

## Summary of Qualifications

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**Languages:** C/C++, Python, Bash, Verilog, SystemVerilog, Java, Coq

**Tools:** git, perforce, vim, gdb, valgrind, Unix/Linux, gcc, make

**Projects:** Yocto, Bitbake, OpenEmbedded, OpenCL, FFmpeg, Intel Intrinsics (AVX, AVX2)

## Prior Experience

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### Wind River, Linux Developer – Python, C

September 2020 – December 2020

Maintained an open source Linux distribution.

- Contributed to web browser board support package, delivering kiosk-mode chrome to customer on tight deadline
- Fixed concurrency bugs in Valgrind in embedded Linux environment using gdb
- Enhanced test coverage by resolving bugs in build infrastructure

### Apple Inc, ASIC Design Engineer – Verilog, SystemVerilog

September 2019 – December 2019

Worked on the hardware microarchitecture of the pixel pipeline for various display panels.

- Re-architected interconnect fabric for tone mapping component, fixing a critical timing bug
- Worked with a senior engineer to verify feature set of tone mapping component, allowing project to move onto the next phase of development
- Created re-usable hardware components that will be available for future designs

### IDT/Renesas, Firmware Developer - C

January 2019 – April 2019

Developed firmware for R11F, a high density video transcoder on FPGA available on AWS.

- Wrote custom bitstream filter converting CABAC-formatted H264 files to the CAVLC format for the FFmpeg project, which sped up decode time by ~12%
- Bitstream filter involved multiple concurrent processes and communicating across CPU/FPGA memory interface

### IDT, Firmware Developer - C

May 2018 – August 2018

Developed firmware for R12C, a CPU-based video transcoder.

- Re-wrote firmware throttle controller to balance CPU usage between different transcoder components, providing finer control over transport stream multiplexing
- Wrote FFmpeg regression test suite to find system performance discrepancies

### Centre for Theoretical Neuroscience, Research Assistant – Python

April 2016 – August 2016

Wrote high-level neural simulations using the *nego* Python software package.

- Modeled the process of object categorization and adaptation to visual distortion in monkey brains
- Wrote optimization scripts to find recursive network connection strengths that mapped accurately to known biological phenomena, such as response latency and neuron spiking patterns

## Education

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### B.A.Sc. University of Waterloo

September 2015 – April 2021

Candidate for Bachelor of Applied Science, Honours Computer Engineering  
Combinatorics and Optimization Minor