

Warrick Lo

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SKILLS

Technical Languages: C, C++, Python, MATLAB, SystemVerilog, ARM/8051/x86 Assembly, Bash, VBA, SQL
Software: Altium Designer, Simulink, Fusion 360, SolidWorks, Ansys HFSS, LTspice, Linux, FreeBSD, Git, GDB
Hardware: Vector Network Analyser, Spectrum Analyser, Software-Defined Radio, FPGA, STM32, Peripheral Interfaces
Certifications: Amateur Radio Operator Certificate, WHMIS

EDUCATION

The University of British Columbia
Bachelor of Applied Science in Electrical Engineering, Minor in Physics
Co-op program, available for up to 16 months

EXPECTED 2027 APRIL

DESIGN TEAM EXPERIENCE

ALEASAT, UBC Orbit Satellite Design Team, Communication System Subteam

2024 SEPTEMBER–PRESENT

- Characterised the GRF5504 power amplifier by measuring S-parameters, third-order intermodulation distortion, and 1 dB compression point to evaluate its linear range for reliable satellite downlink signal integrity
- Conducted detailed simulations of spacecraft antenna designs using Ansys HFSS to analyse radiation patterns, calculate theoretical gain, and verify performance against mission link budget constraints
- Employed software-defined radios (SDR) to spoof GPS signals, allowing for controlled testing of GNSS sensors

TECHNICAL PROJECTS

5-stage RISC Processor on DE1-SoC FPGA, Computing Systems I

2024 NOVEMBER

- Architected and implemented a Turing-complete, 5-stage, non-pipelined RISC processor in SystemVerilog, synthesised onto the DE1-SoC development board, achieving the **3rd fastest performance** in a class of 350 students
- Developed and executed over 100 test cases in ModelSim to ensure correct system functionality

Autonomous Coin Collecting Robot, Electrical Engineering Design Studio I

2025 MARCH

- Built an autonomous and remote-controlled coin-collecting robot, capable of detecting and retrieving Canadian coin denominations within a wire-defined boundary using inductive sensors and a Colpitts oscillator-based metal-detection system
- Developed embedded systems in C using STM32 and EFM8 microcontrollers, integrating wireless communication, motor control via H-bridge and optoisolators, and a servo-actuated electromagnetic arm
- Developed autonomous functions including startup calibration, sonar-based obstacle avoidance, boundary detection, and randomised path rerouting, ensuring reliable operation in both manual and automatic modes

FM Radio Receiver, Personal Project

2024 AUGUST

- Designed detailed schematics for a radio receiver circuit using Altium Designer
- Incorporated a tuned LC oscillator circuit for frequency selection and demodulation of FM signals and an LM386 audio amplifier circuit to enhance signal output and audio clarity

Reflow Oven Controller, Electrical Engineering Design Studio I

2025 FEBRUARY

- Developed a state machine in assembly for a reflow oven controller using an 8051-based microcontroller, incorporating UART communication for real-time data plotting and logging via Python

PUBLICATIONS

Eisha Khan, David Tang, Ari Cholakian, Max Xiang, Warrick Lo, and David Michelson. *Using a Dynamic Channel Emulator for Cubesat GNSS Receiver Testing and Integration*. IEEE Canadian Conference on Electrical and Computer Engineering (CCECE), Vancouver, Canada, May 2025.

OTHER EXPERIENCE

Pack Buildings

Construction Management Intern

Richmond, BC

2024 JULY–2024 AUGUST

- Organised 10 spreadsheets of financial data in Excel, enhancing clarity for project investors
- Participated in meetings with project investors and construction team, ensuring investor priorities were addressed

Lingyen Mountain Temple

Teaching Assistant

Richmond, BC

2023 APRIL–PRESENT

- Delegated tasks to a group of around 40 youth volunteers, resulting in approximately a 30% increase in efficiency of operations