Zihan WANG

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Education

BROWN UNIVERSITY **Providence, RI**

Master of Computer Science (Sc.M.), AI/ML Pathway **Expected May 2026**

- Selected Courses: Software Engineering, Deep Learning, Computational Linguistic, Computer Vision

LEHIGH UNIVERSITY **Bethlehem, PA**

Bachelor of Science (BS), Computer Science and Business Honors Program, Minor in Data Science (GPA: 3.79) **2024**

- Selected Courses: Machine Learning, Big Data Analytics, Statistical Computing, Linear Methods, Statistical Methods, Design & Analysis of Algorithm, Data Structure, Computer Organization Architecture

Work Experiences

EcoForge **Boston, MA**

Founding | AI & Full Stack Engineer **Dec 2024 - Present**

- Architected a **0-to-1 full-stack AI platform** for cement manufacturing, securing **¥2M in seed funding** and validating **¥100M+/year** in annualized cost savings through pilot trials with China's largest cement manufacturer.
- **Built a high-performance full-stack application** using Next.js (TypeScript) and FastAPI (Python), implementing a responsive UI library and WebSocket-based RESTful APIs to support 24/7 operations and real-time streaming of hundreds of daily metrics.
- **Built high-performance backend services** using **FastAPI** and **Python**, deploying RESTful APIs and **WebSocket** connections to handle real-time data streaming and support 24/7 manufacturing operations processing hundreds of daily metrics.
- **Designed core data infrastructure and orchestration systems** using MySQL, ensuring sub-millisecond query performance and reliable continuous ingestion between frontend clients, ML models, and third-party services via heartbeat monitoring.
- **Established robust CI/CD pipelines** with specialized automated testing for stochastic model outputs and complex API integrations, ensuring reliable model versioning, rollback capabilities, and system availability.

LUNAR Lab, Brown University **Boston, MA**

Research Assistant, *advised by Ellie Pavlick* **Dec 2024 - Present**

- **Researched emergent properties** of Video Large Language Models (Video LLMs) to improve ML pipeline explainability and performance optimization
- **Developed and executed systematic control experiments** (e.g., shuffling frames and shuffling text infills) to benchmark and compare Image LLMs and Video LLMs performance on long-form video question-answering tasks across data processing workflows
- Implemented **AnyRes** technique in multi-image scenarios, enabling LLaVA-NeXT-Image to process videos with fewer tokens, and utilized **visual Chain-of-Thought** to generate automated text infills between frame pairs for enhanced data processing efficiency
- Co-authored research paper **"Video Finetuning Improves Reasoning Between Frames"** accepted to **CogInterp workshop at NeurIPS 2025**

Relevant Experiences

- **Oracle Central Bank Digital Currency (Oracle Sponsored Open-Source Project, Fall '23): Integrated distributed blockchain systems** (Project Hamilton's OpenCBDC) with Oracle Autonomous Database using C++ and advanced SQL/PL-SQL; **Implemented secure transaction processing** and database optimization for high-throughput financial operations; **Co-authored technical blog** on CBDC architecture and published open-source contributions [GitHub, Blog Post]

Skills and Technologies

- **Frontend:** JavaScript, TypeScript, HTML5, CSS3, React, Next.js, AngularJS, jQuery
- **Languages:** Python, Java, C/C++, SQL, Rust, R, MATLAB
- **Build Tools & DevOps:** Webpack, Git, Docker, CI/CD pipelines, automated testing
- **Backend & Databases:** FastAPI, Spring Boot, MySQL, SQL Server
- **Web Technologies:** REST APIs, WebSockets, responsive design, cross-browser compatibility
- **Cloud & Architecture:** AWS, distributed systems, service-oriented architecture, Apache Spark