Qian Ma

maq5@rpi.edu · (+1) 5183083995 ·

Education

Rensselaer Polytechnic Institute Current

Ph.D. Student in Computer Science, supervised by Yao Ma

City University of Hong Kong 2022 – 2023

Master's Degree in MscMIT with Distinction

University of Electronic Science and Technology of China 2018 – 2022

Bachelor's Degree in Software Engineering - Systems and Technology

Research Experience

DAMI-Lab RPI Current

Supervisor: Yao Ma

AML CityU October 2022 - June 2023

My previous internship experiences have sparked my interest in the theoretical foundations and related research behind Data Intelligence software development. This is one of the reasons why I am eager to continue my academic pursuits. Currently, I worked in the AML laboratory at City University of Hong Kong (CityU SDSC), under the guidance of Professor Xiangyu Zhao [1]. I also collaborated with my Ph.D. seniors on research projects [2] related to smart cities.

Rethinking Sensors Modeling: Hierarchical Information Enhanced Traffic Forecasting [1]
August 2023

Project Link

I chose the EE6680D paper project, with guidance from Professor Haoliang Li and Professor Xiangyu Zhao. The paper project carries the same credit as three graduate courses. I successfully had the paper accepted by CIKM23 with an A+ for the dissertation project.

- Motivated the rethinking of spatial dependencies in spatio-temporal forecasting
- Made core methodological contributions by constructing two new hierarchical perspectives and utilizing cross-level information enhancement to improve task performance at the original level
- Independently designed and implemented all experiments
- Finished the academic paper writing with the guidance from my advisors.
- Received positive feedback from rigorous peer reviewers and obtained acceptance

University of Electronic Science and Technology of China December 2019 – June 2022

In Professor Su Sheng's laboratory, I was involved in research projects related to Urban Computing. As a sophomore undergraduate student, my main responsibility was data processing, which involved pre-processing grid-based data from driving records. The following are some of the challenges I encountered:

- The Global Interpreter Lock (GIL) in Python resulted in lower efficiency as it only allowed single-core processing.
- Many operations could be parallelized, such as computing the latitude and longitude corresponding to Geo-Hash and the time-interval index corresponding to the start time.
- Therefore, I implemented a MapReduce-like solution to leverage all CPU cores for parallel processing.

Internship Experience

SAP Labs China Xi'an April 2021 – May 2022

Internship Manager: Jingtao Li jing-tao.li@sap.com

Develop Intern in the Dev-Infra Team of SAP Data Intelligence

- Cloud infrastructure service automation platform.
- Continuous integration (CI) / continuous delivery (CD) automation platform.
- During the internship, I was responsible for two micro-services in the platform.
- I have presented and introduced our team's new projects or added features multiple times as the speaker at internal global sharing sessions. The audience mainly consisted of colleagues from L2-Org SAP T&I HANA Database and Analytics, which is a global team under the second-level architecture.
- As the product is SaaS, our team collaborated with other teams responsible for specific development components to optimize the implementation of cloud-native architecture.

Skills

- Programming Languages: Python > Java == JavaScript == Golang > C
- Platform: Linux
- Development Tools: Git, Docker , Kubernetes , Singularity(to build customized enviornment for HPC)
- CI/CD: Jenkins
- DL Framework: PyTorch
- Paper Writting: LaTeX

English Proficiency

- IELTS:7.0(L:7.0 R:8.5 W:6.0 S:5.5)
- CET-6:551

Honors and Awards

Outstanding Student Scholarship 2018-2019 Academic Year
Outstanding Student Scholarship 2020-2021 Academic Year
Outstanding Student Scholarship 2021-2022 Academic Year

Miscellaneous

- GitHub: https://github.com/VAN-QIAN
- Languages: English - Fluent, Mandarin - Native speaker

Publications

[1] Q. Ma, Z. Zhang, X. Zhao, H. Li, H. Zhao, Y. Wang, Z. Liu, and W. Wang, "Rethinking sensors modeling: Hierarchical information enhanced traffic forecasting," in *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management*, ser. CIKM '23. New York, NY, USA: Association for Computing Machinery, 2023, p. 1756–1765. [Online]. Available: https://doi.org/10.1145/3583780.3614910

[2] Z. Zhang, X. Zhao, Q. Liu, C. Zhang, Q. Ma, W. Wang, H. Zhao, Y. Wang, and Z. Liu, "Promptst: Prompt-enhanced spatio-temporal multi-attribute prediction," in *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management*, ser. CIKM '23. New York, NY, USA: Association for Computing Machinery, 2023, p. 3195–3205. [Online]. Available: https://doi.org/10.1145/3583780.3615016