

Michael Liu

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EDUCATION

University of California, Los Angeles

Summer 2023, Class of 2030

- ◆ COM SCI M51A Logic Design of Digital Systems: A+

Mission San Jose High School (MSJHS), Fremont, CA

Class of 2026

- ◆ Unweighted GPA: 4.0

University of California, Berkeley

Summer 2024, 2025

- ◆ COMPSCI 61A Structure and Interpretation of Computer Programs: A+
- ◆ COMPSCI 61C Great Ideas in Computer Architecture: A+
- ◆ COMPSCI 70 Discrete Mathematics and Probability Theory: A

SKILLS

Experienced in developing software projects in areas incl. computer graphics, robotics, & AI; building and troubleshooting mechanical & electrical components of robots; & using industry-standard tools incl. Blender and Fusion 360. Strong writing, communication, & teamwork skills. Maintains a growth mindset and a love for learning.

RESEARCH

AI Research, Long Research Group, University of Pennsylvania

Spring 2024 – Present

- ◆ M. Liu, Q. Long, and I. Choi, Graph-LLM for EHRs: Combining temporal graph representations and LLM-based note imputation for clinical predictions. Accepted by IEEE Big Data Workshop on Multimodal AI.
- ◆ Developed a novel AI/ML model for improved clinical prediction accuracy using Graph Neural Networks (GNNs) and Large Language Models (LLMs)

LEADERSHIP

Robotics, FIRST Tech Challenge (FTC) Teams Hyperion and Hypernova

Fall 2020 – Present

- ◆ As co-captain in charge of robot development, guided the team through brainstorming and created a detailed project timeline and job chart.
- ◆ Taught robotics design and construction to ten teammates. Built a collaborative environment to iterate and troubleshoot robotics hardware and software.
- ◆ Developed key capabilities such as spline-based path following for better autonomous performance and computer vision for accurately picking up game pieces.

MSJHS Computer Science Club

Fall 2022 – Present

- ◆ As president in senior year and vice president in junior year, focus on building a culture of collaboration, improving quality of club events, and sharing the joy of computing with the school community.
- ◆ Proposed and implemented initiatives such as Show and Tell days and awareness campaigns to increase participation. Membership grew by 40%.
- ◆ Organized "Warrior Hacks," the first hackathon in our school's history.

MSJHS Science Olympiad

Fall 2024 – Present

- ◆ Lead the Robot Tour and Electric Vehicle events. Assist other build events such as Helicopter.
- ◆ Improved placement at competitions by an average of five places. Helped fund the events.
- ◆ Introduced optical and deadwheel odometry techniques to continuously estimate robot position.

Varsity & Club Volleyball

Summer 2018 – Spring 2026

- ◆ Co-captain and starting libero of the MSJHS varsity volleyball team during the Spring 2024 season and starting libero during the Spring 2023 season.
- ◆ Brought a winning culture and cohesive atmosphere to practices and games, leading our varsity team to the quarterfinals of 2024 North Coast Section Boys Volleyball Championships, our best result in seven years.

COMMUNITY SERVICE

Volunteer, Friends of Children with Special Needs (FCSN)

Summer 2022 – Fall 2025

- ◆ Founded FCSN App Development Interest Group. Lead eight initial group members using MIT App Inventor to create mobile applications that address the needs of this community.
- ◆ Led computer skills instruction in the After School Program and developed lesson plans and coding projects for both beginner and advanced groups with thirty-two students in total. Taught key building blocks of programming and led other volunteers.

SELF-DRIVEN LEARNING

Vintage Computing

Spring 2020 – Present

- ◆ Restored a number of vintage computing devices including an Apple Clamshell iBook, an IBM PC Convertible (model 5140), and a Hall Effect switch keyboard that was part of a Western Union teleprinter.
- ◆ Showcased my collection of devices at community outreach events including MSJHS student orientation day, driving increased signups to the MSJHS Computer Science Club.

Game and Graphics Programming

Spring 2020 – Present

- ◆ Developed a variety of graphical applications using OpenGL, DirectX 12, and WebGPU
- ◆ Designed and optimized performance-critical systems (physics engines, real-time renderers) with double-buffering, multithreading, and data-oriented design.
- ◆ Maintained and collaborated on large codebases of over 20,000 lines of code.

Freelance Work

Summer 2023

- ◆ Developed a 3D animation module for a hand accessory made by a client from Brazil, using my expertise in computer graphics and libraries including OpenGL. Delivered finished programs in a timely manner.

AWARDS AND DISTINCTIONS

Academics

- ◆ First author research paper accepted by IEEE Big Data Workshop on Multimodal AI, 2025
- ◆ Rising Star Award, IEEE International Conference on Data Mining Undergraduate and High School Symposium, 2025
- ◆ National Merit Scholarship Winner, 2026
- ◆ USA Computing Olympiad Gold Division Qualifier, 2024

Robotics

- ◆ 2nd Place, Finalist Alliance 1st Pick and Hardware Mastery Award, Maryland Tech Invitational, 2025
- ◆ 2nd Place, Finalist Alliance 1st Pick, Michiana Premier Event, 2025
- ◆ 3rd Place in Robot Tour, Northern California Science Olympiad State Tournament, 2025
- ◆ 4th Place in Robot Tour, Stanford Science Olympiad Invitational, 2025
- ◆ Control Award, FTC Northern California Championship, 2025

Design Creativity

- ◆ Top 20 Winning Entry, Desmos Art Expo (Global Math Art Contest), 2024
- ◆ 2nd Place, Milpitas Hacks, 2024
- ◆ Honorable Mention, 5th San Ramon Hackathon
- ◆ Excellence in Videography Honorable Mention, Alameda County Water District Student Video Contest, 2024

Community Service

- ◆ Outstanding Volunteer Award, Friends of Children with Special Needs, 2025
- ◆ Gold President's Volunteer Service Award, 2023 and Bronze, 2024