Wayne He

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Education

University of Michigan – Ann Arbor Aug 2022 – May 2026
B.S.E. in Computer Science; GPA: 4.000/4.000 *Ann Arbor, MI*

- **Relevant Coursework:** Operating Systems, Computer Organization, Compiler Construction, Quantum Computing, Web Systems, Intro to Computer Security, Data Structures & Algorithms, Foundations of Computer Science

Experience

Univeristy of Michigan College of Engineering Dec 2024 – Present
Instructional Aide (EECS 479: Quantum Computing) *Ann Arbor, MI*

- Taught Quantum Computing to 80 students, covering computer architecture fundamentals, quantum gates/algorithms, and Steane/Shor error correcting codes.
- Developed new online resource for visualizing qubit states/gates. Assisted students with using Qiskit for projects in office hours, online forums, and lab sections.

Tour.video (YC S21) Dec 2022 – Aug 2023
Full Stack Engineering Intern *Remote*

- Led development on custom dashboard to analyze traffic of over 200k visitors monthly using React and Supabase.
- Launched a real-time calling and messaging feature leading to 2 new enterprise customers, connecting to over 2000 downstream users.
- Designed a customizable notification system to dynamically react to user behavior. Created reusable components to simplify future development.

Projects

Bloch M | *Vue, Three.js, Quantum Computing, 3D, Figma*

- Used Vue and Three.js to create an interactive 3D visualization of a qubit on the web using the Bloch Sphere.
- Built parameterizable animations to create intuitive depictions of unitary gates in the quantum space.

Cascade | *Next.js/React, Flask, Artificial Intelligence, Computer Vision, Cloud, Heroku, MongoDB*

- Created an HTML/CSS training tool that prompted users to recreate components generated by a Google Breadboard workflow that combined two Gemini models. **Won best Generative UI at MHacks 17**.
- Developed **multi-threaded backend** using Flask and MongoDB to generate/store images from code snippets and used a **custom-trained Siamese neural network** to compare them.

Respoke | *Chrome Extension, Flask, Artificial Intelligence, LaTeX, Google Cloud Platform, Streamlit, Pinata, Cartesia*

- Built a web extension to read equations in natural language using a fine-tuned LLM, lowering barriers in education.
- Cached expensive AI pipelines using Pinata's key-value store, allowing for 5x speedups. **Won best use of Pinata at BigRed//Hacks 2024.**

tet.rs | *React, Rust, WebAssembly, JavaScript, Game Development*

- Used Rust WASM + JavaScript's Events/Canvas API to create a modern stacker game on the web.
- Optimized data structure usage over WebAssembly barrier to minimize serialization overhead.

Virtual Memory Pager | *C++, Memory Management, Process Management, Python, Makefile*

- Designed a kernel-level memory pager that managed the virtual memory of multiple processes, supporting swap-backed and file-backed memory pages (like `mmap()`).
- Developed multithreaded testing framework using Python to troubleshoot concurrency issues and force certain interleavings to occur.

Technologies

Languages: Rust, Python, JavaScript, C++, C, HTML/CSS, LaTeX, MATLAB, SystemVerilog
Technologies: Next.js/React, Vue, WebAssembly, Flask, Heroku, Supabase, MongoDB, Google Cloud Platform
Tools: `git`, `nvim`, `gdb`, `make`, VSCode, JetBrains Suite, Linux, Docker
Interests: Founder of Michigan Tetris, President of Michigan Magic, Learner of East Asian languages