Tianhui (Tiffany) Han

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Education

Carnegie Mellon University **Aug 2025 – May 2027**
Master of Science in Robotics

Carnegie Mellon University **Aug 2021 – May 2025**
Bachelor of Science in Computer Science *QPA: 3.85*

Relevant Coursework

Embodied AI Safety, Intro to AI, Distributed Systems, Parallel Programming, Algorithm Analysis, Data Structures, Computer Systems, Mathematical Modeling, Functional Programming, Human-Computer Interaction, Design of IoTs

Technical Skills

Languages: Python, C, Go, Java, C++, HTML/CSS, JavaScript, SQL, SML
Technologies/Frameworks: Linux, MuJoCo, Pytorch, React, Arduino, Django, Flask, Git, Fusion360

Experience

Robotics Undergraduate Research Fellowship **May 2024 – May 2025**
Carnegie Mellon University *Pittsburgh, PA*

- Created 20+ origami structures using **MuJoCo**'s flex-body physics. Built user-friendly **Graphical Interface** to facilitate user input conversion to **3D physics simulations** incorporating Graham scan and Delaunay triangulation.
- Created an **Reinforcement Learning (RL) environment** for 12 origami structures, training **goal-conditioned** policies using **SAC and PPO**. Developing a **transformer based unsupervised learning pipeline** to model origami structure representations.
- Honorable Mention, **CRA Outstanding Undergraduate Researcher Award**.

Software Engineering Intern **Jan 2025 – Apr 2025**
Google China Division *Shanghai, China & Remote*

- Delivered production grade code by executing **full-stack web application** development which automates data collection via a **web scraping pipeline** and extracted data points into **custom SQL database**.
- Devised and deployed a **RESTful Flask API**, enhanced API performance by indexing the MySQL database and reducing **API** response times by 12-17%. Implemented a React frontend with Ant Design for UI for interactive data visualization. Coordinated with project managers weekly with updated progress.

Teaching Assistant **May 2022 – Dec 2023**
Carnegie Mellon University *Pittsburgh, PA*

- Coordinated with professor and led two weekly recitations of 20+ students in a 200+ students course, assisted in problem writing, and graded coursework. Taught C programming, **data structures** (linked lists, trees, queues, stacks), and **memory management**.

Project Experience

Mobile Robot (Mobot) Race | *Robotics, Hardware, CV, Planning* **Mar 2025 – Apr 2025**

- Formulated and built an autonomous mobile robot which plans and execute given course map in real-time. Competing at CMU's annual mobile robot competition.

Multi-Objective Path Planning for Robotics | *Python, Robotics, AI* **Dec 2023 – Jun 2024**

- Constructed a greedy BFS-based path planning algorithm to optimize robot navigation in a 200+ node environment at CMU's Gates Center. Performed genetic algorithms (crossover & mutation) for performance comparison, honing efficiency and adaptability. Tested algorithms on real robots, evaluating path efficiency and adaptability in dynamic environments.

Raft Consensus Algorithm – Distributed Systems Project | *Go, Distributed Systems* **Oct 2024**

- Accomplished fault-tolerant distributed consensus in Go, ensuring log consistency across replicas. Performed leader election, log replication, and commit mechanisms, handling network failures with RPCs and concurrency primitives. Constructed and tested protocol under various network conditions, ensuring robustness and resilience in distributed environments.

Extracurricular

- CMU Buggy Racing: Team member in CMU's annual Buggy races, collaborating on strategy and execution.
- Women@SCS: Organized events to support and mentor women in Computer Science.