Wynn Kaza
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Education

University of Michigan, Ann Arbor, MI Fall 2024 - Spring 2026

Major: Masters of Engineering in Computer Science and Engineering

University of Michigan, Ann Arbor, MI Graduation May 2024

Major: Bachelors of Engineering in Computer Engineering *GPA:* 3.965 (Undergraduate)

Classes: Parallel Computing, Parallel Computing Architecture, Operating System, Computer Networks, Advanced Compilers, Computer Architecture, Data Structures & Algorithms,, Computer Organization

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Relevant Experiences

University of Michigan Ann Arbor, MI

Instructional Aide *January 2024 - May 2024*

- Instructed ENGR 100-250, An Introduction to Computing Systems with 70+ freshmen
- Taught weekly lab sessions, assisting students in Verilog to develop a single-cycle datapath processor on a FPGA
- Hosted office hours to help in month long final project, focused on assembly and device drivers for IO devices

IBM Rochester, MN

Hardware Engineering Intern: Z&Cognitive Systems *May 2023 - Aug 2023*

- Revamped backend database infrastructure by transitioning from sqlite3 to MariaDB using C++, improving data security and the department's ability to handle increased test data volume and multiple users.
- Designed Arduino Nano 33 BLE PCB shield and an API C++/Python library to interface between tester and computer
- Refactored C++ code for vpd tools, increasing speed for development and simplifying cross-platform compilation

Whisker Auburn Hills, MI

Electrical Engineering Intern *May 2023 - Aug 2023*

- Developed a solution for test fixture, resolving an critical issue with ESP-Programmer burning out
- Constructed PCBs in Altium, designed to test ESP-Programmers, ToF Sensors, Stepper Motor Driver, etc
- Built two test fixtures to test design changes on LR4 Main Board and ToF Board, confirming effect of board changes

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Projects

Pager *March 2024 - April 2024*

- Architected virtual memory pager to handle virtual and physical memory of multiple processes sharing files and capable of using POSIX fork
- Implemented pseudo eviction policy, deferral-of-work, and copy-on-write policy to minimize software overhead
- Designed capability for multiple processes to share a physical page, reducing number of faults

Cache Tiling and Tile Size Selection Algorithms *October 2023 - December 2023*

- Wrote LLVM pass to replicate cache tiling to reduce number of cache misses in matrix multiplication
- Improved on original tiling algorithm by removing branch instructions, decreasing instruction overhead
- Developed two new algorithms to find optimal tiling size with new restrictions: implemented algorithms obtained 58.56% and 84.37% less cache miss than the original untiled matrix multiplication

Undergraduate Researcher Assistant *Feb 2023 - Current*

- Characterized workload, efficiency, and weight distribution of temporal graph mining algorithm running on various thread counts, CPU, and GPU using ScoreP and Vampir (Paper: Everest gpu-accelerated-system-for-mining)
- Performanced modeled software load balancing techniques to motivate hardware load balancing techniques

MASA : Avionics Team *Aug 2022 - Current*

- Implemented run-length encoding compression algorithm in GO, reducing data sent to the server by 8-13x
- Implemented JSON compression algorithm, removing current client to server bottleneck from sending database frames as JSON, having an average of 10x encoding speedup, 5x reduced memory, and 3x less heap allocations
- Designed and tested two-phase distributed commit algorithm to have ACID transactions across multiple nodes

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Technical Skills

Languages: C++, Python, GoLang, Verilog, Bash, LLVM, Javascript, SQL

Developer Tools: Docker, Ginkgo Version Control (Git/Github), Ubuntu, Visual Studios, IntelliJ