EMILY XUE

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EDUCATION

University of British Columbia   **September 2021 – May 2026**

Bachelor of Applied Science in Engineering Physics

WORK EXPERIENCE

Microchip   **May 2024 – December 2024**

Data Center Solutions Product Engineer

- Developed automated testing sequences in Python for post-silicon validation of Gen 6 & 7 PCIe test switches, configuring register read/write sequences to characterize internal CSU blocks in SerDes architecture.
- Created custom data collection scripts using numpy and pandas libraries, optimizing processing times by over 50%.
- Worked closely with mixed signal design, verification, and analog design teams to troubleshoot device behaviour, debug firmware and ensure specifications are met for production.

Folk Group at UBC Stewart Blusson Quantum Matters Institute   **January 2023 – April 2023**

Research Assistant

- Designed and fabricated 2D graphene-hBN quantum devices, gaining in-depth experience with nanofabrication processes of Van der Waals Heterostructures.
- Completed cleanroom training on metal evaporation, plasma etching, stacking, wire bonding, and helium dewar operation for precision measurements.
- Created a Python script using skimage library to process microscope images, enabling identification of alignment marks for KLayout design.

PROJECTS

UBC AeroDesign Avionics Software Engineer | *Network Communication Protocols, Linux*   **May 2024**

- Implemented WifiBroadcast-Next Generation (WFB-NG), a specialized flight communications protocol, for real-time, low-latency video and telemetry transmission.

Simulated Driving Detective Competition | *Python, Linux, AI/ML, Image Processing, ROS*   **April 2024**

- Successfully trained a convolutional neural network using TensorFlow to accurately identify alphanumeric characters on virtual license plates.
- Implemented a driving algorithm in Python, leveraging image processing techniques with the OpenCV library to enable autonomous navigation and obstacle detection in a Gazebo simulation environment.

Website Blocking Extension | *HTML, CSS, JS, Figma*   **December 2023**

- Developed a Chrome extension using HTML, CSS, and JavaScript to block distracting websites, with features such as temporary website access, time limits, and automated reminders.
- Created page prototypes in Figma and developed all visual assets, including custom pixel art, icons, UI elements and theme design to ensure a cohesive and user-friendly interface for a browser web blocking extension.

Autonomous Driving Robot Competition | *CAD, Prototyping, Soldering, Laser-Cutting*   **August 2023**

- Given 6 weeks and a team of 4, successfully developed an autonomous robot capable of driving via tape-following from scratch.
- Created mechanical CAD models using OnShape, produced rapid proof of concept designs to test mechanical structures and soldered prototype infrared sensor circuits.

Motor RPM Control Circuit | *Circuit Analysis/Debugging, Jupyter Notebook, Lab Equipment*   **November 2022**

- Constructed a feedback control circuit to control the RPM of a motor via ICs and potentiometer, debugging using lab equipment such as oscilloscope, logic analyzer and signal generators.

TECHNICAL SKILLS

Software: Python, Java, HTML, CSS, Javascript, Linux, Git, Docker
Electronics: Assembly, VHDL, KLayout, Oscilloscope, Spectrum Analyzer, Soldering, Circuit Debugging
Design & Prototyping: SOLIDWORKS, OnShape, Figma, Spline, Laser Cutting, Basic Machining (Lathe, Mill, Drill Press)