# FRANK WALSH

## Automotive Electronics Design Engineer

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## ENGINEERING EXPERIENCE

### Electronics Design Engineer

**Tesla**

Aug 2021 - Present  Palo Alto, California

- Lead design and validation of production electronics for Tesla's Low Voltage Controllers, integrating power, motor-drive, analog, and high-speed digital subsystems across millions of vehicles annually.
- Drove cross-functional redesign of Model 3/Y low-voltage architecture, unlocking $35M in annual revenue through harness optimizations and BOM cost reductions.
- Designed Tesla's first ever 48V USB-C charging hub for Cybertruck and Model 3/Y - leveraging vertical integration to cut center console cost by $9.17 per vehicle.
- Designed and validated high-efficiency 650 W multi-phase buck converter with coupled inductor.
- Conduct bench-level validation and functional testing of new circuit designs to ensure production readiness.
- Resolved production line-down issues under tight deadlines, including EMI non-compliance and IC supply crises.
- Created Python-based design automation tools for fuse sizing and circuit protection, now used across the Low Voltage Controllers team.

### Hardware Engineering Intern

**Curtiss Wright Defense Solutions**

Jan. 2021 - April 2021  Ottawa, Ontario

- Performed bring up and verification of new x86-based Ethernet switch product. Verification included thermal, traffic, flash and compliance testing.

### Low Voltage Distribution Intern

**Tesla**

Oct. 2019 - Aug. 2020  Palo Alto, California

- Worked in a team of two, designing Semi-Truck LV Distribution System from the 'ground-up'. Vehicle has a total of +400 connector endpoints.
- Designed 6 wire harnesses which are currently used in production.
- Coordinated with in-house PCB team to develop key DFM architecture features such as: CAN layout, PCB wire passthroughs and wire-wire inlines. These features reduced harness costs by an estimated 6%.

### Electrical Systems Lead

**Paradigm Hyperloop**

May 2018 - Jan. 2020  St. John's, Newfoundland

- Coordinated subsystem team of 5 students designing, building and testing electrical systems for an autonomous electric vehicle, capable of +470kph.
- Team finished 3rd overall in North America, and, 8th in the world in 2019.
- Designed, built and tested a 410kW electric powertrain. System includes 800V lithium battery pack, PMS motor and control circuitry.
- Oversaw, and led low voltage sub-team. Team created system that used 5 custom PCBs, +30 sensors and custom wiring.
- Wrote 110+ pages of proposal and safety documentation.

### Electrical Engineering Intern

**Solace Power Inc.**

Aug. 2018 – Dec. 2018  Mount Pearl, Newfoundland

- Designed/tested data transfer via capactive coupled wireless power link.
- Used VNAs and IAs to tune over 40 RF filters for EMC compliance.

## EDUCATION

### M.Eng Industrial Engineering

**Oregon State University**

June 2024 - Present

Cumulative GPA: 4.0/4.0

### B.Eng Electrical Engineering

**Memorial University of Newfoundland**

Sept 2016 - Apr. 2022

Cumulative GPA: 3.64/4.0 (Avg: 82.0%)

## PERSONAL EE ACHIEVEMENTS

**2023 Ray Ridely 5-Day Power Seminar**
In-person Power Electronics seminar: magnetics, control theory, DC/DC design.

**Senior Design Project**
Top IEEE Capstone award received for Autonomous Underwater Vehicle project.

**2019 SpaceX Hyperloop Competition**
Electrical Subsytems Lead for team that ranked in top 2.6% of teams worldwide.

## HARDWARE SKILLS

Oscilloscope | SMD Soldering | Altium | PCB Design | KiCAD | LTSpice | SPI | STM32 | Tolerance Analysis | I2C | CAN | Documentation | UART | e-Loads | EMC

## SOFTWARE SKILLS

Python | Embedded C | Arduino | AVR Assembly | SW4STM32 | Scripting | Vibecoding | Web Development

## WEB DEV

- TNsupportletter.com – AI tool generating TN Visa letters for Canadians under USMCA, with Stripe, MongoDB and OpenAI integrations.
- CommuteGraph.com – Web app for analyzing and graphing commute times.
- Donezo App – iOS AI goal planner with gamified tracking and full App Store launch.

## OBJECTIVE

Seeking a challenging role driving innovation in electronics design and integration.

## INTERESTS

Camping, Hiking, Fitness, Podcasts, Videogames