Allen Pham

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https://ap010307.github.io/portfolio/

Experience

UBC Supermileage Vancouver, Canada
Electrical General Team Member *September 2024 – Present*

- Led improvement effort on the **ESP-32** telemetry system, including RPM warning and specific indicators for driver's user experience using **C++**.
- Populated telemetry PCBs using a **reflow oven** and **soldering iron** for the team's cars: Urban Concept, Gas Prototype, and Fuel Cell Prototype.
- Expand on vehicle's dynamic simulations and strategize racing lines and car setup to maximize mileage using **MATLAB** and **SolidWorks**.

Blacksheep Power Hanoi, Vietnam
Electrical and Mechanical Engineering Intern *May 2023 – July 2023, July 2024 – August 2024*

- Designed and created new electrical wiring harnesses for an electric motorbike, developed low-voltage electronics such as amplifiers, and documented wiring diagrams for future development by **LTSpice**.
- Analyzed performance data from pressure pumps with **Python** to compare prototypes and devised a prototype heat sink using **Creo** and **Arduino IDE**, lowering operating temperature by 10°C.
- Constructed a safety guide to ensure workplace safety for employees and visitors.

Projects

Reflow Oven Controller January 2025 – February 2025
Visual Studio Code, 8051 Assembly Language

- Designed a circuit to amplify, display and collect temperature data for the oven controller's thermocouple wire.
- Programmed a finite state machine using **assembly language** to create a reflow soldering temperature profile.
- Collected and visualized the reflow oven process and temperature data using **assembly language** and **Python's Matplotlib**.

Urban Concept Vehicle Simulation December 2024 – Present
MATLAB, Python Simulink, SolidWorks

- Simulate weather and track conditions of Indianapolis Motor Speedway to prepare vehicle performances in the upcoming Shell-Eco Marathon
- Created a **Simulink** workflow to simulate chassis, electrical system, braking, and suspension from SolidWork.
- Visualized optimal throttle and braking points using **MATLAB** and **Python**.

RISC Machine November 2024 – Present
SystemVerilog, ModelSim, Quartus Prime

- Developed a script to create a datapath for a **RISC** machine supporting addition and bit-shifting with System Verilog.
- Co-created a **RISC** controller using a finite state machine to control the datapath and assembly instruction.
- Used **ModelSim** and **Quartus Prime** to implement the finite state machine into a DE1-SOC and visualize waveforms and debug functionality respectively.

Signal Generator May 2024 – June 2024
KiCad, LTSpicem, Multimeter, Oscilloscope

- Redesigned a signal generator schematic using **KiCAD** to simplify the printed circuit board when it would be ready for assembly.
- Analyzed properties of electric components such as operational amplifiers and capacitors to understand properties of a signal generator with **LTSpice**.
- Debugged a printed circuit board assembly with a **multimeter** and an **oscilloscope** to create a final product

Education

The University of British Columbia Vancouver, BC
Bachelor of Applied Science in Electrical Engineering *September 2024 - Present*