

# WESLEY MAA

wesley.maa@gmail.com | [REDACTED] | Palo Alto, CA 94301

## EDUCATION

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**Columbia University**, New York, NY

August 2023 - May 2027

- GPA: 4.06
- Major: Computer Science / Electrical Engineering
- Relevant Coursework: Data Structures (A), Advanced Programming (A), Ordinary Differential Equations (A), Discrete Mathematics (A+)

**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

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- 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

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**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

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- K-Scale Labs – Roboticist** July 2024 – Present
- Low-level robot firmware in C++, Python, and Rust
  - Trained and deployed locomotion and manipulation policies
- 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 – External Sponsorships Chair, CubeSat Software Lead** Aug. 2023 – Present
- As ES Chair, developed and maintained relationships with external sponsors
  - Developed satellite budgets and systems topology
  - Satellites programmed in PyCubed and F'
- Buckets – Frontend Software Intern** Feb. 2024 – Apr. 2024
- One of a team of four developers for a network management startup in Columbia Build Lab
  - Worked in SwiftUI to overhaul reminders and contacts displays, including implementing filters
- 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**

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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