

Ken Chisholm

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EDUCATION

Simon Fraser University

BASc Sustainable Energy Engineering, With Distinction

Burnaby, BC

May 2026

EXPERIENCE

Interfacial Engineering Co-op

SFU EISEn Research Lab

Sept 2024 – Apr 2025

Surrey, BC

- Optimized a process for creating micro-textured pyramidal structures for wettability testing using a UV laser, which was easily replicable and produced samples with uniform spacing and pyramid height with a tolerance of 5 μm
- Improved an experimental methodology to measure supercooling in phase-change materials using a temperature and humidity controlled stage, decreasing experimental error by 55%
- Presented research at the American Chemical Society (ACS) Colloids conference, communicating experimental methods, results, and technical insights to academic and industry audiences

Manufacturing and Production Co-op

Moment Energy

Sept 2023 – Dec 2023

Coquitlam, BC

- Designed a pump test rig and rotor-locking mechanism in Autodesk Inventor to verify compliance with UL 1973 safety requirements, supporting product validation and fire-safety certification efforts
- Created a remote monitoring system by collecting sensor data with a Raspberry Pi and storing it in an online database to automate fan and pump endurance testing, reducing manual monitoring requirements by 90%

PROJECTS

Motorized Bicycle Trailer (Capstone)

Sept 2025 – Apr 2026

- Designed and built an electrically assisted bicycle trailer that offsets its own weight through an onboard motor, reducing rider towing effort by 93% and supporting up to 100 kg on a 10% grade
- Developed a real-time control system on an STM32 microcontroller using PI control, DMA communication, interrupts, and a state machine to manage motor control, braking, and fault handling
- Implemented electronic isolation between high-power and low-power components using galvanic and opto-isolation, shielding the microcontroller and sensors from EMI and electrical transients
- Created a MATLAB Simulink model of the battery, DC motor, motor controller, drivetrain, and control system to validate performance and tune PI gains prior to physical testing
- Developed fault-detection and protection logic for overcurrent, overvoltage, and thermal events to ensure safe operating limits are maintained

Trailer Hitch Structural Analysis

Sept 2025 – Dec 2025

- Developed a CAD model for a hitch design and conducted FEA analysis in Ansys Mechanical to observe deformation, stress, and strain distributions under loading
- Conducted a mesh convergence study to validate simulation accuracy, achieving less than 2% change in deformation after 5 iterations

Renewable Energy Grid Integration

May 2025 - Aug 2025

- Integrated a simulated solar photovoltaic power plant with an existing 37-bus power system using PSS-SINCAL, identifying current and voltage loading violations and required infrastructure upgrades

TECHNICAL SKILLS

Software & Embedded: C, C++, MATLAB, Simulink, STM32, Arduino, Raspberry Pi, Logix 5000 PLC

Electrical: DMM, oscilloscope, AC/DC supply, soldering, sensor integration

Mechanical: SolidWorks, Autodesk Inventor, Ansys Granta, Ansys Mechanical (FEA)

INTERESTS

Saxophone, Badminton, Cycling, and Nature