Will Zhengyang WENG

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EDUCATION

Harvard University — **Cambridge, MA, US**
Master in Computational Science and Engineering — Sept 2025 - Jan 2027 (expected)

Tsinghua University — **Beijing, China**
Bachelor of Science in Mathematics and Physics — Sept 2021 - June 2025

- **GPA:** 3.96/4.0, Ranking:1/60
- **Honors:** Outstanding Graduate of Tsinghua University, First Prize of the 14th Chinese Mathematics Competitions (CMC, 2022), First-class Academic Scholarship (2%; 2021-2022, 2022-2023, 2023-2024)

INDUSTRIAL EXPERIENCE

Alibaba Group — **Hangzhou, China**
Software Engineer Intern (IoT Services) — July 2024 - Sept 2024

- Architected and developed a high-performance asynchronous logging system for IoT services for managing large commercial buildings, office buildings, and residential properties.
- Designed the logging system for IoT services. Analyzed and defined the key information that the logging system must record respectively for end users, maintenance staff, and developers. Built asynchronous logging and storage. Developed a combination of Redis, MySQL and Object Storage Service (MinIO) as a database for log storage.
- Benchmark results showed that the system sustained 10,000 logs/second with an average latency of 1 ms, while ensuring zero data loss. Delivered a robust system adopted in production, sustaining stable performance since launch.

RESEARCH EXPERIENCE

Magnetic Real-time Tracking Solution for Guidewire used in Interventional Surgery — **Beijing, China**
Chinese Academy of Sciences, Institute of Automation — July 2024 - Jan 2025

- Implemented a hardware-software integrated solution to track guidewire position in interventional surgery. Adopting a Levenberg-Marquardt based algorithm for real-time tracking.
- Modeled and designed the magnetic positioning system. Used Hall sensor to track small magnetic beads embedded in the guidewire. Utilized the magnetic dipole model to derive the physical process of estimating the position/orientation of the magnetic beads from the measured magnetic field, and computed the Jacobian matrix for the LM algorithm.
- Engineered functional model and conducted collaborative experiments with Peking Union Medical College Hospital.

RL-driven Distributed Manipulation System via Tactile Sensing — **Beijing, China**
Tsinghua University, Institute for Interdisciplinary Information Sciences — July 2023 - Jan 2024

- Implemented and trained Arraybot, an RL-driven distributed manipulation system via tactile sensing, to accomplish different tasks such as lifting, flipping and relocating objects in different shapes through deep reinforcement learning.
- Utilized NVIDIA IsaacGym for large-scale physical simulation, built iterative robot models, and structured/tuned deep reinforcement learning algorithms. Conducted both simulation training and physical robotic experiments.
- Developed a functional system that achieved target actions reliably in simulated environments and built a working robot prototype for real-world testing. Our paper was accepted at ICRA 2024.

Ultimate Bearing Capacity of Foundations Searching with Reinforcement Learning — **Beijing, China**
Tsinghua University, School of Civil Engineering — Feb 2023 - Sept 2023

- Implemented an efficient RL searching algorithm based on physical formulas and random search program from CAS Academician Prof. Chen's team for calculating the ultimate bearing capacity of foundations.
- Defined the problem in a RL framework, specified the reward function, and implemented the PPO algorithm.
- Used the original program to build datasets for evaluating and fine-tuning the RL algorithm. The new search algorithm achieved ~10,000× acceleration while maintaining 99.99% accuracy.

SKILLS

Programming: C++ (Modern), Python (PyTorch, NumPy, pandas, Matplotlib), Java, Linux, Git, SQL
Core Courses: Calculus, Linear Algebra, Probability, Statistical Inference, Stochastic Process, Digital Electronics, Data Structure, Operating System, Database, Computer Networks, High Performance Computing