

ANDY REN

Software Engineer

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EXPERIENCE

Software Engineer I, II - Platform OS

Cruise

San Francisco, California

July 2023 – Present

- CruiseOS bring-up on custom silicon devices powering next-generation L3/L4 autonomous vehicle technology
- Custom Linux kernel development for embedded systems in C
- Key contributor to Yocto-based CruiseOS 2.0 and integration with cross-functional teams in the autonomy stack.

Software Engineering Intern - CoreOS

Cruise

San Francisco, California

September 2022 – December 2022

- Developed proof-of-concept of an ethernet-based centralized kernel logging system for embedded Linux devices running on Cruise's self-driving vehicles, primarily in C
- Upstreamed patch to Linux kernel: Allow live renaming when an interface is up - bd039b5

Platform Engineering Intern

Arista Networks

Santa Clara, California

January 2022 – April 2022

- Ported hardware configuration tests for a family of network switches to be more modular in Python, improving test extensibility

Embedded Software Intern

Nuvation Energy

Waterloo, Canada

January 2021 – April 2021

- Drafted and implemented a prototype software model in C++ for migrating SPI flash memory data on boot after a firmware upgrade

PROJECTS

BOOTLE

C++ BLE

March 2023

- Smart device prototype that incorporates everyday carry functionality into an easy-to-carry water bottle, built as a central part of capstone design project

RISC-V Processor

SystemVerilog Verilog

November 2021

- 5-stage pipelined, 32-bit processor built on the RISC-V instruction set architecture

ARM RTX Kernel

C GDB Arm Cortex M3

August 2021

- Real-time operating system kernel for an NXP LPC1768 microcontroller with dynamic memory allocation, console I/O and real-time task scheduling

SUMMARY

- Experienced in operating system bringup and development for L4 autonomous vehicles
- Building custom Buildroot and Yocto embedded linux distributions.
- Experience with open-source Linux kernel development (C, Python)

SKILLS


Languages

C C++ Verilog Python RISC-V
Rust Bash

Tools, Frameworks, and Libraries

Linux Buildroot Yocto gcc/gdb git
Docker Vivado

AWARDS

-  **ECE Capstone Symposium Award**
ECE Fourth Year Design Project (FYDP) award for designing a system to consolidate everyday carry functionality

EDUCATION

BASc., (Hons) Computer Engineering

University of Waterloo

September 2018 – June 2023

- Graduated with Distinction
- cGPA: 3.7/4.0
- Relevant Courses:
 - ECE 350 - Real-Time Operating Systems
 - ECE 327 - Digital Hardware Systems
 - ECE 320 - Computer Architecture
 - ECE 445 - Integrated Digital Electronics
 - ECE 451 - Compilers
 - ECE 459 - Programming for Performance
 - ECE 495 - Autonomous Vehicles