CRISTINA MCLAUGHLIN

cemclaug@hawaii.edu | (808) 651-1324 | cemclaughlin.github.io | Seattle, WA

EDUCATION

Master of Science in Electrical Engineering — **Expected Graduation May 2021**
University of Hawai`i at Mānoa, *Honolulu, HI*

Bachelor of Science in Computer Engineering — **May 2019**
University of Hawai`i at Mānoa, *Honolulu, HI*

WORK EXPERIENCE

Graduate Teaching Assistant — **Aug 2020 – Dec 2020**
University of Hawaii at Manoa, Department of Electrical Engineering

- Digital Systems and Computer Design: Supervised 165-minute online lab sessions twice a week focused on implementing ARM/LEGv8 assembly programs, SystemVerilog digital circuits, and Xilinx Vivado/FPGA applications
- Developed course material for the transition to online learning—including a Discord server to conduct lab hours, PowerPoints for supplemental information, and videos tutorials explaining projects
- Graded writing intensive technical lab reports with an emphasis on grammar usage and mechanics

Graduate Research Assistant — **Aug 2019 – May 2020**
University of Hawaii at Manoa, Department of Electrical Engineering

- Ambient Lab Smart Space: Worked both with faculty advisor and independently to conduct 20 hours of research weekly, to implement solutions for the Ambient Edge platform
- Created distance sensing and interactive lighting Edge services using .NET framework and hardware programming
- Implemented a Unity client that streamed messages from an Azure Kinect body-tracking service over the network and dynamically changed the scene according to the user's physical movements
- Services were designed using REST communication protocol and messages were serialized using Google Protobuf
- Drafted detailed technical documentation on environment setup, hardware setup, project deployment, and service connection

Undergraduate Teaching Assistant — **Aug 2018 – Dec 2018**
University of Hawaii at Manoa, Department of Electrical Engineering

- Digital Systems and Computer Design: Delivered weekly lectures and conducted in-person lab sessions with a focus on PIC microcontroller program design, simulations, and circuit implementation. Labs also included Verilog coding, exporting digital circuits to FPGAs, and designing a pipelined processor using HDL
- Supervised student hardware implementation, enforced safety rules, and maintained lab equipment
- Revised lab manuals and materials to match current IDE/design tool updates

PROJECTS

Throughput Analysis of Jellyfish Network Variations
A project to analyze throughput of three variations of Jellyfish network topology under different traffic loads

- Constructed random, incremental, and bipartite Jellyfish networks composed of 64, 100, 200, and 300 nodes and degree 8 or 12
- Generated traffic matrices to simulate all-to-all and random permutation traffic loads
- Designed an ECMP routing program to read in the topology and traffic matrix and report the traffic load on each link and maximum load which was used to determine throughput of the graph

SKILLS SUMMARY

Programming Languages: C, C++, C#, SystemVerilog, JavaScript, HTML/CSS, Python
Tools/Frameworks: Xilinx Vivado Webpack, Unity, Raspberry Pi, Arduino, .NET, Unity, IntelliJ, Jupyter Notebook