

# Hongzheng Li

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## EDUCATION

### University of Wisconsin – Madison

*Bachelor of Science in Computer Science; GPA: 4.0/4.0*

Madison, WI

*Expected May 2026*

## TECHNICAL SKILLS

**Programming Languages:** C, C++, Java, Python, JavaScript, HTML, CSS, WordPress, React, React Native

**Databases & Distributed Systems:** PostgreSQL, gRPC, Cassandra, HDFS, Spark, Kafka

**Libraries:** pandas, NumPy, Matplotlib, OpenMP, PyTorch

**Tools:** Git, GitHub Actions, Docker, Vim, CMake, GDB, Google Test Suite, VS Code, UML, JUnit

## EXPERIENCE

### Operating System Research Intern

*University of California, Merced*

April 2024 – Present

*Merced, CA*

- Contribute to the development of a performance optimization tool for multi-node systems using **C++**
- Modify **Linux kernel code** to simulate a memory-tiered architecture on a multi-node machine
- Utilize **Linux Performance Tools**, including **Perf** and **VTune**, to monitor and analyze system performance

### Research Assistant

*Hong Kong University of Science and Technology*

November 2024 – January 2025

*Clear Water Bay, Hong Kong*

- Analyzed trends and user engagement on North American short video platforms
- Examined content strategies and algorithmic recommendations

### Systems and Software Intern

*Emerson Process Management Co. Ltd.*

June 2024 – July 2024

*Shanghai, China*

- Assisted engineers in identifying, correcting, and designing engineering graphs
- Supported engineers in streamlining document collection workflows and optimizing daily staffing operations

## PROJECTS

### GOPHER Delivery Simulation System | C++, Typescript, Docker, Git | [View Demo](#)

Feb. 2024 – May 2024

- Built a multi-entity simulator in **C++** using **Composite Factory**
- Extended functionality of entities using the **Decorator** pattern
- Implemented the **Observer** pattern for real-time notifications, sending JSON events to **TypeScript** front end
- Containerized the environment with **Docker** for uniform builds and deployments.
- Employed **CI/CD** pipelines to automate testing and deployment
- Practiced **Scrum** and used **Git** for collaborative development and version control.

### BusTub DBMS Buffer Pool Manager | C++, Git

Dec. 2024

- Built a thread-safe **Buffer Pool Manager** for efficient memory-disk page management.
- Implemented the **LRU-K** algorithm to optimize page eviction.
- Designed a **Disk Scheduler** for asynchronous I/O, improving read/write efficiency.
- Used **RAII** and move semantics for exception-safe resource management.
- Applied **synchronization** and fine-grained latches to enhance concurrency.

## HONORS

- **Dean's List**, UW-Madison, College of Letter & Science, Fall 2024
- **Dean's List**, UMN, College of Science and Engineering, Fall 2023, Spring 2024
- **Lifetime Member**, UMN Chapter, Tau Sigma National Honor Society
- **Academic Perfection**, University of California, Davis Global Study Program, 2023 - 2024