

DAVID EMELU

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EDUCATION

University of Victoria

Bachelor of Engineering in Electrical Engineering (Final Year)

Victoria, BC

Expected April 2027

- **Honours Thesis:** Investigating High-Power EV Fast Charging impacts on distribution stability.
- **Relevant Coursework:** Power Systems (ECE 488), Control Systems (ECE 360), Embedded Systems.

Coast Mountain College

Common First-Year Engineering Certificate

Terrace, BC

2022 - 2023

TECHNICAL SKILLS AND COMPETENCIES

Software & Tools: MATLAB, Simulink, ETAP, PowerWorld, AutoCAD, Altium Designer, KiCad, LTSpice, C++, Next.js, TypeScript.

Industrial Systems: Motor Control Centers (MCC), VFD Wiring, PLC Rewiring, DCS (DeltaV, PROVOX), CMMS (Synergen), Aspen.

Technical: Power System Analysis, PCB Design, I/O Mapping, Electrical Auditing, Load Flow & Fault Analysis.

WORK EXPERIENCE

Project Engineering Coop Student

Island Technical Installations

May 2025 - Aug 2025

Victoria, BC

- Verified transformer and component specifications against vendor specs and quotations for 10+ projects, ensuring technical accuracy and contract alignment.
- Implemented ISO-aligned document control procedures and developed Standard Operating Procedures (SOPs)
- Engineered automated Excel-based procurement and cost-reporting tools, enhancing data visibility and decision speed for project managers by 30%.
- Consolidated financial and schedule data from sales and accounting teams to produce 5+ cost reports post-IFR, enabling accurate assessment of project health.

Accumulator Team Member

UVIC Formula Racing

Jan 2025 - Present

Victoria, BC

- Designed custom PCB circuits to support electronic system integration for the electric vehicle's accumulator system.
- Contributed to the assembly and mechanical alignment of battery segments, ensuring electrical safety and performance standards.
- Assisted in the complete wiring of the Battery Management System (BMS) and Thermal Management System (TMS), contributing to vehicle power system readiness.
- Collaborated with cross-functional team members to test voltage tap harnesses and verify sensor functionality for the accumulator build.

Electrical Engineering Coop Student

Canfor (Northwood Pulp Mill)

Jan 2024 - Aug 2024

Prince George, BC

- Performed comprehensive MCC audits, revising 150+ assets and detected 10+ obsolete units, boosting documentation accuracy and ensuring compliance with operational standards.
- Migrated DCS hardware I/O for 120+ instrumentation loops from obsolete PROVOX hardware to DeltaV M-Series racks, boosting system reliability and ensuring seamless integration with amended specifications.
- Facilitated the VFD system conversion for two critical production systems, edited existing wiring drawing, procuring and integrating replacement drives, option cards, and pull-down resistor packs-boosting motor reliability.
- **CAD \$400,000** annual savings: analyzed distribution and precipitator transformer data, prepared reports to optimize maintenance scheduling by 25% and reduce failures.

Operational Support (Labourer)

Consultant S.L.B Inc (Rio Tinto Kitimat)

Jun 2023 - Aug 2023

Kitimat, BC

- Managed critical anode plant operations, maintaining carbon block temperatures within $\pm 450^{\circ}\text{C}$ and ensuring 100% compliance with casting parameters, decreasing production disruptions.
- Operated forklift and overhead crane for heavy equipment and materials handling in accordance with safety protocols.

TECHNICAL PROJECTS

- Power System Load Flow & Fault Analysis** | *MATLAB, PowerWorld, Newton-Raphson* Jan 2026
- Developed MATLAB scripts utilizing the Newton-Raphson method to solve power flow equations for a 6-bus electrical utility network, optimizing state variable convergence.
 - Simulated the power system network using PowerWorld software to conduct load flow analysis, validating the state variable results against custom MATLAB calculations.
 - Programmed MATLAB algorithms to calculate post-fault bus voltages following a bolted three-phase fault, cross-verifying the outcomes with PowerWorld fault analysis simulations.
- B Diffuser Hydraulic bypass PLC Rewiring** | *PLC, Safety* | Canfor Jul 2024 - Aug 2024
- Engineered and implemented a local selector switch to enhance safety during maintenance by preventing unintended operations of the diffuser hydraulic system, improving operational reliability.
 - Rewired PLC controls to enable local control mechanisms, addressing critical safety concerns identified during incident analysis.
 - Collaborated with cross-functional teams to evaluate and propose effective electrical solutions, enhancing compliance with safety standards and reducing the risk of accidents.
 - Managed project logistics, including creating work orders, contacting vendors for quotes, and documenting technical solutions, demonstrating strong project management and technical communication skills.
- Transformer Analysis Summary** | *Report Writing, Transformers* | Canfor Feb 2024 - Aug 2024
- Audited 10+ transformer systems and summarized oil sample reports, pinpointing over 5 transformers at risk of failure, preventing potential downtime valued at CAD \$400,000.
 - Developed and presented risk assessment reports for transformer failures, discovering cost implications and impact on mill operations to inform management decisions.
 - Created in-depth markup of the Mills' Single Line Diagrams and supplementary dissolved-gas-analysis information for non-technical personnel, improving team-wide understanding.
- Motor Control Center Audits** | *MCCs* | Canfor Jan 2024 - Aug 2024
- Conducted detailed MCC audits across 15 motor control centers, modifying drawings for 200+ MCC buckets and enhancing system documentation accuracy.
 - Identified and documented 5+ existing power crossties, improving emergency power transfer capabilities and reducing risk during outages by 20%. Contributed to development of a cable block diagram for emergency power management.
- VFD Conversion/Migration** | *Schematics, VFDs* | Canfor Jun 2024 - Jul 2024
- Marked up conversion packages by interpreting and adjusting wiring and schematic diagrams, facilitating seamless transition from Mitsubishi 560 to 860 VFDs.
 - Procured replacement VFDs, option cards, and pull-down resistor packs for VFD replacement, swapping obsolete assets.
 - Coordinated removal of Mitsubishi A560 drives and installation of A860 drives, ensuring compliance with operational standards.
 - Partnered with procurement and technical teams, providing timely updates to system documentation and components.
- PROVOX I/O Migration** | *Instrumentation, DCS, Loop Drawing* | Canfor Mar 2024 - Apr 2024
- Migrated 120+ instrumentation loops from obsolete PROVOX hardware to DeltaV M-Series hardware, improving system reliability and operational efficiency.
 - Partnered with an instrument mechanic to produce rack drawings for the marshalling cabinet, ensuring accurate notation of conductor connections, cable tags, and jumpers using Microsoft Excel-based modeling.
 - Performed loop data verification, cross-checking the master I/O list against loop drawings to reduce discrepancies and refine documentation accuracy.
 - Collaborated with cross-functional teams during planning and execution to ensure alignment with project objectives and timelines.
- Terrace Transit Analysis** | *Microsoft Excel, Data Analysis* Jun 2023
- Processed ridership data provided by BC Transit using Microsoft Excel and a data request made by the City of Terrace.

- Compared data to expected ridership goals in the Service Standard and Performance Guidelines provided by BC Transit (BCT).
- Summarized findings and presented conclusions to a Senior Transportation Engineer.
- Compiled a technical memorandum which was sent to the City of Terrace to be reviewed.

Bridge Design Drafting and Rehabilitation cost | *AutoCAD (2D), Field Checks*

May 2023

- Performed on-site surveys to gather critical measurements and data, facilitating accurate representation of the bridge's layout and structure in 2D drafts. Additionally, conducted detailed paint estimation for the rehabilitation of the Haisla Bridge, providing accurate material and cost projections.
- Implemented efficient layering and annotation conventions in AutoCAD, enhancing the clarity and accessibility of the drawings for the entire project team.

VOLUNTEERING

Vice President Equity 2025/26

May 2025 – Present

UVic Engineering & Computer Science Students' Society

Victoria, BC

- Led Equity, Diversity, and Inclusion (EDI) initiatives within the Faculty of Engineering and Computer Science (ECSS) at the University of Victoria, advocating for systemic improvements to enhance student inclusion and representation.
- Served as Head Delegate for UVic at the Engineering EDI Conference, overseeing a competitive selection process by interviewing 15+ students and selecting 2 delegates; authored a post-conference policy report that was adopted and implemented within the student society.
- Directed outreach initiatives by coordinating high school engagement efforts, preparing and reviewing presentation materials to demystify engineering pathways and promote accessibility to underrepresented students.
- Participated in weekly ECSS Executive and Faculty EDI Committee meetings, contributing to governance decisions, policy voting, and strategic planning impacting 100+ engineering students.

Vice President

Sep 2024 - Present

UVic African & Caribbean Students' Association

Victoria, BC

- Support the President in strategic planning and organizational leadership; assume executive authority in their absence.
- Oversee internal operations of the executive team, supervising Directors responsible for event coordination and ensuring timely execution of programming initiatives.
- Collaborate with the UVic Student of Colour Collective (SOCC) to support funding applications and resource allocation for association initiatives.
- Serve as primary mediator for internal disputes, fostering a cohesive and accountable leadership team.
- Strengthen member engagement by cultivating an inclusive environment and leading recruitment efforts during campus-wide events such as Clubs Day.

CERTIFICATIONS & REQUIRED DOCUMENTATION

- **Standard First Aid & CPR Level C:** Current (2025)
- **Driver's License:** Class 5 BC Driver's License

ACTIVITIES AND INTERESTS

Sports: Badminton & Football. UVic Formula Racing (Accumulator & Electronics).

REFERENCES

Available upon request.