

# Jessica Liu

Atlanta, GA | (470) 380-3707 | jessicatracyliu@gmail.com | jessicaliu06.github.io/portfolio

## EDUCATION

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### Georgia Institute of Technology

*Bachelor of Science in Computer Science, GPA: 4.00/4.00*

Atlanta, GA

Aug. 2023 – May 2027

### Georgia Institute of Technology

*Bachelor of Science in Mathematics, GPA: 4.00/4.00*

Atlanta, GA

Aug. 2023 – May 2027

## EXPERIENCE

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### Software Engineering Intern

*Niantic Spatial*

- Niantic Spatial Platform SDK

May 2025 – Aug. 2025

Bellevue, WA

### Undergraduate Teaching Assistant

*College of Computing – Georgia Institute of Technology*

Jan. 2024 – Present

Atlanta, GA

CS 2110 – Computer Organization & Programming

Jan. 2025 – Present

- Lead weekly labs to teach fundamental concepts in computer architecture, assembly programming, C programming, and memory management; hosted office hours for 800+ students; designed and graded assignments/assessments.

CS 1331 – Object-Oriented Programming | Recitation Lead

Jan. 2024 – Dec. 2024

- Developed original teaching strategies, materials, and exercises used in recitations for continued use across future semesters; trained 30+ TAs to lead 12 recitation sections for 800+ students.
- Teach weekly 50-student recitations, held 6+ office hours per week, graded homework and exams, monitored course discussion forum, designed and tested programming assignments and exams.

### Software Engineering Intern

*Alpha Models Inc.*

- Devised an algorithmic C++ approach to the Traveling Salesman Problem to plan freight railroad maintenance; developed Java simulations to model railroad yard operations and optimize carrier labor and fuel expenses.

June 2022 – Aug. 2022

Alpharetta, GA

### Lead Teaching Assistant | AP Computer Science

*Pennsylvania AP Online*

Aug. 2020 – May 2023

Kittanning, PA (remote)

- Initiated and hosted daily virtual office hours; led monthly review sessions for 70+ students with original teaching materials and exercises; trained new TAs and directed a team of 20+ TAs.

## PROJECTS

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### Breadboard Bakery | Python, OpenCV, Flask, React

Oct. 2024

- Built a web application to streamline debugging electronic circuit prototypes by generating schematic diagrams from photographs of breadboards.
- Implemented image processing techniques using OpenCV for contour, grid, and edge detection to identify electronic components, including wires and integrated circuits.
- Developed a custom graph data structure to model circuits from computer vision data, and designed a modified depth-first search algorithm to convert data into Boolean logic expressions.

## TECHNICAL SKILLS

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**Languages:** Java, C/C++, Python, SQL, Assembly, LaTeX, JavaScript, TypeScript, HTML, CSS

**Developer Tools:** Git, GitHub, Docker, VS Code, Visual Studio, IntelliJ, Linux, MySQL, Firebase, MATLAB, Mathematica, Tableau, JUnit, Agile

**Computer Science:** data structures, algorithms, object-oriented design, data analysis, computer architecture, networking, artificial intelligence

**Mathematics:** linear algebra, combinatorics, graph theory, probability theory, abstract algebra

## LEADERSHIP & COMMUNITY INVOLVEMENT

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### Machine Shop Master Peer Instructor

*The Hive Interdisciplinary Makerspace – Georgia Institute of Technology*

May 2025 – Present

Atlanta, GA

- Supervise and improve safety and efficiency of machine shop; train peer instructors on wood- & metal-working machinery; design instructional materials and project blueprints; lead workshops to develop woodworking skills.