TRAVIS INNES

Electrical Engineer - Electronic Design & IC Packaging

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EDUCATION

Graduation: May 2025

The University of British Columbia

Bachelor of Applied Science in Electrical Engineering

EXPERIENCE

Autopilot Hardware | Tesla, Inc. *2023– 2024*

- Owned the design of cutting-edge **IC packages** and **PCBAs**, collaborating with cross-functional teams and international vendors to move assemblies from **concept to production** while ensuring robust board and **package-level reliability**.
- Ownership over **thermal test vehicle** for next-gen silicon. Building large IC package to test thermal response based on simulated heat signatures. **Optimizing power and signal delivery** through package & PCB using **SI/PI best practices**.
- Designed and implemented testing for **embedded component** systems within advanced power delivery systems, optimizing efficiency and reducing size.
- Employing reliability techniques such as **daisy chaining** to verify **system-level connectivity** from die to IC package to PCB.
- Developed automation scripts in **Python, SKILL, and MATLAB** to streamline design workflows in Cadence, improving efficiency in layout and **constraint management**.
- Exposure to electronics and **high-speed signal simulation** software such as Ansys HFSS, Sigrity Aurora.
- Experience engineering **consumer electronics** for mass-market.

Electronics Engineer | Current Scientific Corp. *2021 – 2022*

- One of two electronics engineers in charge of **quickly designing, prototyping, producing,** and **testing PCB's** to complete, solve, and ship major system designs.
- Creation of **10+ complex PCBs** over an 8 month window.
- Experience designing custom PCB's and solving electrical design related issues - from identifying a problem, to brainstorming electrical solutions, to building a schematic, to routing, to fabricating, and all of the debugging in-between.
- Designing **low noise PCB's**, understanding of electromagnetic interference and its mitigation techniques.
- Experience designing and working with various serial communication protocols **(I2C, SPI, UART, etc).**
- Understanding and use of **highspeed board design**, integration of **FPGA/ICs**, and designs up to **12 layers.**
- Proficient in 2D/3D CAD tools, including **Cadence, Altium, and DraftSight**, for designing PCBs, creating harnesses, wiring schematics, and organizing complex electrical projects.
- **Designed and implemented a window defroster** for ruggedized camera systems, enabling deployment in cold climates (down to -20°C). Engineered using resistive wire, and conducted tests to ensure dew point thresholds were met in extreme conditions.

Hardware Lead | Biomedical Startup *2024 - 2025*

- Led research, IC selection, schematic, and layout for complex heart rate monitor **wearable** with **microcontroller, power conversion, LCD, battery management, sensors,** and **antenna**.
- Architected **power delivery** and **battery management** for a LiPo battery using a **boost converter** and linear charge controller.
- Experience prototyping with various types of **heart rate monitoring sensors** such as **photoplethysmogram (PPG),** EKG, & ultrasound.

Electrical | UBC Formula Electric *2019 - 2020*

- Designing and executing the vehicle's **wiring harnesses** as well as integrating PCBs, connectors, and various components.
- Tested and built harnesses to confirm and optimize the wiring/connectors to the vehicle's PCBs.

TECHNICAL SKILLS

Circuit Design & Rapid Prototyping
Reading/writing electrical schematics, experience methodically testing/debugging circuitry, quickly designing/shipping/soldering PCBs.

IC Packaging
Designing multi-layer substrates, test vehicles, embedded chips, using flip-chip packages.

Microcontrollers/FPGA
Interfacing with ICs/FPGA (STM32, ESP32, DE1-SoC), I2C, SPI, UART, and other serial communication.

Power Electronics
Designing DC-DC converters, power delivery systems.

Analytical Equipment & Testing
Multimeters, oscilloscopes, function generators.

SOFTWARE SKILLS

Python | C | LTspice | Matlab | Draftsight | Altium Designer | Cadence Orcad/Allegro | SKILL

VOLUNTEER & ACCOMPLISHMENTS

Ridge Meadows Minor Hockey Assoc. *2005 - 2018*

- Represented Maple Ridge/Pitt Meadows's top midget team, Ridge Meadows Rustlers A1, in last of 13 years playing.

Thomas Haney Secondary *2017 - 2018*

- President and founder of the THSS code club.

INTERESTS

- Hockey, Tennis, Endurance Races, Hiking, Skiing.
- Travelling, Investing, Electronics, Reading.