Austin Wu

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Education

Cornell University Ithaca, New York

Dual Major: Bachelor of Science in Computer Science and Applied Physics *Graduation Date: May 2026*

Relevant Courseowrk: Math2230, Math2240, CS4999, AEP3200

Awards: USACO Platinum Competitior, **Hackathons Won:** Masseyhacks, Los Altos Hacks, Teenhacks LI

Experience

Founding Engineer September 2024 – Present

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.

Developer January 2024 – Present

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.

Researcher October 2023 – Present

Yasuda Lab 2D Quantum Nanomaterials *Ithaca, NY*

- 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.
- Created Non-trivial Computer Vision algorithms for Monolayer Graphene flake detection using color quantization and Machine Learning.
- Implemented Complex Control Theory Algorithms such as Model Predictive Control to allow for reliable automatic of the stacking process.

Co Founder and Vice President December 2023 – Present

Quantum Computing Association at Cornell *Ithaca, NY*

- Contributed to a simulator for Topological Quantum Computing in Python and Rust finds the Isomorphism between the matrix and Topological-Braiding representations of Quantum Computing.
- Led development on a building a Neutral Atom Quantum Computer from scratch by building a cheap MOT.

Researcher June 2023 – September 2023

Independent Collaborator *Remote*

- Collaborated with Northwestern Professor Seda Memik on a novel in parallel computing architecture with SystemVerilog to create large speedups in computationally intensive workflows. Project was provisionally patented.

Projects

Cornell Math Modeling Competition Submission | *C++, Python, LaTeX* November 2024 – November 2024

- Developed a custom multi-threaded architecture for running heavy simulations in C++ to visualize the spread of Lanturnflies in vineyard populations
- Did data analysis in python and wrote up a 40 page paper on the results

HeartPal | *Dart, Flutter, Python, Flask, C/C++, Keras, Git* May 2022 – September 2022

- Developed a digital stethoscope that connected with a app in Flutter that communicated with a custom LSTM and Hidden Markov Machine Learning model in order to automatically detect irregularities with patients heartbeats.

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
Libraries: Pandas, NumPy, Matplotlib, OpenCV, PyTorch, Sci-Kit, TensorFlow