Michael Huang

San Francisco CA | 978-238-6847 | michaelyhuang23@gmail.com | also known as Yihao Huang

Education

Massachusetts Institute of Technology, Cambridge, MA 2026
Bachelor of Science in Physics and Math, GPA: 4.9/5.0
Coursework: Abstract Algebra, Topology, Differential Geometry, Complex Analysis, Solid State Chemistry, EM Waves, Electromagnetism II, Quantum Mechanics II, Relativity, General Relativity (G), Quantum Field Theory I (G), C and Assembly, Computation Structure (Computer Architecture I), Signal Systems and Inference, Machine Learning (G), Operating System Engineering

Experience

Startup [cofounder] Jan 2026 – Apil 2026
- Built a runtime for generative UI. Researched speech2speech models for smooth human-ai interaction.

Intel Client Computing Group [Research Intern] May 2025 – September 2025
- I am doing research on gradient-based mixed precision quantization, improving upon the AutoRound line of work. I developed a sota optimizer for post-training low bit quantization, leading to 2 filed patents. I also helped write Intel's kernel backend for the ThunderKittens GPU-kernel library.

MIT CTP Photonics and Electromagnetics Group [Research Intern] February 2024 – Present
- I did theory work for the quantum dynamics of optical parametric oscillators and studied photon tunneling.

MIT CSAIL [Research Intern] October 2023 – May 2024
- I developed novel contrastive loss for extending contrastive learning to >2 modalities, reaching near sota results on material property prediction on the Material Project benchmark.

Poplar ML (YC) [Engineer Intern] January 2024 – February 2024
- I worked with the founders of a seed round startup to prototype generative models for automating Computer Aided Design; used transformers, diffusions, and developed ways to tokenize CAD files

MIT CSAIL Parallel Algorithm Group [Research Intern] December 2022 – May 2023
- I researched shared memory parallel algorithms for graph analysis and clustering. I developed theoretic bounds and did performance engineering, reaching 5x and 10x speedup against previous sotas respectively.

MIT Kavli Institute Necib's Group [Research Intern] July 2022 – August 2022
- I applied graph neural networks and spectral clustering to find dwarf galaxies accreted by the Milky Way

Window Cleaning Drone December 2019 – May 2022
- I led a small team to build a flyable test-of-concept drone that can power wash windows. I also developed a way to localize windows using the light-polarizing effect of windows.

Research Publications

Optimizers for Low Bit LLM Quantization Intel Patent (Filed 2026)
Michael Huang, Yehong Jiang, Vincent Lu, Yen-Kuang Chen, Fangwen Fu (Intel CCG)
Developed gradient-based optimizer to perform low-bit quantization of LLM. Improved upon AutoRound's optimizer design by correcting for unstable dynamics caused by noisy STEs, achieving lower distortion.

Quantum Tunneling Dynamics of biased OPO Systems CLEO'25
Michael Huang, Seou Choi, Yannick Salamin, Marin Soljacic (MIT CSAIL)
Analyzed biased OPO quantum state's stochastic dynamics with statistical physics. Approximated photon tunneling rate with a modified Kramer's method. Compared against numerical solution from finite element method.

Parallel Clustering with Graph Based Nearest Neighbor Search ACDA'25
Shangdi Yu, Joshua Engels, Michael Huang, Julian Shun (MIT CSAIL)
Used approximate graph-based nearest neighbor search to accelerate high dimensional density-peaks clustering, achieving over 734x speedup over previous state-of-the-art.

Faster Parallel Exact Density Peaks Clustering ACDA'23
Michael Huang, Shangdi Yu, Julian Shun (MIT CSAIL)
Developed the priority search kd-tree data structure, and applied it to a parallel density-peaks clustering algorithm that outperform existing low-dimensional density-peaks clustering algorithms by up to 13000x.

Efficient Algorithms for Parallel Bi-core Decomposition APoCS'23
Michael Huang, Claire Wang, Jessica Shi, Julian Shun (MIT CSAIL)
Developed efficient algorithms for bi-core decomposition, which is applied in fraudster detection and bioinformatics for analyzing bipartite graphs. Outperformed existing algorithms by up to 4.9x.

Awards & Accomplishments

International ST-Yau CS Research Award 1st Place [2021], 2nd Place [2022]; ***Research Science Institute*** Top 5 Paper Award [2022]; ***USA Computing Olympiad*** Finalist [2022] (top 25 nationally); ***Davidson Fellows Scholarship*** [2023]***; Regeneron STS*** Scholar [2023], ***Atlas Fellowship*** [2023].

Programming Languages & Tools: Python, C++, Julia, C, Rust, Cuda, Sycl; Torch