

## Summary

- Electrical Engineering student at BCIT with hands-on experience in circuit design, embedded systems, and industrial automation.
- Proficient in LTspice, MATLAB, KiCAD, SolidWorks, LabVIEW, and FPGA programming (SystemVerilog) and other languages (C, C++, and Python)
- Strong background in sensor integration, PCB design, and control systems.
- Experience in data analysis, instrumentation, and experimental design, applied from previous work in agricultural research.
- Passionate about renewable energy, sustainable technologies, and real-world problem-solving.

## Education

### Bachelor of Engineering in Electrical Engineering

2026

British Columbia Institute of Technology, Burnaby BC

- Designed and manufactured a 12V regulated power supply using KiCAD, SolidWorks, and PCB soldering.
- Programmed MATLAB scripts to analyze real-time circuit data, signal processing, and automation.
- Built & tested operational amplifier circuits to process sensor signals for industrial applications.
- Developed microcontroller-based control circuits with C/C++ for embedded systems.
- Troubleshooting electrical systems using oscilloscopes, digital multimeters, and LabVIEW.
- Worked on sensor integration (pressure, temperature, strain gauge, humidity) for industrial automation.
- Produced professional technical reports for circuit analysis, simulations, and data-driven insights.
- Familiar with embedded systems using ESP 32, Pico2W and experience with FreeRTOS.

### Bachelor of Science: Major in Microbiology, Minor in Biology (Co-op)

2014

University of Victoria, Victoria BC

## Professional Experience

### Plant Care Services Field Manager | University of British Columbia

April 2016 – July 2022

- Managed field research operations for 30+ projects annually, ensuring compliance with scientific protocols and safety standards.
- Designed and maintained field monitoring systems, integrating sensor data collection for soil and environmental analysis.
- Led troubleshooting and maintenance of farm equipment, irrigation systems, and environmental monitoring tools.
- Collaborated with researchers and trained students, providing guidance on data collection, instrumentation, and best practices.

### Environmental Technician | Diamond Head Consulting

June 2015 – Dec 2015

- Identified and mapped invasive plant species (*Japanese Knotweed, Giant Hogweed, Lamium, Tansy*) using GIS software (GISproDIU).
- Conducted targeted herbicide applications to control invasive species while ensuring compliance with environmental safety regulations.
- Planted native trees and shrubs as part of restoration efforts to improve ecological balance.

### Research Assistant | Agriculture & Agri-Food Canada

Jan 2013 – April 2015

## Professional Experience Continued

- Conducted molecular biology research on plant pathology, soil health, and food safety, working on multiple projects.
- Extracted and analyzed DNA/RNA from plant and bacterial samples using PCR, qPCR, and gene expression analysis.
- Designed and prepared sequencing libraries for Illumina next-generation sequencing.
- Performed microbiological isolations of fungi, yeast, and *E. coli* O157:H7 using selective media in a biosafety level 2 laboratory.
- Designed custom primers using Primer3 software for genetic studies.
- Analyzed the impact of organic amendments on soil health, root diseases, and nematode populations.
- Collected and processed environmental data from weather stations for climate impact research.
- Designed and presented scientific posters, summarizing research findings for academic and industry professionals.

## Projects

### Catalina 27 Sailboat

March 2016 – present

- Designed and rewired all electrical systems aboard a 27-ft Catalina sailboat.
- Installed fuse panels, inverters, charge controllers, and battery management systems.
- Integrated solar panels for renewable energy, optimizing efficiency and power storage.

### Automated Recycling Sorter Project

March – April 2024

- Developed an automated object-sorting system using C++ and computer vision.
- Programmed motor control algorithms for precise object sorting based on real-time camera input.
- Designed & 3D-printed mechanical components for conveyor and sorting mechanism.

### Video Game Development and Programming

Feb 2024

- Designed and developed a physics-based game using C++, focusing on real-time graphics and user interactivity.
- Optimized algorithms for game physics, rendering, and animation.

### Smart Mailbox Package Receiver

May 2025 – Present

- Designed and built a smart mailbox with remote open/close control using Raspberry Pi 4 + Raspberry Pi Pico 2W running FreeRTOS which interacts with a GUI on an application.
- Integrated strain-gauge weight sensing plus a 3-camera monitoring system for package verification.
- Implemented secure access via keypad + RFID reader for authenticated entry.

## Interests

- Renewable & Sustainable Applied Systems** – Wind energy, solar, and electric motors.
- Outdoor Activities** – Skiing, running, biking, and exploring BC's wilderness.
- Community Involvement** – Volunteer ski instructor with Vancouver Adaptive Snow Sports
- Gardening & Native Plants** – Sustainable landscaping & ecological restoration.
- Building & Masonry** – Experience in construction, landscaping, and stone masonry