Christopher Martinez

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EDUCATION

Georgia Institute of Technology, Atlanta, GA — Expected Graduation: December 2026
Master of Science in Computer Science
Coursework: Machine Learning for Trading, Game Artificial Intelligence

CUNY Hunter College, New York, NY — August 2023
Bachelor of Arts in Computer Science
Coursework: Software Engineering, Web Development, Database Management, Operating Systems, Software Analysis and Design (OOP), Data Structures and Algorithms, iOS Development

EXPERIENCE

Two Sigma — New York, NY
Software Engineering Mentee — July 2021 – August 2021

- Utilized **Python**, **GitHub**, and open-source best practices to contribute to **pip**, the Python package manager (**used by ~ 90 % of Python users**), by fixing bugs, refactoring code, and resolving uninstallation issues.
- Created a **command-line** tool to streamline the identification of source files for software packages, enhancing file traceability and improving user efficiency.
- Presented project outcomes to a panel of engineers, receiving **positive feedback** on contributions.

PROJECTS

Real-Time Multiplayer Drawing Game — GitHub

- Collaborated with two engineers in an **agile** environment to develop a **full-stack** multiplayer drawing and guessing game using the **MERN stack** (**MongoDB**, **Express.js**, **React, Node.js**) and **Socket.IO** for **real-time collaboration**.
- Engineered **real-time**, low-latency player interactions (drawing, guessing, chat) using **Socket.IO** integrated with **HTML Canvas** for simultaneous multi-user collaboration.
- Implemented backend logic for **robust player permissions** to manage user roles and access rights within the game environment.
- **Led biweekly code reviews** to track team progress against project milestones, ensuring deadlines were met.

Unity C# Path-Planning AI System

- Developed an **AI agent path planning system** in **C#** within the **Unity** engine that auto-generates grid lattices, visibility graphs, and convex navigation meshes at runtime.
- Implemented five pathfinding algorithms including **A***, **depth-first search**, **breadth-first search**, **greedy search**, and **Dijkstra's algorithm**, enabling efficient, **obstacle-avoiding navigation** across generated path networks and grids.
- Applied computational geometry techniques, including **triangulation** and **polygon merging**, to construct precise and **collision-free navigation routes**.
- Developed **extensive PlayMode and EditMode tests** using the **NUnit** testing library to validate the **correctness** and **robustness** of pathfinding algorithms and dynamic navigation mesh generation.

TECHNICAL SKILLS

- **Programming Languages:** Python, C#, C++, JavaScript, SQL, HTML, CSS
- **Tools and Frameworks:** React, Node.js, Express.js, MySQL, MongoDB, Git, Figma, WebSockets, Socket.IO, Pandas, NumPy, Scikit-learn, Unity, NUnit
- **Methodologies:** Agile Development, Object-Oriented Programming (OOP), Software Development Life Cycle (SDLC), Database Management (Relational and NoSQL), Computational Geometry, Unit Testing