

Objective

Driven electrical engineering student with a strong interest in hardware, FPGA, and ASIC design seeking full-time positions. Dedicated to developing quality designs, optimized solutions, and seeing projects through to their completion.

Education

University of Washington, School of Engineering, Seattle, WA
Bachelor of Science in Electrical Engineering
Dean's List: All quarters - 2018, 2019, 2020, 2021, 2022

Sep 2018 – Jun 2023
In-Major GPA: 3.93 | **Cumulative GPA:** 3.85

Technical Skills

Hardware: SystemVerilog, RTL, ASIC Design, FPGA Design,

Programming: Java, Python, C, C++, C#, SQL, Kotlin, FreeRTOS, Bash

Tools: Git, Linux, Cadence Innovis, Cadence Genus, Quartus, AutoCAD, Azure, ModelSim, Verdi, KiCad, Klayout, Multisim

Relevant Courses

VSLI II; Computer Architecture I; Digital Circuits and Systems Series; Data Structures and Algorithms; Advanced Technical Communication; Database Systems; Continuous Time Linear Systems; Devices and Circuits; Introduction to Embedded Systems

Experience

University of Washington – Seattle, Washington

Mar 2023 – Jun 2023

Teaching Assistant: EE/CSE 371 - Design of Digital Circuits and Systems

- Assisted students with debugging their hardware designs in weekly office hours sessions
- Graded and provided feedback on design reports as well as homework and assessments
- Developed and updated course material like introductory videos, auto-graders, quiz questions, and labs

Embedded Systems Capstone: Smart Dog Collar – University of Washington

Sep 2022 – Dec 2022

Embedded Systems Engineer

- Developed a smart collar that monitors the animal's temperature and notifies the owner if it reaches dangerous levels
- Created an Android application that communicates to the device via Bluetooth Low Energy and has a Firebase backend
- Designed a custom flex PCB for the internals of the device using KiCad

ENGINE Capstone: Octopus VR Experience Team – University of Washington

Dec 2021 – Jun 2022

Game Developer

- The project sought to create a VR experience where users control a realistic octopus model
- Created an AI model to enable the octopus tentacles to independently reach in and explore the interior of an object
- Implemented several core game features and scripts like scene/audio managers, level design, and NPC interaction

Projects

Hardware Accelerators

- Created hardware accelerators to find the greatest common denominator and simulate Conway's Game of Life
- Pushed both designs through the complete design flow from RTL to GDS
- Optimized both units with respect to power, performance, and area

64-Bit ARM CPU

- Featured five pipelined stages to improve the performance of the chip and utilized one delay slot and forwarding
- Recognized 11 instructions, including multiply, branch, load from memory, store into memory, addition and subtraction
- Created with SystemVerilog using only explicit logic

FPGA Maze Gaze

- Created a game in which users can select between preloaded mazes and control their character to make it to the end
- Featured collision detection with the walls, automatic win detection, animated title screen, and ram modules to store the levels
- Developed a .MIF file generator using python to aid in creating mazes

Personal Links

Personal Website: <https://robertcrist.github.io/>

Embedded Systems Capstone: <https://embeddedcapstone22.wordpress.com/>