control documentation to support engineering design and study deliverables.
- Converted and refined legacy internal database reporting tools into Power BI dashboards, improving accessibility of engineering data and team workflow efficiency.

G. L. Tiley & Associates

Sept 2024 – Jan 2025

Hoist Control and Automation Assistant

Hamilton, ON

- Developed and reviewed PLC programs, electrical schematics, and HMI interfaces for industrial hoist control systems.
- Supported controls design work for hoist systems with attention to functional safety, reliability, and SIL safety requirements.

RTG Systems Inc

Jan 2024 – May 2024

Engineering Design Assistant

Burlington, ON

- Created and revised professional AutoCAD engineering drawings for EV charging stations, traffic signalization, hydro distribution, and street lighting projects.
- Supported engineering design meetings, drawing reviews, and project coordination for municipal and infrastructure electrical projects.

Waterloop

Sept 2023 – May 2024

Electrical and Propulsion Team Member

Burlington, ON

- Implemented temperature-sensing thermistor circuitry for linear induction motor monitoring on a Hyperloop pod propulsion system.
- Supported PCB design, circuit integration, and embedded C programming for microcontroller-based sensing hardware.

Projects

Custom 6T SRAM Bit Cell | SPICE, Magic VLSI, IC Circuit Design

December 2025

- Designed a custom 6T SRAM bit cell including transistor-level circuit design, SPICE simulation, physical layout, and tapeout preparation.
- Analyzed memory cell behavior and layout constraints while developing familiarity with CMOS design, semiconductor devices, and IC design workflows.

Custom Electric Bike Build | Battery & BMS, controls, electromechanical and electric vehicle design

Ongoing

- Designing and building a custom e-bike electrical system involving a 48V, 15Ah battery pack architecture, BMS integration, controller selection/testing and programming, and regenerative braking and brake-light design features
- Working on hands-on build and testing work for a rear hub motor system with focus on batteries, power electronics, thermal performance (heat sinks, etc), and system integration.