

Ray Zhao

rrz2016@nyu.edu || (612)-757-9612 || <https://www.linkedin.com/in/rayruihengzhao>

EDUCATION

New York University

B.A. Computer Science and Mathematics, GPA: 3.92

Minor: *Business Administration*

Relevant Coursework: *Data Structures, Computer Systems Organization, Calculus III*

New York, NY

Aug 2025 - May 2028

Mission San Jose High School

High School Diploma

ACT Score: *35/36*

Relevant Coursework: *Introduction to C++, Multivariable Calculus, Linear Algebra, Discrete Mathematics*

Fremont, CA

Aug 2021 - May 2025

TECHNICAL SKILLS

Programming Languages: Python, Java, C/C++

AI/ML: Transformers, CNNs, YOLO, Tensorflow, Keras, Pytorch, NumPy, OpenCV

Other Domains: Signal Processing (EEG/EMG Brain waves), Shortest-path concepts, Arduino/Raspberry Pi, 3D printing, CAD

RESEARCH

NeuroLimbAI: AI Brain Controlled Prosthetic Arm with Sensory Feedback

Nov 2023 - Jun 2025

- Trained the first AI Transformer model to translate brain signals into arm prosthetic movements with haptic feedback
- Designed end-to-end pipeline that reads brain signals from non-invasive EEG devices and maps them to multi-DOF prosthetic arm movements with closed loop haptic feedback system in real time inferences based off of original paper
- Collected, labeled, and organized noisy brain signal recordings by applying advanced data processing techniques
- Incorporated components such as positional encoding, multi-headed attention, and layer normalization
- **Awarded GENIUS Olympiad International Science Fair Silver Medal**

VertiPaw: Wall Climbing Quadroped for Infrastructure Inspection

Jan 2024 - Dec 2024

- Developed first vacuum based quadroped to climb walls for building inspection
- Modeled center-of-mass and suction forces as well as finite-state gait controllers for climb/hold/transfer
- Invited & presented research at Hitachi Research Lab in Tokyo, Japan on December, 11-13, 2024

PROJECTS

Art Generation w/ Neural Style Transfer

Sep 2025 - Nov 2025

- Using Tensorflow, implemented a neural style transfer algorithm that generated novel artistic images
- Optimized style and content cost function from a random image matrix based on the VGG network

Jazz Music Generation Project w/ LSTM

Dec 2025 - Jan 2026

- Using Tensorflow, developed and implemented an LSTM sequential model that generated novel Jazz music
- Used the gated architecture from the LSTM networks to capture long range dependencies in musical sequences
- Was able to enable note transitions and rhythmic consistencies across the output consistently.

EXPERIENCE

Head Lead of Student Space Satellite Initiative

Fremont, CA

Antaris.space

Oct 2023 - Jan 2025

- Developed a 1U sized cubesat satellite as well as using CAD models to help with software to hardware integration
- Used CAD Design Software *Onshape* to design outer enclosure and mounting features with 1U standards

Founder and President

Fremont, CA

Learnify+

Aug 2021 - Jun 2025

- Founded and led a cross chapter nonprofit organization focussed on tutoring children in math, CS, english, and science
- Fundraised thousands of dollars, oversaw 500+ students, 40+ tutors, and 6 board of directors

PUBLICATIONS

NeuroLimbAI: Enhancing Sensory Feedback in an Origami Inspired Prosthetic Arm with Electroencephalogram-Controlled Noninvasive Vibrotactile Haptic Feedback

(Published in IEEE Xplore, ISBN: 979-8-3503-4977-1)

VertiPaw: Development of a Vertical Climbing Robot with Adaptive Suction and Suspension Foot Design for Infrastructure Monitoring

(Published in IEEE Xplore, ISBN: 979-8-3315-2156-1)