

MAGGIE WU

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EDUCATION

CARNEGIE MELLON UNIVERSITY | Pittsburgh, PA
Bachelor of Science in Electrical & Computer Engineering
Additional Major in Robotics & Minor in Computer Science

May 2028
GPA: 3.88/4.00

EXPERIENCE

SURGICAL MECHATRONICS LAB

Researcher

Carnegie Mellon University, PA

May 2025 – Present

- Developed components of the HeartPrinter, a parallel wire robot to deliver gene therapies to the heart
- Designed and assembled various power/control/mechanical subsystems and developed C++ positioning verification code

ENVIRONMENTAL ENGINEERING AND SCIENCE LAB

Research Intern

Stony Brook University, NY

July 2023 – November 2023

- Characterized denitrification kinetics and greenhouse gas emission of woodchip bioreactors used in wastewater treatment
- Co-authored publication in Water Research: <https://doi.org/10.1016/j.watres.2024.122562>
- Named Regeneron STS Top 300 Scholar; Won Third Place at New York State Science & Engineering Fair

TONGE LAB

Research Intern

Stony Brook University, NY

July 2022 – August 2022

- Prepared & worked up chemical reactions to synthesize a PROTAC to selectively degrade main protease of SARS-CoV-2

PROJECT EXPERIENCE

AEROSOL JET ADDITIVE MANUFACTURING

October 2025 – Present

- Using point cloud data from 3D surface scans for conformal aerosol jet printing with a robot arm and 2 DoF motion platform
- Programmed a MATLAB 3D point cloud visualizer with an interactive GUI to process and filter a .csv file with ~51M values
- Created a Simulink model using a MATLAB preprocessing script precisely controlling two motors to follow 6D waypoints

BLUEPRINT

January 2026

- Built Blueprint, a VS Code extension that makes complex repositories easier to understand and maintain by generating interactive architecture graphs and summaries, and conducts proactive vulnerability detection with AI
- Won First Place in NexHacks DevTools Track and Gemini Track, Third in Token Company Track (880 participants)

THE WONDER GLOVE

March 2025

- Designed and constructed a hockey glove with a flexible wrist guard to minimize wrist injuries (factor of safety > 2 for forces up to ~2500N) without inhibiting movement and a replaceable palm to improve durability and affordability
- Named MVP of a team of four in Rethink the Rink make-a-thon sponsored by Covestro and the Pittsburgh Penguins

AFFORDABLE STREET NAVIGATION DEVICE FOR VISUALLY-IMPAIRED PEDESTRIANS

February 2023 – June 2023

- Constructed a hat using a camera and Raspberry Pi 4B to detect street obstacles and vehicles with real-time audio feedback
- Implemented YOLOv4-tiny neural network (trained on custom dataset), achieving 87.34% mean average precision
- Named National Finalist in JYEM Research Paper Competition (Top 5%); Presented at JYEM Expo
- Awarded \$125 funding in the MIT BeaverWorks CRE[AT]E Assistive Technology Challenge

LEADERSHIP EXPERIENCE, AWARDS, SKILLS

NCAA ATHLETICS – CARNEGIE MELLON VARSITY TRACK & FIELD

August 2024 – Present

- Balanced academic workload with 15 hrs/week practice and competed (throughout PA, WV, OH, NY) in hurdles & jumps

GREAT NECK SOUTH HIGH SCHOOL SCIENCE OLYMPIAD

October 2021 – June 2024

- As Treasurer, organized 10+ bake sales, raising \$1000+ over the course of a school year
- Won 18 Medals (Regional, State, National), including: 1st Place Wi-Fi Lab (constructed Double Biquad antenna), 1st Place Detector (made accurate force scale with self-made load cell), 2nd Place Trajectory (built accurate catapult for ping-pong balls)

SELECTED AWARDS: National Merit \$2500 Scholarship Recipient, Regeneron STS Top 300 Scholar

SKILLS: C++, Python, C, MATLAB, Simulink, Standard ML, JavaScript, Linux, Arduino, Raspberry Pi, Visual Studio, Git

CAD & Fabrication: SolidWorks, Fusion 360, PCB Design, Autodesk Inventor, Soldering, Laser Cutting, 3D Printing

Data analysis: MATLAB, ANOVA, Excel