

# ZICHUAN LIU

☺ Aspiring Data Scientist

👤 25/05/2000

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## 🎓 EDUCATION

**Nanjing University** Master of Electronic Engineering 09/2022 - 06/2025

- I received a First-Class School Scholarship in 2022 & 2023, Grade Point Average (GPA): 89.38/100.
- My researchs focus on Multi-Agent Reinforcement Learning, supervised by Prof. Chunlin Chen.

**Wuhan University of Technology** Bachelor of Software Engineering 09/2018 - 06/2022

- GPA: 90.71/100, Overall Ranking: 2/279, Grade Ranking: 15/279, and Passed CET-6.
- I won many honours, including First-Class Scholarship, Outstanding Student, and Top-up Scholarship.
- I was a research assistant in Spatial-Temporal Data Mining areas, advised by A/Prof. Rui Zhang.

## ♥ RESEARCH INTERESTS

My research interests focus on time-series data mining, reinforcement learning, and explainable artificial intelligence, 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.

Noting that I've recently been *getting started* with LLMs, and am interested in Understanding Your LLM-Agent!

## 📖 PUBLICATIONS AND SUBMISSIONS

**Accepted Paper** (ICML\*1, ICLR\*1, etc.)

- **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 (ICLR'24)*, Vienna, Austria, 2024: 1-21. (CCF-A)
- 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 (IEEE CoG'24)*, Milan, Italy, 2024.
- **Zichuan Liu**, Yuanyang Zhu, Chunlin Chen. NA<sup>2</sup>Q: Neural Attention Additive Model for Interpretable Multi-Agent Q-Learning. In *International Conference on Machine Learning (ICML'23)*, Honolulu, Hawaii, USA, 2023: 22539-22558. (CCF-A)
- **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 (TNSE)*, 2022, 9(3): 1765-1775. (SCI, JCR-Q1, IF=6.6)
- **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 (SIGSPATIAL'21)*, Beijing, China, 2021: 646-649. (CCF-C)

**Under Review**

- **Three papers** were submitted to ICML'24 (one of the first author)!
- 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. *arXiv preprint arXiv:2310.16340*, 2023.
- **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.

## INTERNSHIPS

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|---|-------------------------|------------------|-------------------|
| <b>Microsoft</b>  | Microsoft Research Asia | Research Intern  | 11/2023 - Present |
| <ul style="list-style-type: none"><li>• I am currently as a research intern at MSRA Machine Learning Area, where I am advised by Dr. Lei Song and managed by Dr. Jiang Bian.</li><li>• Three new papers were submitted to ICML'24, one of which I was the first author. Another paper was accepted by IEEE COG'24.</li><li>• I'm working on a project to prevent jailbreaks of large language models.</li></ul>   |                         |                  |                   |
| <b>Alibaba Group</b>  | DAMO & Alibaba Cloud    | Research Intern  | 06/2023 - 11/2023 |
| <ul style="list-style-type: none"><li>• I was a research intern in XAI for Time Series and AIOps, where I was advised by Dr. Qingsong Wen at DAMO Academy (Seattle), also worked close with Dr. Tianchun Wang at Pennsylvania State University and A/Prof. Dongsheng Luo at Florida International University.</li><li>• I submitted a paper to the <i>International Conference on Learning Representations</i> on explaining time series predictions using contrastive and locally sparse perturbations (ContraLSP), which was accepted.</li><li>• I have involved in writing a paper on tool-augmented LLMs for cloud root cause analysis, which has been submitted to the <i>International Conference on Very Large Data Bases</i>.</li></ul> |                         |                  |                   |
| <b>Wuhan Token Group</b>  | Tech. Dept.             | Android Engineer | 03/2019 - 11/2019 |
| <ul style="list-style-type: none"><li>• As a core member of the class schedule client, I was independently responsible for the development of seven pages, including schedule service, dialog interface, url redirection, and related interfaces, etc. The daily activity number of its product reached 20000+.</li><li>• A personal github project with a maximum of 112 stars and 33 forks.</li></ul>   |                         |                  |                   |

## COMPETITIONS

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 **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 GISCU* **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**

## SERVICES

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- Reviewer, IEEE Transactions on Network Science and Engineering (TNSE), 2022.
- External reviewer, International Conference on Artificial Neural Networks (ICANN), 2022.
- External reviewer, IEEE Transactions on Computational Social Systems (TCSS), 2022.

## MISCELLANEOUS

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- I love first person shooter (FPS) games like Overwatch, and my goal is to combine sequence modeling with offline reinforcement learning to create a self-aware AI agent for FPS cheats.
- Swimming is my primary form of exercise. I once achieved sixth place in the freestyle event at the university swimming competition in Hubei Province, and also successfully swam across the Yangtze River in 2019.
- I'm working hard to prepare for the IELTS exam, but my spoken English is not very good. I'll do my best!
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