Emma Li

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EDUCATION

Columbia University, School of Engineering and Applied Sciences New York, NY
Bachelor of Science in Computer Engineering *May 2025 (exp.)*
Relevant Coursework: Advanced Programming, NLP, AI, Embedded Systems, UI Design, Networks GPA: **
Activities: Game Dev Committee Lead, Columbia Valorant Team, Esports Secretary, Wind Ensemble

PROJECTS

Piano Tutor | *HTML, CSS, JavaScript, Flask* Mar. 2025 – May 2025
- Developed an interactive web app to teach basic piano skills, using a Flask backend to serve dynamic quiz content and a JavaScript frontend for user interaction.
- Built a playable virtual piano interface with HTML/CSS, mapping keyboard inputs to musical notes and triggering audio playback through the HTML5 Audio API.
- Implemented music quizzes that assess user responses to note identification tasks, providing immediate feedback and tracking user progress in real time.

Pac-Man on FPGA | *SystemVerilog, C, DE1-SoC, VGA* Mar. 2025 – May 2025
- Recreated the classic Pac-Man game on an FPGA using SystemVerilog for VGA rendering and C for game logic, running on the DE1-SoC board.
- Developed hardware for tile-based graphics, sprite rendering, and sound output using PWM.
- Integrated memory-mapped I/O for real-time communication between software and hardware, enabling dynamic sprite control and score updates.

SongVault | *Flask, Python, JavaScript, CSS, jQuery* Mar. 2025
- Developed a full-stack app for cataloging songs with flexible search by title, writer, and artist
- Built a Flask backend with add and edit functionality for songs, and designed an interactive frontend using jQuery for dynamic search and real-time updates.

EXPERIENCE

Columbia University, Computer Science & Electrical Engineering Sep. 2022 – Present
Teaching/Laboratory Assistant *New York, NY*
- TA for Fundamentals of Computer Systems, Artificial Intelligence, Discrete Math, and Intro to EE; Head TA for Computer Systems (Fall 2024, Spring 2025).
- As Head TA, led exam and grading logistics, coordinated review sessions, managed a team of 15+ TAs, and maintained course infrastructure on Gradescope and Canvas.

DiTect Lab May 2024 – Aug 2024
Summer Research Assistant *New York, NY*
- Developed a Unity3D virtual reality simulation of pedestrian and vehicle movement at a real-world traffic intersection for urban safety research.
- Implemented C# scripts to receive and parse real-time trajectory data over the MQTT protocol, improving data handling efficiency by 10% in testing.

Biomaterials Interface Tissue Engineering Laboratory Sep. 2022 – Jan 2023
Undergraduate Research Assistant *New York, NY*
- Conducted research on tissue scaffolds for periodontal ligament regeneration, including collagen assays and scaffold fabrication.
- Assisted with experimental setup, media exchange, data collection over multi-day studies, and literature review.

SKILLS

Programming: Python, Java, C/C++, HTML, CSS, JavaScript, Unix, Git, MQTT, SystemVerilog, jQuery, Arduino
Creative: Final Cut Pro X, Adobe Lightroom, Photography

VOLUNTEERING

Columbia-Barnard Matriculate Dec. 2021 – May 2023
Advising Fellow Leader *New York, NY*

Mount Sinai Health System & Stillwater Medical Center Aug. 2022 – January 2023
Clinical Volunteer *New York, NY & Stillwater, OK*