Jonathan Carlson

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Education

University of California, Los Angeles Cumulative GPA: **3.7** / 4.0

M.S in Computer Science Sep. 2023 - June. 2024

- Coursework: Secure Computer Architecture (Meltdown, Spectre), Advanced Computer Architecture (ILP, caching).

University of California, Los Angeles Cumulative GPA: **3.6** / 4.0

B.S. in Computer Science Sep. 2019 - June. 2023

- Coursework: Operating Systems, Networking, Security, Programming Languages, Compilers, Neural Networks
- Dean's Honors List in Winter 2020/21/23, Spring 2022

Experience

Ciena Petaluma, California

Embedded Software Engineer July 2024 - Present

- Increased software upgrade speed (up to 2x) through batching and improved device interoperability.
- Reduced spammy emails when an automated Jenkins build or test breaks by creating a Teams webhook notification system to alert *only* the engineer who broke it.

Ciena Petaluma, California

Embedded Software Engineering Intern July 2023 - Sep. 2023

- Enabled improved memory safety of C based firmware by compiling `no_std` Rust (added support for heap allocation) for the ARC processor using rustc_codegen_gcc.
- Fixed undefined behavior in C by using static analysis tools (Coverity).
- Improved testing for internal tools to maintain backwards compatibility (after breaking it).

Tibit Communications (acquired by Ciena) Petaluma, California

Firmware Engineering Intern June 2022 - Sep. 2022

- Implemented IEEE 802.1X Key derivation function (KDF) to generate keys necessary for MACsec (IEEE 802.1AE) Key Exchange (MKA).
- Improved internal tools to increase engineer productivity as well as adapted internal tools to be customer facing which simplified and extended configuration of Tibit's devices.
- Created a calibration model tester in Python to compare different calibration models which were used to optimize calibration times.

HydroPoint Data Systems Petaluma, California

Engineering Intern Jan. 2021 - Sep. 2021

- Utilized C# machine learning libraries to help optimize their water leak detection capabilities.
- Successfully handled my workload for both this internship and 4 summer courses at UCLA.

Projects

Micromouse (IEEE at UCLA Project) Los Angeles, California

IEEE Student Branch at UCLA Oct. 2020 - Mar. 2021

- Designed a PCB using EAGLE which detects walls using IR sensors and receivers and sends that data to an STM32 microcontroller.
- Designed a maze-solving algorithm that used flood fill to navigate any unknown maze.

Skills

Programming C, Python, C++, Rust, Java, JavaScript, Bash, Arduino

Technologies CMake, Jenkins, Git, PyTorch, React, Firebase, Typst

Honors & Awards

Eagle Scout Petaluma, California

Boy Scouts of America, Troop 9 January, 2017