

Yu Zheng

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EDUCATION

Tsinghua University, Beijing, China

2019.08 – 2024.07 (expected)

- Ph.D. in Electronic Engineering Department, Advisor: *Prof. Yong Li*
- Research Area: Urban Planning, Reinforcement Learning, Information Retrieval, Graph Neural Networks

Tsinghua University, Beijing, China

2015.08 – 2019.07

- B.E. in Electronic Engineering Department, Overall GPA: 3.82/4.0
- Solid Foundation in Mathematics and Programming: Linear Algebra (4.0) / Calculus (4.0) / Discrete Math (4.0) / C++ programming (4.0) / Algorithm (4.0) / Signals and Systems (4.0) / Database (4.0)

RESEARCH INTEREST

My research interests lie in the interdisciplinary area of artificial intelligence and urban science, and its applications to real-world complex systems. Most of my research is about developing innovative computational methods and intelligent decision-making tools to tackle long-standing challenges across offline urban spaces, physical systems and online information systems, including urban planning, network control, and information retrieval.

Currently, my research focuses on designing urban systems more accessible to public resources and services, pushing forward the boundary of urban science with cutting-edge AI techniques. I am also working on pioneering a novel paradigm of urban planning through natural language prompts, aiming at fully exploiting the power of generative AI and LLM. Furthermore, I am exploring the synergies between AI-driven decision-making and AIGC-based human mobility simulation to establish a closed-loop approach to urban planning. Through these endeavors, I aim to catalyze transformative changes in how cities are conceptualized, designed, and managed for the benefit of all stakeholders.

SELECTED PUBLICATIONS

Urban Planning with Deep Reinforcement Learning

- [1] Yu Zheng, Yuming Lin, Liang Zhao, Tinghai Wu, Depeng Jin, Yong Li. **Spatial planning of urban communities via deep reinforcement learning**. In *Nature Computational Science (NatComputSci, cover article)*, 2023.
- [2] Yu Zheng*, Hongyuan Su*, Jingtao Ding, Depeng Jin, Yong Li. **Road planning for slums via deep reinforcement learning**. In *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2023.
- [3] Hongyuan Su*, Yu Zheng*, Jingtao Ding, Depeng Jin, Yong Li. **Solving large-scale urban facility location problem with knowledge-informed reinforcement learning**. Submitted to *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, 2024
- [4] Hongyuan Su, Yu Zheng, Jingtao Ding, Depeng Jin, Yong Li. **MetroGNN: Metro network expansion with graph neural networks**. In *The Web Conference (WWW)*, 2024

AI for Complex Networks

- [5] Yu Zheng, Jingtao Ding, Depeng Jin, Jianxi Gao, Yong Li. **Advancing network dismantling theories with self-inductive AI**. Submitted to *Nature*, 2024.
- [6] Hongyuan Su, Yu Zheng, Jingtao Ding, Depeng Jin, Yong Li. **Rumor mitigation in social networks with deep reinforcement learning**. In *The Web Conference (WWW)*, 2024

User Modeling and Personalization for Information Retrieval

- [7] Yu Zheng, Chen Gao, Jingtao Ding, Lingling Yi, Depeng Jin, Yong Li. **DVR: Micro-video recommendation optimizing watch-time-gain under duration bias**. In *ACM International Conference on Multimedia (MM)*, 2022.
- [8] Yu Zheng, Chen Gao, Jianxin Chang, Yanan Niu, Yang Song, Depeng Jin, Yong Li. **Disentangling long and short-term interests for recommendation**. In *ACM Web Conference (WWW)*, 2022.
- [9] Yu Zheng, Chen Gao, Xiang Li, Xiangnan He, Yong Li, Depeng Jin. **Disentangling user interest and conformity for recommendation with causal embedding**. In *ACM Web Conference (WWW)*, 2021.

[10] **Yu Zheng**, Chen Gao, Liang Chen, Depeng Jin, Yong Li. **DGCN: Diversified recommendation with graph convolutional networks**. In *ACM Web Conference (WWW)*, 2021.

[11] **Yu Zheng**, Chen Gao, Xiangnan He, Yong Li, Depeng Jin. **Price-aware recommendation with graph convolutional networks**. In *IEEE International Conference on Data Engineering (ICDE)*, 2020.

AWARDS

China National Scholarship	2023
Wang Dazhong Scholarship	2023
Tsinghua Comprehensive Excellence Award	2021-2022
Tencent Outstanding Cooperation Project	2022
WWW 2021 Student Travel Award	2021
Academic Excellence Scholarship	2016-2019

INDUSTRIAL EXPERIENCE

Kuaishou Research Intern Advisor: <u>Dr. Yang Song</u>	2020.08 – 2022.02
Tencent Wechat Research Intern Advisor: <u>Dr. Lingling Yi</u>	2021.06 – 2021.08
ByteDance R&D Intern Advisor: <u>Dr. Tianyi Wang</u>	2018.06 – 2018.10
AMD Research Intern Advisor: <u>Dr. Lu Tian</u>	2018.03 – 2018.06

TEACHING EXPERIENCE

Teaching Assistant of the following courses:

- Data and Algorithm
- C++ programming
- Optimization
- Database
- Big Data and Machine Intelligence

PROFESSIONAL SERVICES

Conference PC Member:

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2022, 2023, 2024.

Conference on Neural Information Processing Systems (NeurIPS), 2022, 2023.

The Web Conference (WWW), 2024.

AAAI Conference on Artificial Intelligence (AAAI), 2023, 2024.

ACM Multimedia (MM), 2023.

European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD), 2023.

External Conference Reviewing:

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2020, 2021.

The Web Conference (WWW), 2020, 2021, 2022.

ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR), 2020, 2021, 2022.

ACM International Conference on Web Search and Data Mining (WSDM), 2021.

International Joint Conference on Artificial Intelligence (IJCAI), 2020.

Conference on Information and Knowledge Management (CIKM), 2019.

Journal Reviewing:

IEEE Transactions on Big Data (TBD), 2023.

ACM Transactions on Recommender Systems (TORS), 2023.

ACM Transactions on Information Systems (TOIS), 2021.

SKILLS

Programming Languages: Python, C/C++, SQL, MATLAB;

Computer Skills: Git, Latex, Vim, Linux, MS Offices;

Deep Learning Platforms: Pytorch, Keras, TensorFlow;

Language skills and proficiencies: Mandarin Chinese (Native), English (Proficient)