# ETHAN PETERSON

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Projects ◇ GitHub ◇ LinkedIn

## EDUCATION

**Queen's University** **September 2018 - May 2023**
***BASc Computer Engineering*** ***Kingston, Ontario***

- **Dean's Scholar, awarded to students with a GPA of 3.5 or higher**
- **Principal's Entrance Scholarship (2018)**
- **Queen's Formula SAE Racing Electrical Lead**
- **GPA: 4.1/4.3**

## EXPERIENCE

**Tesla** **May 2023 - Present**
***Software Integration Engineer*** ***Palo Alto, California***

- **Lead the firmware integration effort for vehicle efficiency and idle energy consumption with a focus on vehicle sleep.**
- **Reduced Cybertruck idle consumption by 40x.**
- **Developed firmware to support putting various controllers in their low-power states.**
- **Participated in the design and implementation of ethernet sleep/wake for Cybertruck's ethernet communications architecture.**

**Kepler Communications** **May 2021 - August 2022**
***Hardware Engineering Intern*** ***Toronto, Ontario***

- **Designed a motor controller PCB used in the development of an Antenna Pointing Mechanism (APM).**
- **Implemented drivers and added firmware support for the encoders, temperature sensors, and motors on the motor controller PCB.**
- **Owned the requirements capture, scoping, schematic, layout, and release of a flight PCB design. This design includes several high speed Aurora lanes, 10G Ethernet, and distributes over a kilowatt of power.**

**Kepler Communications** **May 2020 - August 2020**
***Hardware Test Engineering Intern*** ***Toronto, Ontario***

- **Worked with full-time engineers to bring the company's next generation of Low Earth Orbit (LEO) satellites to fruition.**
- **Designed a selection of custom PCBs to support the satellite manufacturing process. Designs include, but are not limited to, internet enabled JTAG debuggers for FPGAs, flight sensor calibration PCBs, TVAC capable wiring harnesses, and power boards with slew rate control.**
- **Debugged flight boards using an oscilloscope with voltage and current probes.**
- **Wrote the Python and C code required to test each PCB design as well as debugging existing scripts.**

**Wattpad Inc.** **May 2019 - August 2019**
***Associate Engineer*** ***Toronto, Ontario***

- **Worked with the Velocity squad on a variety of internal tools for Wattpad engineering. Namely Ship-it!, an open source continuous deployment tool running atop Kubernetes and Helm.**
- **Wrote the Ship-it! frontend dashboard using React and MaterialUI.**
- **Built a synchronization package in GoLang to reconcile the state of the Kubernetes Cluster and the deployment specifications for each service in Git.**

**Marrelli Support Services Inc.** **June 2018 - August 2018**
***Software Developer*** ***Toronto, Ontario***

- **Responsible for developing custom software for a firm specialized in providing corporate services to publicly-traded companies.**
- **Developed a custom volatility calculator to be used by the firm to calculate the historical volatility of equities traded on the TSX and TSX Venture Exchange.**
- **Liaised with members of the firm's upper management to independently design and develop a custom payment tracking software to assist the firm in its transition to a paperless bookkeeping process. The software complies with the firm's internal control procedures, allows for communication between departments and guides users through the process so as to minimize bookkeeping errors.**

## TECHNICAL SKILLS

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|---|---|
| **Hardware** | **Oscilloscopes, SPI, I2C, USART, CAN Bus, Ethernet (MII, MDIO, TC-10), Altium, Schematic Design, High-speed PCB Layout** |
| **Programming** | **Python, C, GoLang, SystemVerilog (AXI, VUnit, BFM Design), Bash, Linux, Git, FreeRTOS, ARM, and Amazon Web Services** |
| **Office Software** | **Word, Powerpoint, Excel, OneNote, and LaTeX** |

## EXTRACURRICULAR EXPERIENCE & PROJECTS

**TeachEE - Accessible Electronics Instrumentation** **September 2022 - May 2023**
***Team Lead*** ***Kingston, Ontario***

- **Built a 20MHz USB oscilloscope as a final Electrical and Computer Engineering course project.**
- **Designed the host PCB with a USB 2.0 PHY, 40MSPS ADC, and Xilinx FPGA to relay voltage and current samples to a computer.**
- **Developed the SystemVerilog firmware which sampled four ADC channels and transmitted samples to the desktop application using a custom protocol.**
- **Built GitHub Actions infrastructure to regression test the FPGA design with VUnit and BFMs emulating on-board devices.**
- **First place winner of both the Queen's Capstone Project and IEEE Kingston Chapter Competitions.**

**Queen's Formula Society of Automotive Engineers** **September 2018 - May 2023**
***Team Lead - Electrical Section*** ***Kingston, Ontario***

- **Leading all software developers and hardware designers on the team. Assisting with technical issues in addition to defining the overall system architecture.**
- **Architect of the CAN Bus network employed on all vehicles from 2020 onward. Wrote a custom CAN library in C++ to allow other team members to easily access CAN data in their respective software projects.**
- **Implemented inter-MCU communication protocols using Consistent Overhead Byte Stuffing (COBS) and checksums to ensure data integrity.**
- **Moved all microcontrollers from Arduino and off-the-shelf shields to fully custom STM32 ARM PCB designs.**

**Youth Assisting Youth** **September 2021 - June 2022**
***Volunteer - STEM Tutor*** ***Toronto, Ontario***

- **Tutoring at-risk youth in STEM subjects with a particular focus on computer science.**
- **Committed to emphasizing the value of a university education and engineering in particular.**

**Royal St. George's College** **February 2016 - March 2018**
***Creator - iOS Schedule App*** ***Toronto, Ontario***

- **Created an iOS and Android scheduling app which interprets the school's day cycle and allows students to view current or future days of their timetable on a calendar.**
- **Developed a server side backend which holds user accounts and associated schedule data using Python Django and the Django REST framework and allows the creation of a public API.**
- **Released a simplified iOS version of the app on the Apple app store in March 2018 to coincide with the roll out of a new schedule being tested by the school.**

**Royal St. George's College** **September 2017 - June 2018**
***Teaching Assistant*** ***Toronto, Ontario***

- **One of a select group of Grade 12 high achieving students awarded the position.**
- **Responsibilities included assisting/mentoring Grade 10, 11 and 12 students with projects in the engineering lab, as well as completing in-house lab projects, managing the lab and supervising equipment use outside of school hours.**