

Steven Brown

Engineering Physics Co-op Student

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Skills

Software: Python, Rust, C/C++, Java, MATLAB, Bash Scripting, Git
Electrical: Altium Designer, Oscilloscope, Analog & Digital Circuits, Soldering

Work Experience

Vehicle Software Engineer Co-op – *Tesla, Inc. Palo Alto, United States* May – Aug 2023

- Designed, implemented and tested a python/rust model of the low voltage system for all car platforms.
- The model calculated voltages/currents and introduced a feedback loop with other car component models.
- Collaborated with multiple teams to integrate the different models together.
- Created an infrastructure for other car component models that need time dependent circuit analysis.
- Received a full-time performance review of 4.5/5 - reference available upon request.

Vehicle Software Engineer Co-op – *Tesla, Inc. Palo Alto, United States* Sept – Dec 2022

- Worked on the low voltage firmware validation team.
- Developed component models in python/rust for software-in-loop platforms.
- Wrote python/C tests for test automation coverage.
- Designed firmware testing architecture (UML tools).

Software Team – *UBC Formula Electric Design Team* Jan 2023 – Apr 2024

- Member of the team responsible for designing and testing firmware for an electric formula race car.
- Implemented a UART driver in C for asynchronous serial communication between PCB's
- Designed and implemented a serial debugger in python/C using Protocol Buffers

Embedded Software Engineer Co-op – *NZ Technologies Inc. Vancouver, Canada* Jan – Apr 2021

- Developed embedded C++ applications for deployment on Windows & embedded Linux.
- Developed interactive GUIs using Qt, while managing software testing, stable build releases and version control.
- Implemented a data logging system in C++ for different embedded touchless elevator devices.
- Kept track of sensed actions, errors and sensor data, which was stored in a daily report and sent out automatically by email through bash scripts.

Technical Projects – More projects available on website at top of this resume

Chess Game & Engine ([Download Here to Play](#)) May – Aug 2024

- Developed a ~2100 Elo bitboard chess engine with a Rust backend and Python GUI frontend.
- Optimized with pre-calculated bitboard masks, move encoding/decoding, and performance testing.
- Implemented a negated minimax search with alpha-beta pruning, quiescence search, and iterative deepening.
- Integrated MVVLVA move ordering, late move reduction, transposition table (100 MB), and Zobrist hashing.
- Evaluated positions with advanced techniques for pawn structure, king safety, and file control.
- Included a custom opening book for enhanced early game strategy.

Machine Learning Car Simulation Sept – Dec 2021

- Developed an autonomous car that drives through a simulated environment, obeying traffic laws and returns license plates and associated parking IDs using machine learning and computer vision.
- Google Colab was used to access OpenCV for computer vision and Tensorflow for neural network training.
- Car was able to complete the full driving course and scan all 8 license plates correctly in 60 seconds.

Education

The University of British Columbia Sept 2019 – Apr 2025 (expected)

- Engineering Physics, BSc
- Cumulative GPA: 4.00
- Deans Honour List & Trek Excellence Scholarship Recipient

Sept 2019 – Current

Interests

- Avid weightlifter & runner with combined training up to 5 times per week.
- Played senior basketball and continue to play in a men's league twice per week.