

EDUCATION

Harvard University

Bachelor of Science in Electrical Engineering

Minor in Computer Science

GPA: 4.0 | [See last page for Selected Courses](#)

Cambridge, MA

May 2022

RESEARCH EXPERIENCE

Harvard Architecture, Circuits, and Compilers Group

Undergraduate Researcher

Cambridge, MA

Summer 2021 - Present

- Leading research project to develop framework for analyzing dataflow-aware resilience of deep neural network accelerators to soft errors.
- Studying HW/SW co-design strategies for mitigating failure rates due to soft errors while maintaining speed and accuracy.
- Providing insights into how accelerator dataflow affects error propagation in DNN systems.
- Leading second research project investigating carbon footprint cost of manufacturing Bitcoin hardware.
- Developed an HLS design of Bitcoin ASIC using Catapult to get area and power estimates of current mining ASICs.

Harvard Edge Computing Lab

Undergraduate Researcher

Cambridge, MA

Summer 2020

- Wrote C++ code to add a SLAM ROS node within an existing micro aerial vehicle (MAV) simulation framework called “MAVBench”.
- Analyzed and studied how using SLAM for localization affects efficiency and power usage within MAV applications depending on the environment and hardware.

Hoffman Lab

Undergraduate Researcher

Cambridge, MA

Summer 2019

- Developed a tensioning system for an XY-walker system in order to extend the range of a scanning tunneling microscope used to research the proximity effect of superconductivity.
- Gained experience with LabVIEW, SolidWorks, and working with graduate students and professors to solve engineering problems.

WORK EXPERIENCE

MathWorks

Intern in Deep Learning HDL Toolbox Team

Natick, MA

Summer 2021

- Enabled mapping of non-square convolution kernels onto square PE array allowing users to deploy models using non-square kernels onto FPGAs.
- Improved performance of mapping algorithm using more efficient data structures.
- Led work to support imported flatten layers from Keras and ONNX.

Harvard CS Department

Teaching Fellow in Systems Programming Class (CS 61)

Cambridge, MA

Fall 2020 - Present

- Led office hours and section to teach students about Linux-based systems programming, including topics such as kernel and multi-threaded programming.
- Assisted professors in creating assignments in C++ and organizing course material.

Harvard Electrical Engineering Department

Lab Assistant in Circuits, Devices, and Transduction (ES 152)

Cambridge, MA

Fall 2021 - Present

- Ran lab sessions to teach students about circuits theory and analog devices.

- Created labs to create circuits using components like op amps, BJTs, and MOSFETs.

COURSE PROJECTS

Hardware Architecture for Deep Learning (6.812)

Cambridge, MA

Final Project

Spring 2021

- Explored trade-offs between accuracy, area, and energy of different quantization methods in DNN models on accelerator frameworks.
- Used Timeloop/Accelergy, a DNN accelerator energy and area modeling framework, to perform analysis.

Advanced Computer Architecture (CS 146)

Cambridge, MA

Final Project

Spring 2019

- Researched for and wrote final research paper on how an understanding of fundamental computing hardware leads to speedups in machine learning matrix multiplication computations.
- Implemented and optimized such techniques as loop unrolling and tiling in C to allow for more effective computations and utilization of the CPU.

LEADERSHIP & ACTIVITIES

Harvard Club Tennis

Cambridge, MA

Captain/President

May 2019 – Present

- Elected by club tennis members to organize practices and handle the organization's trips to national tournaments and finances.
- Calls and presides over meetings and maintains good relations with the Faculty Advisor and members of the Harvard Tennis community.

Harvard College Engineering Society

Cambridge, MA

Co-President

Fall 2020 – Spring 2021

- Elected to lead organization and manage ten committees, delegating work and keeping track of various engineering community of events.
- Secures sponsorships and contacts with companies.
- Manages contact with administration, meeting with faculty to discuss students' needs.

Harvard Engineering Peer Concentration Advisors

Cambridge, MA

Co-President

May 2020 – August 2021

- Elected to lead organization and manage ten committees, delegating work and keeping track of various engineering community of events.
- Secures sponsorships and contacts with companies.
- Manages contact with administration, meeting with faculty to discuss students' needs.

AWARDS

John Harvard Scholar

May 2020

- Award given to top 5% of students in respective class.
- Must have 4.0 GPA to receive the award.

Harvard College Research Program Funding Recipient

May 2019

- Awarded \$3,500 to perform independent research during the summer of 2019 after submitting a research proposal.

Detur Prize Winner

September 2019

- Received award which recognizes sophomores who achieved a very high academic standing in their first year of college at Harvard.

SELECTED COURSES

Harvard University

Advanced Computer Architecture (CS 146)

Advanced Design of VLSI Circuits and Systems (CS 248)

Computing Hardware (CS 141)

Circuits, Devices and Transduction (ES 152)
Operating Systems (CS 161)
Systems Programming and Machine Organization (CS 61)
Data Structures and Algorithms (CS 124)
Computer Vision (ES 143)
Signals and Communications (ES 156)

MIT (Cross-Registered)

Hardware Architecture for Deep Learning (6.812)
Intro to Machine Learning (6.036)

SKILLS

Proficient in C++, C, Python, MATLAB, LTSpice
Experience with Verilog, C++ HLS