Andrew Chen

andrewyuliangchen@gmail.com | Burnaby, Canada | andrewchyn | nullcline_

Education

University of British Columbia, *B.ASc, Engineering Physics, 3.7 c.GPA* 2018 – 2024 | Vancouver, Canada

Key Skills

Electrical
Embedded Programming, KiCAD, Circuit Design, Control Systems, PLCs, Reading Datasheets

Software
Python, PyTorch, C++, Rust, Linux, Computer Vision, Reading Documentation

Mechanical
SolidWorks, 3D Printing, Laser/Waterjet Cutting, Lathing, Machining

Experience

Tesla, *Sensor Integration Engineering Intern* 09/2022
- TBD

General Fusion, *Diagnostics and Controls Engineering Intern* 05/2022 – present
- Working with the Controls team to design and program a control system and device drivers for a nuclear fusion reactor and test platforms.
- Wrote, tested, and validated a series of python based digitizer drivers used to interface with the core control system and created a GUI in PySide6 to facilitate streamlined control for machine operators.
- Designed and implemented the architecture for interfacing with and communicating to multiple Beckhoff PLCs using Python and ADS.

UBC AeroDesign, *Avionics Tech Lead/Project Manager* 03/2021 – Present
- Leading a team of 18 students through the development and integration of embedded and software systems for two fixed-winged airplane, as entries for the SAE AeroDesign competition.
- Guiding new students through the engineering design process and teaching them about embedded programming, computer vision, RF communication, PCB design, and various hands-on skills.
- Performing design reviews, making project timelines, and leading the design of the overall system architecture.

General Fusion, *Systems Engineering Intern* 05/2021 – 12/2021
- Worked with the Systems Engineering team to help manage the complexity of designing and building a novel nuclear fusion reactor and test facility through requirements management, interface definition, and analyses.
- Worked under Chief Scientist to conduct experiments and research interactions between liquid lithium and materials ranging from calcium aluminate glasses to polyimide-matrix carbon fiber composites.

Projects

Design Team - Kyogre, *C++, Raspberry Pi, Python, OpenCV, KiCAD* 09/2021 – Present
- Designing a telemetry system capable of meeting the SAE AeroDesign competition challenge of landing an autonomous drone onto marker disks with only data collected 50 ft in the air.
- Evaluated cameras, IMUs, GPSs, Altimeters, and LiDAR sensors for use in plane using a drone.
- Wrote a computer vision algorithm in Python using OpenCV capable of calculating GPS positions of markers from a video stream when given plane GPS locations.
- Helped write networking code using 0MQ library, as well as the ground control station using Streamlit.
- Communicated with mechanical teams for positioning, mounting, and routing of all airborne electronics, and designed mounts for plane and test drone.
- Currently prototyping alternative system using a 4G LTE router, as well as creating a PCB in order to use a Raspberry Pi CM4.

Capstone - Fuel Cell Monitoring System, *Circuit Design, C, KiCAD* 09/2021 – 04/2022
- Designed an electrically-isolated, modular, and cost-effective fuel cell monitoring system in a team of four.
- Evaluated various ICs, including power regulators, microcontrollers, digital isolators, opto-isolators, and ADCs.
- Designed multiple PCBs in KiCAD for testing subsystems as well as multiple iterations of the full module.
- Helped write firmware to read I2C messages and write them to Modbus registers.
- Performed high-voltage testing of full system, measured ADC accuracy, debugged using signal analyzer, and designed DIN rail mounts.
- Acted as project manager by keeping track of requirements and verification, leading meetings with project sponsor, reaching out to suppliers, and keeping track of timeline.