

# Jessica Liu

(470) 380-3707 | jessicatracyliu@gmail.com | linkedin.com/in/jessicaaliu | jessicaliu06.github.io/portfolio

## EDUCATION

---

### Georgia Institute of Technology

Atlanta, GA

Bachelor of Science in Computer Science + Mathematics, GPA: 4.00/4.00

Aug. 2023 – May 2027

- **Relevant Coursework:** Data Structures & Algorithms, Design & Analysis of Algorithms, Object-Oriented Design & Analysis, Computer Architecture, Networking, Artificial Intelligence, Linear Algebra, Combinatorics, Graph Theory, Probability Theory, Abstract Algebra

## EXPERIENCE

---

### Software Engineering Intern

May 2025 – Aug. 2025

Niantic Spatial | Software Development Kit Team

Bellevue, WA

- Developed a visual positioning algorithm in Python to improve computer vision localization to large contiguous area maps with Wi-Fi fingerprinting, Wi-Fi topology analysis, and feature matching.
- Created an agentic AI application using Model Context Protocol to orchestrate augmented reality and mapping tools to recommend real estate properties and answer detailed spatial queries about locations and interiors.

### Undergraduate Teaching Assistant

Jan. 2024 – Present

College of Computing – Georgia Institute of Technology

Atlanta, GA

CS 3510 – Design & Analysis of Algorithms

Aug. 2025 – Present

- Teach advanced topics in algorithms (graph algorithms, dynamic programming, complexity theory); host office hours for classes of 600+ students.

CS 2110 – Computer Organization & Programming

Jan. 2025 – May 2025

- Led weekly labs to teach fundamental concepts in computer architecture & hardware, assembly programming, C programming, and memory management; hosted office hours for 800+ students.

CS 1331 – Object-Oriented Programming | Recitation Lead

Jan. 2024 – Dec. 2024

- Developed original teaching strategies, materials, and exercises for continued use in future semesters by 30+ TAs across 12 recitation sections attended by 800+ students; teach weekly recitations; host 6+ office hours per week.

### Software Engineering Intern

June 2022 – Aug. 2022

Alpha Models, Inc.

Alpharetta, GA

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

## PROJECTS

---

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

- 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

---

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

**Tools:** Git, Unity, MySQL, Firebase, MATLAB, Mathematica, Tableau, LaTeX, Android Studio, Docker, Linux, Bash, GDB Debugger, CMake, Bazel, Jupyter Notebook

**Libraries:** Pandas, NumPy, Matplotlib, PyTorch, TensorFlow, OpenCV, Flask, MCP, JUnit

## LEADERSHIP & COMMUNITY INVOLVEMENT

---

### Machine Shop Master Peer Instructor

Aug. 2025 – Present

The Hive Interdisciplinary Makerspace – Georgia Institute of Technology

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.