

# Jessica Liu

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## EDUCATION

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### Georgia Institute of Technology

Aug. 2023 – May 2027

*B.S. in Computer Science (Specializing in Artificial Intelligence and Information & Networks)*

GPA: 4.00/4.00

*B.S. in Mathematics*

### Relevant Coursework

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

## EXPERIENCE

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### 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.

### Teaching Assistant

January 2024 – Present

*Georgia Institute of Technology | College of Computing*

*Atlanta, GA*

- **CS 3510 Design & Analysis of Algorithms** (Fall 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** (Spring 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** (Spring 2024 – Fall 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

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

- Built a web application to streamline debugging electronic circuit prototypes by generating schematic diagrams from photos 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.

## LEADERSHIP & COMMUNITY INVOLVEMENT

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### 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.

## TECHNICAL SKILLS

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**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