ZICHUAN LIU

☺ Aspiring Data Scientist

🎂 25/05/2000
✉ zichuanliu@smail.nju.edu.cn
🏠 zichuan-liu.github.io
𝓖 google scholar
🐙 github.com/zichuan-liu

🎓 EDUCATION

Nanjing University   Master of Electronic Engineering   09/2022 - 06/2025
- Grade Point Average (GPA): 89.38/100
- First-Class Scholarship, National Scholarship
- Supervised by Prof. Chunlin Chen

Wuhan University of Technology   Bachelor of Software Engineering   09/2018 - 06/2022
- GPA: 91.10/100, Overall Ranking: 2/279, Grade Ranking: 15/279
- First-Class Scholarship, Top-up Scholarship, and Outstanding Student
- Supervised by Asso. Prof. Rui Zhang

❤ RESEARCH INTEREST

My research interests focus on eXplainable Artificial Intelligence, Trustworthy LLMs, and Reinforcement Learning, especially with applications in multiple sequences, offline models, and dynamic environments, allowing them to explicitly adapt to the non-stationary task distributions in real-world.

For your information, please check out my *Research Statement* and the slides of *Invited Talks* below.

📑 PUBLICATION AND PREPRINT

Accepted Paper (***NeurIPS**1, *ICML**3, *ICLR**1, *CKIM**1**, *etc*. ♡ are representative papers.)

♡ [NeurIPS'24] **Zichuan Liu**, Zefan Wang, Linjie Xu, Jinyu Wang, Lei Song, Tianchun Wang, Chunlin Chen, Wei Cheng, Jiang Bian. Protecting Your LLMs with Information Bottleneck. In *Neural Information Processing Systems*, 2024.

♡ [ICML'24] **Zichuan Liu**, Tianchun Wang, Jimeng Shi, Xu Zheng, Zhuomin Chen, Lei Song, Wenqian Dong, Jayantha Obeysekera, Farhad Shirani, Dongsheng Luo. TimeX++: Learning Time-Series Explanations with Information Bottleneck. In *International Conference on Machine Learning*, 2024.

• [ICML'24 Oral] Yifan Xia, Xianliang Yang, **Zichuan Liu**, Zhihao Liu, Lei Song, Jiang Bian. Rethinking Post-Hoc Search-Based Neural Approaches for Solving Large-Scale Traveling Salesman Problems. In *International Conference on Machine Learning*, 2024.

♡ [ICLR'24] **Zichuan Liu**, Yingying Zhang, Tianchun Wang, Zefan Wang, Dongsheng Luo, Mengnan Du, Min Wu, Yi Wang, Chunlin Chen, Lunting Fan, Qingsong Wen. Explaining Time Series via Contrastive and Locally Sparse Perturbations. In *International Conference on Learning Representations*, 2024.

• [CIKM'24] Zefan Wang, **Zichuan Liu**, Yingying Zhang, Aoxiao Zhong, Lunting Fan, Lingfei Wu, Qingsong Wen. RCAgent: Cloud Root Cause Analysis by Autonomous Agents with Tool-Augmented Large Language Models. In *Conference on Information and Knowledge Management*, 2024.

• [IEEE CoG'24] Linjie Xu, **Zichuan Liu**, Alexander Dockhorn, Diego Perez-Liebana, Jinyu Wang, Lei Song, Jiang Bian. Higher Replay Ratio Empowers Sample-Efficient Multi-Agent Reinforcement Learning. In *IEEE Conference on Games*, 2024.

♡ [ICML'23] **Zichuan Liu**, Yuanyang Zhu, Chunlin Chen. NA^{2}Q: Neural Attention Additive Model for Interpretable Multi-Agent Q-Learning. In *International Conference on Machine Learning*, 2023.

• [IEEE TNSE'22] **Zichuan Liu**, Rui Zhang, Chen Wang, Zhu Xiao, Hongbo Jiang. Spatial-Temporal Conv-sequence Learning with Accident Encoding for Traffic Flow Prediction. *IEEE Transactions on Network Science and Engineering*, 2022, 9(3): 1765-1775.

• [SIGSPATIAL'21] **Zichuan Liu**, Zhaoyang Wu, Meng Wang, Rui Zhang. Multi-View Spatial-Temporal Model for Travel Time Estimation. In *International Conference on Advances in Geographic Information Systems*, 2021.

Under Review

• Zhihao Liu, Xianliang Yang, **Zichuan Liu**, Yifan Xia, Wei Jiang, Yuanyu Zhang, Lijuan Li, Guoliang Fan, Lei Song, Jiang Bian. Knowing What Not to Do: Leverage Language Model Insights for Action Space Pruning in Multi-agent Reinforcement Learning. *arXiv preprint* arXiv:2405.16854, 2024.

• **Zichuan Liu**, Yuanyang Zhu, Zhi Wang, Yang Gao, Chunlin Chen. MIXRTs: Toward Interpretable Multi-Agent Reinforcement Learning via Mixing Recurrent Soft Decision Trees. *arXiv preprint* arXiv:2209.07225, 2022.

- Yuanyang Zhu, Qingpeng Zhao, **Zichuan Liu**, Zhi Wang, Chunlin Chen. Boosting Value Decomposition via Unit-Wise Attentive State Representation for Cooperative Multi-Agent Reinforcement Learning. *arXiv preprint* arXiv: 2305.07182, 2023.

💼 INTERNSHIP

Microsoft   Microsoft Research Asia   Research Intern   09/2024 - Present
- I will join the MSRA Industry Innovation Center in this fall-winter. See you in Beijing!

Microsoft   Microsoft Research Asia   Research Intern   11/2023 - 05/2024
- Research intern at MSRA Machine Learning Area, working on XAI and RL for Large Language Models, advised by Dr. Lei Song and Dr. Jiang Bian.
- Milestones: ICML'24 Oral, ICML'24, NeurIPS'24, CoG'24, ArXiv'24, two of which I was first author.

Alibaba Group   DAMO & Alibaba Cloud   Research Intern   06/2023 - 11/2023
- Research intern on XAI for Time Series, advised by Dr. Qingsong Wen.
- Milestones: ICLR'24, CIKM'24, one of which I was first author.

IToken Group   Technical Department   Android Engineer   03/2019 - 11/2019
- As a core member of the class schedule client, I was independently responsible for the development of seven pages. The daily activity number of its product reached 20000+.

💬 INVITED TALK

- "*Perturbation-based Techniques for Explaining Sequence Predictions*", Invited Talk @ **Microsoft Research Asia**, April, 2024. (including ICLR'24, ICML'24, NeurIPS'24) **[Slides]**
- "*Interpretable and Efficient Multi-Agent Reinforcement Learning*", Invited Talk @ **Nanjing University**, February, 2024. (including ICML'23, ArXiv'22, CoG'24, ArXiv'24) **[Slides]**

🏆 COMPETITION

🏆 **Kaggle**: Kaggle Expert, Highest Ranking: 757th/213,123

2019 Data Science Bowl **TOP 1% & UP2ND, DSB Student Award 3,000\$**, 01/2020
University of Liverpool - Ion Switching **TOP 1% & SOLO Silver**, 04/2020
M5 Forecasting - Uncertainty **TOP 4% & Silver**, 07/2020

🏆 **Data Mining**:

ACM SIGSPATIAL 2021 GISCUP **TOP 4th/1295, Second Runner-up, Award 2,500\$**, 08/2021
China Collegiate Computing Contest **TOP 2nd/4133, Award 10,000￥**, 08/2020
CCF Big Data & Computing Intelligence Contest **TOP 1% & 3rd/2703**, 12/2019

🏆 **Mathematica Contest**:

China Undergraduate Mathematical Contest in Modeling (CUMCM 2020) **National Second Prize**, 10/2020
Mathematica Contest in Modeling (MCM 2020) **Honorable Mention**，03/2020

👁 SERVICE

- Reviewer, International Conference on Learning Representations (ICLR), 2025
- Reviewer, Neural Information Processing Systems (NeurIPS), 2024
- Reviewer, IEEE Transactions on Network Science and Engineering (TNSE), 2022
- External reviewer, IEEE Transactions on Computational Social Systems (TCSS), 2022

🎮 COLLABORATION

I am fortunate to have close collaborations with researchers/professors from both industry and academia:

Dr. Jiang Bian, Dr. Lei Song @Microsoft Research   Prof. Yang Gao, Prof. Chunlin Chen @Nanjing University
Dr. Qingsong Wen @Alibaba DAMO Academy   A/Prof. Mengnan Du @New Jersey Institute of Technology
Dr. Wei Cheng @NEC Laboratories America   A/Prof. Dongsheng Luo @Florida International University

I also thanks co-authors/friends from Oxford, Harvard, Tsinghua, PSU, ASU, QMUL, A-Star, Salesforce.