STEFAN BOON-PETERSEN

Electronics Designer & New Graduate in Electrical Engineering

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WORK EXPERIENCE

Low-Voltage Controllers Design & Test Intern • Tesla • Palo Alto, CA
September 2023 – December 2023
- **Debugged pre-charge issue**, identified cause and re-work solution, and did design work for permanent solution.
- **Designed interface board** to connect vehicle controller to automated hardware tester.
- **Conducted schematic and layout review** of complex circuits for vehicle controllers.
- **Conducted hardware validation** for various low-voltage controllers.

Quality Assurance Intern • GlobeTracker • Torshavn, Faroe Islands
January 2023 – April 2023
- **Tested firmware** for refrigerated shipping containers to ensure accuracy of GPS and sensor data, task scheduler, and data reporting.
- **Developed Python scripts** to automate firmware testing by interfacing with the web interface.

In-Band Communication Intern • Solace Power • Mount Pearl, Canada
May 2022 – August 2022, August 2021 – December 2021
- **Implemented new encoding schemes** into the company's in-band communication system, reducing power consumption by over 60%.
- **Simulated, implemented, and tested new in-band modulation circuit** for the in-band communication system, reducing power consumption by 95% and increasing data rate by up to 4500%.
- **Developed firmware** to manage in-band communications and state machine functionality.
- **Implemented bit error correction** to the in-band firmware library.

Data Analyst Co-op Student • NL Eats Community Outreach
January 2021 – April 2021
- **Secured more than $25,000 in funding** for food bank operations.

EXTRACURRICULAR

Electrical Advisor (Former Electrical Lead) • Eastern Edge Robotics
October 2019 – Present
- **Leadership role** in **electrical architecture design** for remotely operated underwater vehicle (ROV).
- **Designed PCB** to enable Raspberry Pi Compute Module 3+ to interface with USB hub, USB to Ethernet converter, SPI to CAN converter, CAN transceiver, and UART multiplexer.
- **Designed backplane PCB** to connect compute module adapter boards to other parts of ROV's electrical system.
- **Designed PCB adapter** to connect ROV camera cables of different types.
- **Designed electronics** for vertical profiler.

EDUCATION

B. Eng., Electrical Engineering
Memorial University of Newfoundland

Sept. 2019 – May 2024

93.6% Cumulative Average
4.0/4.0 GPA

Dean's List (2019-2024)

SKILLS

- KiCad/Altium
- LTspice/Pspice/Multisim
- C/C++/Python
- PCB Design
- PCB Rework
- Hardware Validation

PROJECTS

Wirelessly Charging Drone
- Capstone project to develop a drone with built-in USB-PD and wireless charging and controls over the internet.
- Responsible for 5W wireless power receiver, 120W capable charge controller, and BMS for 4s1p LiPo battery.
- Responsible for NTSC to MIPI video digitizer.

Battery Capacity Tester
- Used a constant current sink circuit to drain a lead-acid battery capacity at currents up to 5A and determine capacity in Ah and Wh.

VOLUNTEERING

Safety Inspector • NL Regional MATE ROV Competition
2022-2023

Referee • FIRST Lego League
2019, 2022