

Zhenwei Hu

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Education

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| University of Illinois Urbana-Champaign - <i>Master of Computer Science (MCS)</i> | GPA: 4.0/4.0 | Aug. 2022 - Dec. 2023 |
| The University of Hong Kong - <i>Bachelor of Engineering in Computer Science</i> | GPA: 3.84/4.3 | Sep. 2018 - June. 2022 |

Skills

Programming Languages: C++, Python, Java, MySQL, JavaScript, HTML/CSS

Tools & Libraries: Git, Linux, CMake, Docker, GDB, Numpy, Matplotlib

Experiences

Grammarly - *Software Engineer Intern* May 2023 - Aug 2023

- Developing a scratchpad for the new Grammarly android app.

Goldman Sachs - *Summer Analyst* Jun. 2021 - Aug. 2021

- Built a program performance monitoring system and visualization dashboard using **Python Dash with Plotly**.
- Contributed pull requests to an internal monitoring system on the company Gitlab by optimizing program runtime.

Tencent Music Entertainment - *Backend Developer Intern* Aug. 2020 - Jan. 2021

- Reconstructed a **Python** backend song recommendation system, reducing deployment time from **2 hours to 5 min**.
- Maintained the reconstructed system by adding new features such as generating system reports, recording failure reports in **MySQL** databases and automating data processing using **Crontab jobs**.
- Resolved memory issues of a Python song recommendation program, reducing memory usage from **20GB to less than 2GB**.

Derivatives China - *C++ Developer Intern* Mar. 2020 - Aug. 2020

- Implemented a real-time multi-threaded market data receiving and forwarding system using **C++ TCP and UDP socket** with **multi-threaded safe queue, heartbeat and reconnect mechanism**.
- Broadcasted real-time market data to internal hosts using **ZMQ Publish-Subscribe pattern** and **EPGM protocol**, achieving broadcast bandwidth **>35MB/s**.
- Compressed market data using C++ **ZSTD** library and reduced broadcast bandwidth requirements by **60%**.
- Packed the data forwarding system written in C++ in a **Python API** with **Pybind11** for other teams' use.

The University of Hong Kong - *Research Assistant - Prof. Reynold C.K. Cheng* May. 2022 - Sep. 2022

- Conducted experiments on **HINCare**, a **Heterogeneous Information Network (HIN)**-based recommendation systems for elderly care, to explore the accuracy and performance of recommendation models, such as **TransE**, **TransH** and **TransE-KG**, achieving **Hit Ratio (HR) > 90%** and **Discounted cumulative gain (NDCG) > 0.4**.
- Adapted **Reinforcement learning-based Meta-path Selection (RMS)** algorithm to investigate performance of **meta-path-based** algorithms.
- Performed massive statistical analysis on Hong Kong Sheng Kung Hui Tseung Kwan O Aged Care Complex (SKH) and Christian Family Service Center (CFSC) elderly dataset with **1500+ users** and **25000+ relations**.
- Presented research results to Hong Kong Innovation and Technology Commission officials with technical reports.

Projects

Hugo Blog - *A personal blog recording competitive programming algorithms and contest editorials*

- Built a Hugo blog with theme Even, customized configuration, page layout and styles with **CSS**, **JavaScript** and **Hugo shortcuts**.
- Implemented **CF-Problems** with **HTML**, **CSS** and **JavaScript**, which is a tool for showing **CodeForces** problem difficulties and tracking training progress. **GitHub Actions** is used to automatically update CodeForces problems every day.
- Wrote **100+** blog posts (in Chinese), recording **ACM-ICPC contest editorials** and **competitive programming algorithm tutorials** such as Network Flow, Persistent segment tree, Generating Functions.
- Received **~50000** visits (with **~26000** unique visitors).

Other Activities

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| Awards: | The 2022-2023 ICPC NAC (North America Championship) Honorable Mention | 2023 |
| | The 2022-2023 ICPC USA Mid-central Regional Contest Champion (Gold Medal), rank: 1/100 | 2023 |
| | The 2019 ICPC Asia Shanghai Regional Contest Bronze prize | 2019 |
| Extracurricular: | Shenzhen Junior Chess Tournament Champion | 2010, 2011, 2014 |