

Sun A Cho

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EDUCATION

Carnegie Mellon University Pittsburgh, PA
M.S.: Electrical and Computer Engineering (3.6/4.0) December 2023
B.S.: Electrical and Computer Engineering and Engineering and Public Policy May 2023
Relevant Courses: Introduction to Computer Systems, Logic Design and Verification, Introduction to Computer Architecture, Distributed Systems, Computer Networks*, and Modern Computer and Architecture and Design* (*taking in Fall'23)

ENGINEERING EXPERIENCE & RESEARCH

Carnegie Mellon University Pittsburgh, PA
Teaching Assistant for Logic Design and Verification August 2023 – December 2023

- Lead recitations to help students with writing RTL codes, synthesizable systems, and testbench and verification to test their RTL designs in the FPGA.
- Host office hours to assist students with their projects such as building a router and a USB.

Microsoft Redmond, WA
Software Engineer Intern May 2023 – August 2023

- Designed and implemented multiple interfaces in different drivers to create a data path to HW (i.e. FPGA).
- Worked with teams across Microsoft to deliver a proof-of-concept model of hardware-supported QUIC in Azure products.
- Improved the throughput of processing QUIC packets in the Azure apps by over 300%.

Software Engineer Intern May 2022 – August 2022

- Created an extensible intermediate representation as part of designing a more efficient networking structure.
- Contributed to offloading network packet processing in SW to HW.

Workday Pleasanton, CA (Remote)
Software Development Engineer Intern May 2021 – August 2021

- Re-platformed the deployment images and reduced security risks in the Workday cloud-based platform system to meet the security requirement for FedRAMP certifications.

TECHNICAL PROJECTS & RESEARCH

Physically-Constrained Computer Architecture & Systems Research August 2023 – Present

- Conduct benchmark tests to measure the performance improvement for a new energy-minimal architecture.
- Add minimal tags to reorder out of order instructions for nested for loops in the same architecture.

Computer Architecture Projects January 2023 – December 2023

- Designed a single-core pipelined processor in System Verilog.
- Expanded to be super-scalar with branch prediction, forwarding, and instruction-switching.
- Analyzed the performance (such as clock frequency and power consumption) of the super-scalar design.
- Implement an Out of Order structure with register renaming, reorder buffer (ROB), and issue queue (IQ).

Distributed Systems Project January 2023 – May 2023

- Designed a program that allows a server to provide remote file services (such as RPCs) – also added caching functionality to this for optimization.
- Implemented an automatic scaling protocol by identifying the bottleneck in the system.

LEADERSHIP & ACTIVITIES

Women in Electrical and Computer Engineering Pittsburgh, PA
President (2022), Social Chair (2021), and Graduate Student Liaison (2023) August 2021 – Present

First-Year Orientation Pittsburgh, PA
Orientation Counselor (2020) & Orientation Leader (2021) August 2020 – August 2021

TECHNICAL SKILLS

C, System Verilog, Python, C++, Java, Quartus, Genus, VCS, Synopsys DC, WinDbg, Powershell, and Linux