David Bulos

Website | Email | LinkedIn | Phone

Education

Electrical & Computer Engineering Undergraduate — London, ON, Canada
University of Western Ontario — *2023 – 2027*

- Maintaining a strong average of 86.8% and received Dean's Honor List recognition in both my first and second year.
- Excelled in core courses including Circuits and Systems (98%), Applied Math II (99%), Digital Logic (95%), and Electric Circuits (93%).

Technical Skills

Programming: C++, Python, Java, MATLAB/Simulink, Git, STM32CubeIDE, PlatformIO, Grafna, SPARQL
Electrical Design: Altium, SPICE/Micro-Cap, Microcontroller Integration, AutoCAD, Serial Communication (CAN, isoSPI, I2C, RS232)

Experience

Western Formula Racing | EV FSAE Team — London, ON
GLV Lead — *May 2025 – Present*

- Managed a team of GLV members by assigning design tasks, reviewing schematics, and teaching fundamental concepts in EE.
- Collaborated with subsystem leads (HV, telemetry, and controls) to ensure GLV hardware & firmware met FSAE regulations, supported vehicle performance needs, and integrated seamlessly with system-wide electrical and software interfaces.
- Pioneered robust circuit protection methods, including selective eFuse integration and transient suppression, resulting in a 50% reduction in board failures during testing and operation.

Undergraduate Research Fellowship | Semantic Computing for Distributed Systems — London, ON
University of Western Ontario —Awarded to the Top 4 ECE Summer Research Applicants — *May 2025 – Aug 2025*

- Developed a semantic computing framework inspired by Smart-M3 to coordinate distributed nodes through shared context and event-driven logic, leveraging knowledge processors and semantic triples to support, context-aware task coordination.
- Simulated a publish/subscribe-based task-sharing model where Knowledge Processors (KPs) publish semantic data to a central Semantic Information Broker (SIB), which makes energy-efficient task allocation decisions.
- Demonstrated how semantically enriched context enables the SIB to offload tasks to appropriate nodes, balancing resource usage, battery levels, and data locality to reduce computational waste.
- Aimed to reduce infrastructure costs and improve sustainability in large-scale computing by minimizing redundant processing and promoting intelligent, context-driven coordination.

Western Formula Racing | EV FSAE Team — London, ON
Electrical Team Member — *Nov 2024 – Apr 2025*

- Was a large part of the development of the GLV subsystem, implementing low-voltage electronics and wiring, including a redesign of the Accumulator Motherboard (hardware & firmware), and the creation of other custom PCBs.
- Validated GLV hardware through debugging integration issues with HV & controls teams using oscilloscopes & multimeters, firmware revisions, and testing; gained insights from senior members and applied lessons to improve system reliability.
- Took initiative to document both personal and team design processes, including insights learned from senior members, to improve knowledge transfer and onboarding for future Electrical contributors.

Projects

FSAE – SoC Estimation for HV & GLV Batteries

- Designed and implemented a State of Charge estimation algorithm for both HV & LV batteries applying Li+ and LiPo battery theory to develop a Coulomb counting method that is verified through battery modeling.
- Performed discharge tests on Li-ion cells and parameterized a first-order equivalent circuit model, achieving sub-10% error between simulated and measured open-circuit voltage across state-of-charge levels.
- Established sensor calibration points to improve long-term accuracy of capacity tracking and state estimation.

FSAE – Launch Control System

- Co-developed an embedded launch control algorithm with two teammates to optimize tire slip and maximize acceleration.
- Wrote an embedded software for a PID-based control loop and resolved a torque signal delay by reprogramming the resolver mapping to synchronize throttle response with motor feedback.
- Independently developed the protocol to engage/disengage from launch control safely.
- Achieved a 8% improvement in average acceleration time in comparison to manual launches by the driver.

Surveillance RC Car

- Designed & built a Bluetooth-controlled RC surveillance car with 6+ integrated sensors for environmental monitoring.
- Enabled autonomous hazard response by triggering alerts when gas levels exceeded 300 ppm or temperatures rose above 40°C.
- Designed s custom PCB, reducing sensor wiring complexity by over 50% and improving system stability under varying loads.