WESLEY MAA

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EDUCATION

Columbia University, New York, NY August 2023 - May 2027

- GPA: 4.02
- Major: Computer Science / Electrical Engineering
- Relevant Coursework: Data Structures (A), Advanced Programming (in progress), Ordinary Differential Equations (in progress)

Palo Alto High School, Palo Alto, CA August 2019 - June 2023

- GPA: 4.52 / 4.0
- SAT: 1590
- AP Tests: Calculus BC (5), Chemistry (5), English Language and Composition (5), US History (5), Chinese (5), Computer Science A (5), Computer Science Principles (4), Physics C (5), English Literature and Composition (5), Macroeconomics (5)

Extracurricular Coursework & Programs

- Foothill College, Math 2B: *Linear Algebra* (Spring 2023)
- Foothill College, Math 1C, 1D: *Multivariable Calculus* (Fall 2022)
- Foothill College, Biology 1A: *Principles of Cell Biology* (Fall 2022)
- UMass Amherst, Linguistics 201: *Introduction to Linguistic Theory* (Spring 2022)
- Carnegie Mellon University, *Introduction to Nanotechnology* (Summer 2020)
- Stanford University, *Materials Science & Engineering* (Summer 2020)
- De Anza College, DMT 60A: *SolidWorks* (Summer 2020)
- Stanford University Logic Group, *Introduction to Logic* (Summer 2020)

HONORS & AWARDS

- USA Computing Olympiad, Gold Medal (2021)
- Office of Naval Research Award, Synopsys Championship Science Fair (2021)
- National Merit Scholarship Winner (2023)
- AP Scholar with Distinction (2021)
- President's Volunteer Service Award (2020)

RESEARCH EXPERIENCE

National University of Singapore – AI Lab – *Intern* June 2023 – Aug. 2023

- Conducted a comprehensive evaluation of generative text and image models
- Led the development of a platform for collecting human ratings on AI-generated content
- Trained and optimized Vision Transformer (ViT) models for image classification and model scoring

Columbia University - Spoken Language Processing Group – *Intern* May 2022 – Aug. 2022

- Studied multi-modal and multi-lingual natural language processing in Professor Julia Hirschberg's lab
- Developed emotion detection models and state vector machines for dialogue analysis across English, Turkish, and Indonesian
- Processed data for the Switchboard Dialog Act Corpus

GRAB Data Science and Machine Learning Lab – *Intern* Nov. 2021 – May 2022

- Developed automatic speech recognition (ASR) model and a web-based data collection platform for ASR
- Adapted ASR models to perform natural language processing for Lombard speech (neurological reflex to increase vocal efforts when speaking in noisy environments)

National University of Singapore - AI Lab – *Intern* May 2021 – Oct. 2021

- Developed vision recognition system using U-Net-based convolutional neural networks to implement image semantic segmentation
- Created object recognition model capable of pixel-level object identification using Pytorch; co-developed preprocessor for training datasets in Python

UC Santa Barbara Summer Research Academy – *Participant* June 2021 – July 2021

- Studied soft robotics, morphological computation, and parametric modeling for physical prototyping
- Designed and prototyped a navigation device using haptic feedback to help visually impaired individuals safely navigate in unfamiliar environments

Magnetohydrodynamic Drive – Independent Project Sept. 2020 – Mar. 2021

- Developed MHD drive that applies Lorentz force (electromagnetic movement of conductive fluids) on seawater to create a solid-state propulsion system that minimizes acoustic noise and turbulence compared to traditional propellers
- Received 2021 Office of Naval Research Award at Synopsys Championship Science Fair

MIT Beaverworks: COVID Contact Tracing Project – *Participant* May 2021 – Aug. 2021

- Developed automated COVID contact tracing system based on estimating the distance traveled by Bluetooth signals emitted by cellphones. Created a Bluetooth beacon platform and developed MATLAB algorithms based on log distance path loss models
- Achieved accuracy of 82% in real-world environments

EXTRACURRICULAR ACTIVITIES & WORK EXPERIENCE

CU Formula Racing – *Low Voltage* Jan. 2024 – Present

- Columbia's FSAE team competing in the electric vehicle category
- Configured onboard MoTeC system for telemetry and wrote data visualization pipeline using Python
- Helped assemble and disassemble car

CU Robotics Club – *CU Battlebots (CUB) Co-Lead* Dec. 2023 – Present

- Designed and built a 12lb robot to compete in the National Havoc Robotics League and various collegiate competitions

Columbia Space Initiative – *CubeSat Flight Software* Aug. 2023 – Present

- Developed satellite budgets and systems topology
- Satellites programmed in PyCubed and F'

FRC Team 8262 – *Co-Founder, Co-Captain, & Driver* Sept. 2019 – Aug. 2023

- Founded FRC team that was named regional semi-finalist in our first tournament; won the Rookie Game Design Award in 2021
- As Co-Captain, responsible for software, electronics, and system design
- Organized and taught robotics summer camps for students in 2020 and 2021

CNC Machining and Fabrication – *Founder* Jan. 2020 – Aug. 2023

- Founded machine shop to provide contract manufacturing services for local businesses and research labs. Manufacturing services include Computer Numerical Control (CNC) routers and 3D printing
- Generated over $17k in revenues

Silicon Valley Robotics – *Volunteer* Sept. 2020 – Feb. 2023

- Work with the largest non-profit organization in the Bay Area focused on building a professional robotics community, including startups, companies, and research institutions
- Responsible for recruiting roboticists to speak at local conferences, writing coverage articles, and assisting regional tech start-ups with their media releases

Palo Alto Youth Commission – *Member* Sept. 2020 – May 2021

- Worked with City Council to help address issues relevant to the teen community
- Helped develop youth programs, including voter registration and mental health awareness campaigns

Los Altos History Museum – *Volunteer Docent* May 2020 – Aug. 2020

- Conducted guided tours through permanent exhibits and instructed new docents. Designed temporary exhibits examining the lives of senior citizens in Los Altos and the history of women's suffrage

TECHNICAL SKILLS

Embedded Software: National Instruments, Arduino, Raspberry Pi
Languages: C++, C#, Java, Python
Mathematics: MATLAB

CAD/CAM: SolidWorks, Fusion360, Rhino/Grasshopper, 3D Printing, CNC
Web: HTML/CSS, Firebase, React, Javascript