Jessica Liu

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EDUCATION

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

Software Engineering Intern — May 2025 – Aug. 2025

Niantic Spatial, Inc. | 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 geospatial tools to recommend real estate properties and answer detailed spatial queries about locations and interiors.

Teaching Assistant — Jan. 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 — May 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 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

Machine Shop Lead Instructor — Aug. 2025 – Present

The Hive Interdisciplinary Makerspace – Georgia Institute of Technology — *Atlanta, GA*
- Supervise and improve safety and efficiency of machine shop; train instructors and end users on wood- & metal-working machinery; design instructional materials and project blueprints; lead workshops to develop woodworking skills.

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