

Zhuoran (William) Li

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EDUCATION

University at Buffalo

08/2025 – Present

Ph.D. in Computer Science and Engineering (Advisor: Prof. Zhuoyue Zhao)

Hangzhou Dianzi University

09/2021 – 06/2025

B.Eng. in Computer Science, Zhuoyue Honors College

GPA: 4.5/5

RESEARCH INTERESTS

Database Systems; OLTP and OLAP Engines; Storage Engines.

EXPERIENCE

Analytical DataBase Lab

University at Buffalo

PhD student & Research Assistant (Advisor: Prof. Zhuoyue Zhao & Prof. Dong Xie)

08/2025 – Present

Research Intern

04/2024 – 07/2025

- *The Optimizations of the Yannakakis Algorithm*

- **Instruction-set Optimization:** Leveraged AVX-512 instructions to accelerate key operators such as selection, hash joins, and Bloom filters.
- **Algorithmic Enhancements:** Applied ideas from Factorization and Yannakakis+ to improve both the optimizer and execution engine for joins.
- **Performance Evaluation:** Benchmarked the optimizations on TPC-H, JOB, and SNAP workloads, demonstrating substantial runtime improvements.

Tencent TiMi Studio

Chengdu, China

Software Development Intern

04/2024 – 07/2024

- *Software Development on Honor of Kings Camp with Golang*

- Refactored translation library for hot-swappable i18n languages.
- Developed Honor of Kings event tooling: admin ACL, knockout scheduling, notifications.
- Halved memory footprint of game config via differential storage.

Knowledge Graph Lab

Hangzhou Dianzi University

Research Intern (Advisor: Prof. Xiaoliang Xu)

09/2022 – 06/2024

- *Visualization of Patent Claims Features using LLM*

- Built rule-based feature extractor on HUPD, designed CoT prompts, and fine-tuned LLaMA with LoRA for graph-ready outputs.

PROJECTS

Key-Value Store

A sharded key-value database based on the extended Raft paper, written in Go.

Bustub

An in-memory relational database with buffer pool, B+-tree index, volcano executor, and optimizer rules, written in C++17.

RISC-V CPU & SIMD Optimizations

A pipelined RISC-V CPU implemented in Logisim; matrix multiplication accelerated 3–60× using SIMD and OpenMP techniques.

SysY Compiler

A compiler for the SysY language (C subset) using ANTLR parsing and LLVM IR code generation, written in C++.

SELECTED AWARDS

Outstanding Graduate

06/2025

Silver Medal | ICPC Asia Hangzhou Regional Contest

12/2022

OTHERS

English (TOEFL 104: R29 L27 S23 W25); Japanese (JLPT N2)