Zhenwei Hu

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Education

University of Illinois Urbana-Champaign - *Master of Computer Science (MCS)* Aug. 2022 - Dec. 2023
The University of Hong Kong - *Bachelor of Engineering in Computer Science* **CGPA: 3.84/4.3** Sep. 2018 - June. 2022

Skills

Programming Languages: C++, Python, Java, SQL, JavaScript, HTML/CSS, MATLAB
Tools & Libraries: Git, Linux, CMake, Docker, GDB, Numpy, Matplotlib

Experiences

Goldman Sachs - *Summer Analyst* June. 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 **~80** blog posts (in Chinese), recording **ACM-ICPC contest editorials** and **competitive programming algorithm tutorials** such as Network Flow, Persistent segment tree, Generating Functions, Convex Hull DP.
- Received **35000+** visits (with **19000+ unique** visitors).

Other Activities

Awards:	The 2019 **ICPC** Asia Shanghai Regional Contest Bronze prize	**2019**
	Dean's Honors List	**2019, 2021**
Extracurricular:	Shenzhen Junior Chess Tournament Champion	**2010, 2011, 2014**