

JASON HO

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EDUCATION

Brown University

Sept 2018 - Jun 2022

Sc.B. Computer Engineering

GPA: 3.94

Current Coursework: Topics in Bioelectronics, Digital Signal Processing, Materials Science, Computational Probability and Statistics

Relevant Coursework: VLSI Design, Digital Electronics Design, Design of Computing Systems, Communication Systems, Linear System Analysis

RESEARCH EXPERIENCE

Undergraduate Researcher, SCALE Lab, Brown University

Jan 2021 - Present

Advisor: Sherief Reda

- Modelling biofilm coupling interactions using SciPy, NumPy, Pandas, and Matplotlib between three or more biofilms in two dimensional arrays as Kuramoto oscillators for non-conventional oscillatory computing systems
- Exploring the state space of computational ability in biofilms with varying phenotype expression, leading to changes in communication strength and coupling strength
- Debugging and developing source code of previous tape-out that failed due to floating wires for new micro-controller connected to CMOS biofilm sensing array

TEACHING AND MENTORING EXPERIENCE

Mentor, MAPS (Matched Advising Program for Sophomores)

Jan 2021 - Present

- Advised mentees interested in concentrating in Computer Engineering, Computer Science, or related fields on classes, research, and internship opportunities

Mentor, School of Engineering

Jan 2021 - Present

- Helped mentees to devise plans on completing concentration requirements as well as providing advice on classes, research, internship opportunities and approach to learning

Teaching Assistant, ENGN 0500: Digital Computing Systems

Jan 2021 - May 2021

- Held weekly office hours to provide conceptual understanding of digital design, computer architecture, and programming assignments
- Helped teach students in class with interactive digital design demonstrations and embedded systems coding

ADDITIONAL ENGINEERING EXPERIENCE

VLSI Design and Verification Engineering Intern, Seagate Technology

May 2021 - Aug 2021

- Designed and verified new RTL block responsible for optimizing throughput of ECC correction on hard drive reads set to tape-out in early 2022
- Designed and developed verification environment in VMM and UVM in SystemVerilog for new RTL features

FPGA Engineering Intern, Nabsys

Jun 2020 - Sept 2020

- Developed signal processing algorithms and state machines in Vivado on Xilinx FPGA for analysis of tagged DNA for whole genome sequencing; able to perform real time data processing of hundreds of detectors.

- Optimized FPGA design to significantly reduce slices used, allowing for increased parallelization of algorithms on FPGA, significantly increasing throughput.
- Verified design of FPGA with C++ scripts and Python scripting.

Security Engineering Intern, Brown CIS

Apr 2019 - Sept 2019

- Designed Copyright Infringement Script in Python that parsed DMCA emails, searched firewall logs and verified infringement on University traffic, saving non-technical staff over 3 hours of time per case.
- Queried SQL databases to correlate CrowdStrike data with firewall permit-deny traffic in real-time dashboards to display current state of malicious traffic by optimizing firewall parsing by 20 times using Regex.

RELEVANT PROJECTS

Convolution ASIC Tapeout, Brown Chip Design

Jan 2021 - Present

- Designing architecture and implementing RTL for ASIC tapeout in Efabless shuttle for real-time 2D image convolution using Yosys, Magic, and OpenLane
- Working to create a club in the engineering school to continue iterating on the initial design and get underclassmen interested in computer architecture

RISC-V Processor on FPGA

Apr 2021 - May 2021

- Implemented front end RTL on abbreviated RISC-V instruction set with branch prediction and five stage pipeline on Intel FPGA board - Verified all design blocks in ModelSim and ran RTL through Intel Quartus

VOLUNTEER WORK

Project Manager and Developer, Develop for Good

Sept 2020 - Jan 2021

- Developed Django website for CARE International on analysis and visualization of USAID Hamzari data in an internal website
- Supervised a team of 6 Frontend, Backend, UI/UX developers, and Data Scientists

AWARDS

Best Use of Google Cloud, Hack @ Brown

2020

Valedictorian, Seekonk High School

2018

PROFESSIONAL MEMBERSHIPS

Student Member, IEEE

2021 - Present

Student Member, ACM

2021 - Present

SKILLS

Programming Languages

Verilog, SystemVerilog, C, C++, x86 ASM, RISC-V ASM, Python, Java

Applications

Innovus, Genus, DC Compiler, Verdi, ModelSim, LTSpice, Electric, Vivado HLS, Matlab

Languages

English (Fluent), Cantonese (Fluent)