

DANIEL RAYMOND

EXPERIENCE

AMD

Firmware Security Engineer

2020 Sept–Present

- Designed and implemented website to cultivate team workflow
- Programmed ARM processors in C & Assembly
- Interfaced USB protocol to interact with AMD processors

Untether AI

AI Acceleration Hardware Engineer

2020 Jan–Apr

- Worked to improve cutting edge neural network inference ASIC
- Developed Python tests to verify their Verilog simulation
- Created device file interaction in C to assist runtime division
- Devised data pipeline in C & Assembly to double throughput

PROJECTS

Custom Four-Bit Computer

2019 Jan–Aug

- Designed a breadboard prototype from a basic block diagram
- Hand-routed a PCB in EAGLE with 200+ connections & 40+ ICs
- Polished final product with a 3D printed case & an acrylic cover
- Devised custom RISC machine code language with a PCB programmer

Flexible PCB Snake Game

2019 Apr–May

- Designed & soldered a custom SMT PCB: created in EAGLE
- Added 8x8 LED matrix, button input, & a solar panel for power
- Coded prototype in C, final product entirely in Assembly (600+ lines)
- Increased efficiency drastically by making interrupt-driven code

Breadboard AI Processor

2020 May–Present

- Created a custom independent processor for 1-bit quantized models
- Created neural network using Tensorflow, Numpy, then custom HW sim
- Stored byte-packed model on EEPROM – XNOR to multiply each bit

Various Sensor Projects

2017 – Present

- *Bluetooth Photo Frame* with app to upload images from phone (I2C)
- *Velocity Data Logger* with IR distance sensor (GPIO)
- *Frequency Spectrum Analyzer* with microphone input (SPI)

SKILLS

Languages

C, Python, Bash (Git), Assembly, C++, JavaScript, Verilog, HTML/CSS

Electrical

Arduino, bread-board prototyping, soldering, circuit debugging, SPICE, I2C & SPI Communication

Design

PCB manufacturing & design, Solidworks, machine shop

EDUCATION

University of Waterloo

BASc Candidate | Class of 2024

Systems Design Engineering (SYDE)

ACHIEVEMENTS

SHAD Valedictorian

2019 Jul

Voted by 64 other University of Calgary SHAD program members to represent the group.

Community Engagement

2019 Jun

Awarded for exemplary community involvement & participation in a wide range of extra-curricular activities.

 danielraymond.me

 [/in/draymond63/](https://in/draymond63/)

 [/draymond63](https://github.com/draymond63)

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