

Amogh Gajelli

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Education

University of Waterloo, BAsC in Nanotechnology Engineering

Expected April 2030

Waterloo, ON

Skills

Mechanical: SolidWorks, OnShape, Enclosure Design, Electronics Packaging, Materials Characterization, Spot Welding, Drawings, AutoCAD

Analysis: FEA (Ansys Mechanical and Electrical Simulation)

Electrical & Software: Python (web scraping, data analysis, DCIR), MATLAB, React, HTML/CSS, JavaScript, Altium, Soldering

Experience

HV Battery Cell Engineer R&D Lead

September 2025 - Present

University of Waterloo's Formula Electric Team

Waterloo, ON

- Optimized cell selection for the 2028 battery pack by evaluating cell suppliers; **reduced** total cell mass by **28%** and **lowered** pack resistance, and **increased power density** with the potential to improve gravimetric energy density by **30 Wh/kg**.
- Cell level busbar thermal-electro analysis to ensure proper ampacity rating and fusing behaviour
- Conducted **design of experiments** and **R&D** for **spot welding** on the **SIGMACLAD 60**, tuning welding parameters for cells to prevent arc flashes, busbar damage, internal-cell damage, and weld-nugget failures.
- Packaged the 2026 high-voltage electronics system (**ESI/BEES**) by translating Altium schematics into **compliant wiring layouts** and designing copper busbars to meet required current-carrying capacities.
- Performed DCIR testing using a custom **Python data-logging script** to automate DCIR testing of 600+ cells using a Tektronix DC load; identified cell outliers and supported reductions in parallel-group resistance.
- Owned the electrical and mechanical integration of a **3D-printed BMS enclosure**, routing CAN and fault-sensing signals, securing high-voltage charging components, and achieving **IPX6 waterproofing**.
- Utilized MATLAB to extract CAN logs and determine the battery capacity usage over a 22KM run

Team Lead, Battery & Energy Systems

December 2024 - May 2025

Samsung Solve for Tomorrow

Samsung Canada Headquarters

- Led design and prototyping of functional thermal sand battery (Kanthal elements, insulated sand) to **reduce HVAC costs by 40%**; presented to expert judges and 100+ audience
- Placed 4th nationally in Canada | \$5,000 award**; managed timeline, budget, and prototype fabrication through completion

Web Developer Intern

August 2025 (Summer) & June 2024 – December 2024

Novamodus Solutions Inc

Toronto, ON

- Built responsive website features using Figma, React, JavaScript, TypeScript, Tailwind CSS, and Node.js backend; designed 5 brand assets (wordmark, lettermark, favicon, logo, animated logo) in Adobe Illustrator
- Developed Python web scraper (BeautifulSoup) to extract RFPs from external websites; modernized legacy codebase and improved performance through refactoring