Yijun Ma

Personal Website: antman9914.github.io
Email: yma7@nd.edu   Mobile: +1 (574)256-8755

RESEARCH DIRECTIONS

My research focuses on machine learning and data science, especially **foundation models** for structured and dynamic data, and their applications in healthcare and information systems. I aim to enable foundation models to reason over large-scale structured data, simulate complex systems, and support decision-making for real-world challenges. Specifically, the topics cover the following aspects:

- **Foundation Model**: Pattern-centric temporal graph learning[1]; General graph foundation model[5].

- **AI for Science and Social Good**: Policy evaluation for opioid epidemic[2]; LLMs for scientific discovery[4].

- **Trustworthy Learning on Graphs**: Interpretable and robust graph learning under data sparsity [6,7].

EDUCATION

University of Notre Dame
Ph.D. in Computer Science and Engineering; Advisor: Prof. Yanfang (Fanny) Ye   *Sept. 2025 - Present*

Renmin University of China
Master of Engineering - Artificial Intelligence; Advisor: Prof. Xiao Zhou   *Sept. 2021 - Jun. 2024*
- **Thesis**: Responsible Friend Recommendation via Self-Knowledge Distillation.
- **Research Summary**: Investigate the trustworthiness of recommendation systems for online social platforms. Improve fairness and interpretability for both friend recommendation and social recommendation systems from the perspective of graph learning.

Wuhan University
Bachelor of Engineering - Software Engineering; GPA: 3.90/4   *Sept. 2017 - Jun. 2021*
- **Awards**: Outstanding Student Scholarship, Top 5% in Distinguished Engineer Class, 2018-2020.

PROFESSIONAL EXPERIENCE

Microsoft Research Asia   Beijing, China
Research Intern (Full-time); Mentor: Dr. Jianxun Lian and Dr. Chaozhuo Li   *Dec. 2021 - Jun. 2022*
- **Job Description**: Developed a novel graph machine learning framework Tail-STEAK (Published in AAAI 2024) to improve the recommendation quality for inactive users in friend recommendation systems.
- **Honor**: "Star of Tomorrow" intern award.

PUBLICATIONS

(* indicates equal contribution)

[1] **Yijun Ma***, Zehong Wang*, Weixiang Sun, Yanfang Ye. *Temporal Graph Pattern Machine.* arXiv:2601.22454.

[2] **Yijun Ma***, Zehong Wang*, Weixiang Sun, Zheyuan Zhang, Kaiwen Shi, Nitesh V. Chawla, Yanfang Ye. *Policy4OOD: A Knowledge-Guided World Model for Policy Intervention Simulation against the Opioid Overdose Crisis.* Under Review.

[3] Zehong Wang, Fang Wu, Hongru Wang, Xiangru Tang, Bolian Li, Zhenfei Yin, **Yijun Ma**, Yiyang Li, Weixiang Sun, Xiusi Chen, Yanfang Ye. *Why Reasoning Fails to Plan: A Planning-Centric Analysis of Long-Horizon Decision Making in LLM Agents.* arXiv:2601.22311.

[4] Yanfang Ye*, Zheyuan Zhang*, Tianyi Ma*, Zehong Wang*, Yiyang Li*, Shifu Hou*, Weixiang Sun*, Kaiwen Shi*, **Yijun Ma***, Wei Song, Ahmed Abbasi, Ying Cheng, Jane Cleland-Huang, Steven Corcelli, Robert Goulding, Ming Hu, Ting Hua, John Lalor, Fang Liu, Tengfei Luo, Edward Maginn, Nuno Moniz, Jason Rohr, Brett Savoie, Daniel Slate, Matthew Webber, Olaf Wiest, Johnny Zhang, Nitesh V. Chawla. *LLMs4All: A Review of Large Language Models Across Academic Disciplines.* arXiv:2509.19580.

[5] Zehong Wang, Zheyuan Liu, Tianyi Ma, Jiazheng Li, Zheyuan Zhang, Xingbo Fu, Yiyang Li, Zhengqing Yuan, Wei Song, **Yijun Ma**, Qingkai Zeng, Xiusi Chen, Jianan Zhao, Jundong Li, Meng Jiang, Pietro Lio, Nitesh Chawla, Chuxu Zhang, and Yanfang Ye. *Graph Foundation Models: A Comprehensive Survey.* arXiv:2505.15116.

[6] Hanze Guo*, **Yijun Ma***, Xiao Zhou. *SoREX: Towards Self-Explainable Social Recommendation with Relevant Ego-Path Extraction.* 2025, TOIS.

[7] **Yijun Ma**, Chaozhuo Li, Xiao Zhou. *Tail-STEAK: Improve Friend Recommendation for Tail Users via Self-Training Enhanced Knowledge Distillation.* 2024, AAAI.