

# Walton G. O'Connor

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https://waltoconnor.dev  
https://github.com/waltoconnor

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## About me

Results oriented programmer with a track record of delivering large, long term, collaborative projects. Master's and Bachelor's degree in computer science plus a year of experience as a software engineer. Expert in computer networking and high performance computing. Interested in computer architecture and operating systems.

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## Research

### Cedar Dataplane Telemetry System

June 2019-June 2023

- Built full stack system for controlling experimental Broadcom dataplane telemetry switch, including low level driver in **C** and **Rust**, control and result processing server with **CUDA** and **Elixir**, and high level web interface in **Vue.js**, **Typescript** and **D3.js**
- Worked extensively with senior Broadcom hardware engineers to implement driver and validate functionality of new hardware features. Presented reports and demonstrations of features to Broadcom senior engineers and management.
- Developed a number of network security and health monitoring applications utilizing the Cedar system.

### Multifractal Properties of Internet Traffic

June 2022-May 2023

- Developed high performance network analytic tools to discover fractal patterns in internet traffic using **Rust** and **Python**
- Automated the collation of results in to PDF reports using **Reportlab**
- Deployed analysis tools to several college campuses using **NixOS**

### Accelerated Tiling Solver

June-Oct 2017

- Created high performance program in **C++** to solve combinatorics problem involving placing tiles on a grid whose solutions were important constants for cohomological objects.
- Optimized with hand rolled x86 **Assembly**; accelerated program using **CUDA** providing a 1000× speedup
- Further accelerated system by distributing program across campus computers, wrote control and result collection server in **Java**

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## Employment

### Software Engineer

M Financial

Jan-June 2018

- Converted manual process of tabulating end of month accounts to a **CD/CI** pipeline that automated what was previously a week of work for six actuaries
- Task involved collecting data from a number of internal partner companies and internal sources, applying business rules, and updating a set of **SQL** databases
- Wrote a variety of wrappers and web interfaces using **HTML**, **CSS**, and **Javascript** to ease the process of testing the consistency of the incoming data and the validating it before committing it to the database

### Intern Software Developer

M Financial

July-Dec 2015

- Built internal webapp using **Node.js** and **SQL** that plotted concentrations of life insurance customers on a map of the United States for risk management analysis
- Wrote analysis suite that allowed a user to select regions of the map and view historical and projected future trends in customer demographics

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## Education

### MS in Computer Science

University of Oregon

May 2023

- Networking and Network Security, High Performance Computing, Computer Architecture, Machine Learning, Programming Language Theory, Computer Vision
- GPA: 3.9

### BS in Computer Science

University of Oregon

June 2020

- GPA: 3.86

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## Other Skills

Linux, Git, C#, Haskell, Kotlin, OCaml, Bash, Kubernetes, Gem5, Nomad, Wireshark, VMWare, ZFS, GlusterFS, SystemD, OpenMPI, OpenACC, OpenCL, numpy, scipy, matplotlib, tidyverse, Vue.js, React.js, InfluxDB, Flask, Vulkan, OpenGL, embedded systems