Austin Wu

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EDUCATION

Cornell University   Ithaca, New York
Dual Major: Bachelor of Science in Applied Physics   *Graduation Date: May 2027*
Relevant Courseowrk: PHYS2217, PHYS2218, PHYS7687, MATH2230, MATH2240, MATH6302, AEP1100, AEP3610, AEP3200, AEP4200, AEP4500, CS4789, CS4999
Awards: USACO Platinum Competitior (Top $\approx$ 150/30000 the USA for Pre-collegiate Competitive Programming)

EXPERIENCE

Researcher   April 2025 – Present
Caltech, Ye Lab for Topological Materials   *Pasadena, CA*
- Grew Kagome Crystals in order to experimentally measure them
- Created a novel sheer-force mechanism to stretch Crystals at absolute temperatures to look for emergent Quantum Hall Phenomenon

Founding Engineer   September 2024 – December 2024
Deepsilicon (YC24)   *Remote*
- Working on a custom TPU on a FPGA using a quantized 1.5bit architecture to achieve performance speedups.
- Implemented Berkeley Hardfloat with for high performance FPU operations
- Creating nontrivial optimizations like Chebyshev polynomial approximations for certain algorithms
- Set up the FPGA compilation build chain.

Researcher   October 2023 – Present
Cornell, Yasuda Lab for 2D Quantum Nanomaterials   *Ithaca, NY*
- Exfoliated and stacked HBn in novel configurations to prove for ferroelectricity
- Built and utilized a novel experimental tool called a Quantum Twisitng Microsoope
- Desigend and built the mechanisms for the dilution fridges that are used by the lab to experimentally measure devices
- Developed a full-stack web application using OpenCV, React, Flask, and MongoDB to automate the transfer station machine allowing for exponential speedup of device creation with nontriival CV algoirhtms.

Co Founder and Vice President   December 2023 – Present
Quantum Computing Association at Cornell   *Ithaca, NY*
- Leading a team advised by Professor Or Katz that is creating a novel Quantum Memory System to break the reccord on room temperature quantum information storage by 100x
- Created complicated thermal simualtions in COMSOL to verify a heating and nonmagnetic enclosure
- Created a simulator for parameter optimziation of the system and designed the optical table layout for the system

Developer   January 2024 – May 2024
Cornell, Ken Birman Lab of Distributed Systems   *Ithaca, NY*
- Ran internal experimentation using CUDA to optimize caching for large scale matrix multiplication.
- Contributed to the Cascade Project by developing a fast vector database using FUSE for RAG.

TECHNICAL SKILLS

Languages: C/C++, Python, JavaScript/HTML/CSS, Java, C#, Rust, Verilog, SystemVerilog
Frameworks: CUDA, React/Next, Node.js, Express, MongoDB, Flask, Django, Tailwind
Developer Tools: Git, Docker, AWS, Jenkins, Vim
Libraries: Pandas, NumPy, Matplotlib, OpenCV, PyTorch, Sci-Kit, TensorFlow
Tools: Solidworks, Fusion360, COSMOL, Ansys, Vivado