Joy Liu

joyjliu@seas.upenn.edu | (408) 797-8935 | Philadelphia, PA + San Francisco Bay Area, CA

EDUCATION

University of Pennsylvania, School of Engineering & Applied Science, Philadelphia, PA *May 2026*

Candidate for Bachelor of Science of Engineering

Major: Computer Science, minor in Mathematics

GPA: 3.87/4.00, Dean's List

Relevant Coursework:

- Completed technical courses in computer systems, data structures & algorithms, discrete math, linear algebra/differential equations, multivariable calculus, and linguistics alongside business courses in negotiations, management, and technology entrepreneurship from the Wharton School.
- Currently enrolled in courses on computer operating systems, automata and complexity, big data analytics, statistical inference, and corporate finance (Fall 2023).

Activities: Teaching assistant for data structures/algorithms (CIS 121). Board & dev team member of Penn Computer Science Society. Developer at Hack4Impact: working directly with nonprofits to develop (primarily web) apps furthering their reach & impact.

Monta Vista High School, Cupertino, CA *June 2022*

GPA: 3.97/4.00 unweighted, 4.48 weighted *SAT Scores*: Math (800) / Reading & Writing (780)

Received full score (5s) in thirteen AP courses taken, including Calculus BC, CS A, Physics C (Mechanics & E/M), Statistics, and Chemistry. National Merit Finalist in CA. TA for AP-level science courses (teaching, tutoring, grading, and test-writing experience). VP of school competitive business club (DECA, 300+ members) – spearheaded new curriculum leading to top club placements statewide + internationally. Founder of student-run marketing consulting group helping students provide COVID relief to local businesses.

TECHNICAL SKILLS

Proficient in **Java, C++, Python** (including relevant libraries), **web development using MERN stack**, **Git/Arcanist/Phabricator** version control. Experienced with other tools, including OCaml, C, SQL, Swift, Docker/virtual machines, AWS. Fluent in Chinese.

EXPERIENCE

University of Pennsylvania | *Teaching Assistant,* ***Data Structures and Algorithms***, Philadelphia, PA *August 2023 – Present*

- Responsible for recitation small group (~20 students), involving mandatory weekly lecture-style discussions and facilitated problem solving. Hold role as the point person on these students' performance & development through the course.
- Staff popular weekly office-hours sessions to address student questions 1:1.
- Write and create novel questions for weekly algorithmic problem sets as member of homework committee.

WeRide Corp. | *Software Engineering Intern (Perception)*, San Jose, CA *May – August 2023*

Working on object understanding to detect & identify small obstacles at global autonomous driving startup (L3/L4).

- Ideated and developed new crushability and label coverage metrics — primary point person on newly developed benchmarking and benchmark calculation system critical to testing new feature launch.
- Expanded existing metric systems to work with new multiclass small obstacle identification model for August 2023 launch.
- Uncovered and addressed bugs with undocumented legacy system: restructured code to ensure compatibility with modern workflow setup, data collection, and simulation tools used by majority of 700+ employee company.
- Analyzed significant portion of department codebase to document "quick start guides" for large & rapidly expanding perception department, ensuring faster onboarding — recommended reading for all new department members worldwide.

University of California, Santa Cruz| *Machine Learning Research Intern*, Santa Cruz, CA *May – August 2019*

Working on SpokeIt project to develop automated mobile speech-therapy tool for children with cleft palate (birth defect)

- Used Python with libraries (sklearn, TensorFlow, NumPy/pandas/standard data analysis packages) and AWS to train ML model for speech (phoneme) segmentation as part of automated speech therapy project for children with cleft palate.
- Analyzed tens of thousands of audio recordings in varying languages & speech patterns, working with partner NGO SmileTrain.
- Proposed and implemented new and significantly more effective solution to train machine learning model using spectral waveform analysis and Python package librosa rather than direct audio analysis for data cleaning and speaker segmentation.

TECHNICAL PROJECTS: https://github.com/happyjoytotheworld

Personal projects include Python-based app to guide course selection for UPenn computer science students and various club websites. Continuously under development - happy to provide further links or references to updated versions on request.