Michael Huang

Interested in CSxPhysics research | www.michaelyhuang.org | michaelyhuang23@gmail.com

Education

Massachusetts Institute of Technology 2023—2027

I will attend MIT in the Fall of 2023 as a member of the class of 2027.

Phillips Academy GPA: 5.95/6, 2019—2023

Private high school at Andover MA (https://www.andover.edu/). I serve as the co-president of CS Club, Phsics Club, Chemistry Club, VEX Robotics, and Techmasters (tech help). I worked as a math and physics tutor. I also serve as the Digital and Creative Director for The Revere, my school's foreign affair newspaper.

Research Projects

Effective Automated Stellar Substructure Detection using the Supervised Neural Clustering Algorithm Not yet submitted for publication

Yihao Huang, Xiaowei Ou, Tri Nguyen, Lina Necib

As part of the Research Science Institute (RSI) program, I worked on developing a graph neural network based clustering algorithm to identify stellar substructures in the Milky Way. I worked at the Kavli Institute for Astrophysics and Space Research and was mentored by Xiaowei Ou, Tri Nguyen, and Prof. Lina Necib. This project won RSI's top 5 paper award and Science Talent Search semifinalist.

Theoretically Efficient Parallel Density-Peaks Clustering To appear at ACDA'23

Yihao Huang, Shangdi Yu, Julian Shun

I developed efficient parallel algorithms for density-peaks clustering under the mentorship of Shangdi Yu and Prof. Julian Shun at MIT's CSAIL as part of the MIT PRIMES program. The research won 2nd place at the Interntional S-T Yau Science Award contest. It was accepted for publication at the ACDA conference in 2023.

Efficient Algorithms for Parallel Bi-core Decomposition APoCS'23

Yihao Huang, Claire Wang, Jessica Shi, Julian Shun

I coauthored a paper that uses efficient parallel algorithms to solve the bi-core decomposition problem with my partner.

We worked at MIT's CSAIL and were mentoed by Jessica Shi and Prof. Julian Shun as part of the MIT PRIMES program. This project won 2nd place at Massachusetts Science and Engineering Fair and 1st place at the International S-T Yau Science Award contest. It was accepted into the AMS-PME conference at the Joint Math Meeting of 2021, and published at the APoCS conference in 2023.

I have also done a few-shot object detection machine learning research project that did not come to fruition.

Other Projects

The Andover Computing Open

I cofounded The Andover Computing Open (TACO), a competitive programming community that hosts annual contests, workshops, and speaker presentations on competitive programming. Last year, we received a 4k grant, hosted contests with over a hundred participants, and invited the US Informatics Olympiad team coach Prof. Brian Dean to speak at the event.

Andover Window Cleaning Drone

With 1.5k of grant funding, I led a team of 7 to build a semi-autonomous window cleaning drone that is capable of power spraying windows.

Science, Politics, Philosophy blogger

Effective Altruism adjacent blog: www.daylightreveries.org
Physics blog: intuitivephysics.me

Awards/Activities

- International S-T Yau Science Award contest 1st Place in CS (Winter 2021), 2nd Place in CS (Winter 2022)
- Research Science Institute Top 5 Paper & Top 10 Presentations (Summer 2022)
- USA Computing Olympiad Finalist & National Training Camp participant (Summer 2022)
- Massachusetts Science and Engineering Fair 2nd Place (Spring 2021)
- USA Young Physicist Tournament Bibilashvili medal (Winter 2021) & Swartz Trophy (Winter 2022) & Bibilashvili medal (Winter 2023)

- USA Physics Olympiad qualifier (Spring 2022)
- Poster acceptance at Joint Math Meeting's AMS-PME Conference'21 (Winter 2022)
- Paper acceptance at APoCS Conference'23 (Fall 2022)
- Paper acceptance at ACDA Conference'23 (Fall 2023)
- Wharton Investment semifinalist (Winter 2022)
- Beaverworks Summer Institute participant (Summer 2021)
- Intern at Human Robot Interaction Lab (Summer 2021)
- Intern at Local Milky Way Dynamics Group (Fall 2022)
- Stanford Precollegiate Summer Program participant (Summer 2020)