Samuel Zhang

Pittsburgh, PA, USA (US Citizen)
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Education

Carnegie Mellon University Aug 2024 – May 2028
Bachelor of Science in Computer Science, Concentration in Machine Learning *Pittsburgh, PA*
Dean's List with High Honors — GPA: 3.7/4.0

Relevant Coursework: Parallel Data Structures and Algorithms · Computer Systems · Functional Programming · Algorithm Design · Probability · Artificial Intelligence · Machine Learning

Experience

Research Assistant June 2025 – December 2025
Search-Based Planning Lab, Carnegie Mellon University

- Introduced **Grouped LaCAM**, extending state-of-the-art **LaCAM** for multi-agent **pathfinding** to coordinate dynamically-coupled agent groups.
- Built **C++** modules for **performance analysis** and debugging to validate group detection, priority inheritance, conflict resolution, and constraint tree backtracking.
- Achieved **30–40%** improvements in performance over baseline LaCAM in dense environments on standard MAPF benchmark instances.

Project Developer Aug 2024 – Dec 2024
ScottyLabs, Carnegie Mellon University

- Collaborated in a **4-person** team to develop and deploy of a real-time speech-coaching AI model, providing live feedback on pacing and clarity
- Integrated **OpenAI Whisper** (**PyTorch**) for streaming speech-to-text transcription and **trained** a custom NLP pipeline on **2 hours** of speech data.
- Created a social networking mobile app with **full-stack** functionality, including frontend UI, backend services, and cloud infrastructure, using **React Native**, **JavaScript**, **Supabase**, and **AWS EC2**.

Research Assistant Jun 2024 – Aug 2024
Texas A&M University

- Built connected autonomous vehicle simulations using **OMNeT++**, **SUMO**, and **Veins** to study vehicle-to-vehicle (**V2V**) communication.
- Implemented and tested **MQTT**-based IoT messaging in **Python** for real-time telemetry exchange between simulated vehicles.
- Deployed and debugged simulation environments in **Linux** virtual machines, resolving **networking** and framework compatibility issues through systematic troubleshooting with **Docker** and **Wireshark**.

Leadership

Competitive Math & Computer Science Aug 2020 – May 2024
Team Captain

- **2x Texas UIL State Champion** in mathematics and computer science.
- Led a **20-member** team to **three** state championship titles; created weekly training sessions, original problem sets, and mock contests focused on algorithmic reasoning.
- Designed a structured peer-mentorship program that drove a **30%** increase in overall team competition scores.

Skills

Programming Languages: C++, C, Python, Java, JavaScript, Standard ML
Tools & Frameworks: PyTorch, AWS (EC2), Linux, Docker, Git, Node.js, React, React Native, Supabase, LaTeX