Brandon Fong

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Education

University of Calgary Expected graduation: April 2026

Bachelor of Science in Electrical Engineering, Minor in Computer Engineering

Relevant Courses: Digital Systems Design, Signals and Transforms, Analog Electronic Circuits, Digital Electronic Circuits, Embedded Systems Interfacing, Electronic Devices and Materials, Computer Organization

Experience

Advanced Micro Devices (AMD) May 2024 – Aug 2025

Physical Design Engineer *Markham, ON*

- Developed high-performance **clock trees** and top-level **clock meshes** for advanced SoCs in **Fusion Compiler**, contributing to timing closure and driving **skew minimization down by 68%** across full-chip physical designs
- Implemented **Tcl** and **Python** scripts to automate **clock tree** legalization and route length checks, reducing manual effort by **38%** and accelerating turnaround time
- Resolved critical **2-tile** violations by performing static timing analysis **(STA)** and path debugging in **PrimeTime**, and implemented **ECOs** to improve clock connectivity and fix design rule violations (**DRVs**)

University of Calgary Nov 2022 – Apr 2023

Web Developer *Calgary, AB*

- Designed a web app to visualize geothermal well drilling data, resulting in a **25%** increase in data accessibility
- Developed a **React** dashboard boosting query speeds by **30%** and accurately analyzed data from **PostgreSQL**
- Created a new dynamic selection interface that enhanced the load time of a frequently trafficked tab by **80%**

Projects

Skiing Blind-Spot Monitor | *C, Arduino* Apr. 2024

- Collaborated in a team of **4** to design a backpack-mounted device detecting skiers approaching from behind using a proximity sensor, camera, and ML-based classification
- Developed **C/C++** firmware on Arduino to interface with sensors and control real-time audio alerts, enabling directional (left/right) and distance-based warnings under <500 ms latency
- Contributed to system integration and testing, validating detection accuracy and ensuring reliable performance in slope conditions and ensuring consistent detection up to 10m behind the user

Water Quality Tester | *C, Soldering, PCB Design, AVR128DB28* Apr. 2023

- Spearheaded a team of **3** to develop a water tester incorporating a turbidity sensor and a conductivity sensor
- Programmed the **AVR128DB28** MCU in **C** for data processing and acquisition, improving measurement accuracy
- Led the assembling and **soldering** of components onto the **PCB**, ensuring a compact and reliable design

Extracurricular

Relectric Car Team Sept 2023 – Apr 2024

Electrical Team Member *Calgary, AB*

- Designed and executed **8** test cases and formulated documentation for validation of the motor controller
- Conducted comprehensive design reviews for the electrical components of the vehicle
- Educated **3** team members on the principles of EV technologies

University of Calgary Solar Car Team Oct 2022 – Apr 2023

Electrical Solar Array Member *Calgary, AB*

- Performed thorough solar cell testing to enhance energy efficiency and competitiveness of the vehicle
- Assembled and tested **PCBs** as required, employing the use of lab measurement equipment and **soldering** tools
- Improved wiring layout and cable management, boosting maintainability and troubleshooting efficiency

Technical Skills

Languages: C, Python, Tcl, HTML/CSS, SystemVerilog
Hardware: Oscilloscope, Function Generator, PIC24, AVR128, Breadboard Circuit Design, Soldering
Developer Tools: Fusion Compiler, PrimeTime, Linux, React, Git, MATLAB, MPLAB X, AutoCAD, Quartus, Xilinx Vivado, Multisim, Fusion 360, Altium Designer