Liheng Cao

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Software Engineer with extensive experience in designing and implementing scalable software solutions, with expertise in multiple programming languages and frameworks. Implemented an automated throttling platform within the feed system to mitigate reliability issues and eliminate overnight pages. Demonstrated expertise in constructing, testing, and repairing robots, with a focus on Python and C++ bindings for sensor integration and system optimization. Capable of employing monitoring tools to track model behavior and collaborating with researchers to refine interfaces based on real user interactions.

Core Competencies

Software Lifecycle Development (SDLC) | Robotics Engineering | Machine Learning | Parallel & Distributed Systems | Full-Stack Development | Performance Optimization | Backend System Design | Team Leadership | Research Execution | Live Debugging

Technical Skills: Python, CPP, Rust, Golang, PHP, HTML, CSS, JS
Languages: English (Fluent) | **Mandarin Chinese** (Conversational)

PROFESSIONAL EXPERIENCE

Meta/Facebook Aug 2022 – Feb 2024
Software Engineer on Facebook Feed Health – Seattle, WA

- Improved the efficiency of CPU usage across various projects through conceptualization and testing strategies, resulting in **$2M** in cost savings.
- Addressed a wide range of reliability issues and eliminated overnight pages by designing, implementing, and launching an **automated throttling platform** within the Feed system.
- Streamlined workflows and boosted developer productivity by implementing improvement initiatives in internal tools.
- Resolved website disruptions, minimized revenue loss, and elevated user experience during a **tier 1 oncall** through live debugging and rapid issue resolution.
- Evaluated features with low efficiency and usage to optimize for improved performance and consider removal from the product.

Machines in Motion Lab at NYU Tandon Jun 2021 – May 2022
Undergraduate Research Assistant – Brooklyn, NY

- Executed path integral techniques and conducted research on **contact detection for legged locomotion** to advance policy optimization.
- Supported research initiatives and educational programs by **constructing, testing, and repairing** robots.
- Elevated system efficiency and performance by engineering **Python and C++ bindings** for IMU sensor integration and adapting USB driver and serial reader code
- Synchronized and enhanced robot motion tracking capabilities by employing Vicon motion-tracking system.
- Crafted research poster and communicated findings to the lab to facilitate knowledge sharing throughout the organization.

NYU RoboSub VIP Team at NYU Tandon Aug 2021 – May 2022
Software Team Lead – Brooklyn, NY

- Improved project coordination and execution by delegating assignments and providing oversight to team members across motor control, vision, task planning, and localization domains.
- Cultivated professional development on individual level by conducting research on relevant subjects and mentoring team members.
- Optimized autonomous operations by designing and implementing the robot's vision and task planning systems.

NYU Robotic Design Team VIP Team at NYU Tandon Sep 2020 – Sep 2021
Software Competency Member – Brooklyn, NY

- Demonstrated expertise and dedication in the field of robotics by participating in NASA Robotics Mining Competition.
- Developed lightweight communication code for interaction between the server and robot that boosted overall performance.
- Enhanced robot's ability for smooth and precise movements through integration of sensor data.

KEY PROJECTS

2048 Game Terminal Clone:
Developed Python-based terminal clone of the 2048 game, exhibiting programming abilities.

Character Recognition Neural Network in the Browse:
Implemented browser-based character recognition system using PyTorch CNN on EMNIST dataset to enable real-time predictions via mouse-drawn inputs without requiring a backend.

Cost Splitter App:
Created a Cost Splitter application from the ground up using basic web development skills to ensure easy division of expenses among users and streamline group expense management for shared purchases.

CRUD App:
Crafted a distributed CRUD database application using Go and merged into distinct frontends and backends to enhance scalability and resilience. Integrated Raft consensus algorithm for reliable data consistency, accessible from various frontends, and data distribution across multiple backend instances.

SCUDEM V 2020 Differential Equations Modelling Competition:
Designed and animated the physics of a bird rotating on a bicycle wheel for the competition and achieved top score (4.875/5) among 180 competing teams.

EDUCATION

BS in Computer Science; New York University, Tandon School of Engineering – Brooklyn, NY Sep 2019 – May 2022

- Minor in Mathematics, Magna Cum Laude