

YIXUAN LI

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Education

Southeast University

Master of Computer Science, GPA: 86.38

Advisor: Prof. Wanyuan Wang

Sep. 2022 – Jun. 2025

Nanjing, China

Nanjing University of Posts and Telecommunications

Bachelor of Computer Science, GPA: 86.36

Advisor: Dr. Kang Xu

Sep. 2018 – Jun. 2022

Nanjing, China

Publications

Research Interests: Learning to Optimize; Reinforcement Learning; Multi-Agent Systems, Large Language Model. *: Corresponding Author, †: Equal Contribution

1. **Factor Graph Neural Network Meets Max-Sum: A Real-Time Route Planning Algorithm for Massive-Scale Trips**, Proceedings of the 23rd International Conference on Autonomous Agents and Multi-Agent Systems (*AAMAS'24, CORE Rank A*/CCF B*)
Yixuan Li, Wanyuan Wang, Weiye Xu, Yanchen Deng, Weiwei Wu.*
2. **Multiagent Reinforcement Learning-Based Flow Splitting for Network Packet Routing**. Tsinghua Science and Technology (*TST, SCI-Q1, Impact Factor:5.2*)
Qian Che†, Yixuan Li†, Yijing Wang, Haoran Chen, Wanyuan Wang, Weiwei Wu*.*
3. **Decentralized Subgoal Tree Search for Multi-agent Planning without Priors or Communication**, Proceedings of the 19th International Conference on Mobility, Sensing and Networking (*MSN'23, CCF Rank C*)
Qian Che, Yixuan Li, Ziyao Peng, Wanyuan Wang, Yichuan Jiang.*
4. **A Method for Fault Root Cause Localization Based on Network Topology and Real-Time Alarms**, China Invention Patent No. CN112181758B, Granted on 2023.
Kang Xu, Yixuan Li, Haiqi Liu, Xiaowei Zhang, Ning Ye, Ruchuan Wang.

Works in Progress

1. **Fast and Interpretable Mixed-Integer Linear Program Solving by Learning Model Reduction**. Submitted to The 39th Annual AAAI Conference on Artificial Intelligence (AAAI 25), *Under Review*.
*Yixuan Li, Can Chen, Jiajun Li, Jiahui Duan, Xiongwei Han, Tao zhong, Vincent Chau, Weiwei Wu, Wanyuan Wang**
2. **Shapley Value-based Congestion Attribution: A Practical Multiagent Reinforcement Learning for Traffic Signal Control**. Submitted to 2025 IEEE International Conference on Robotics & Automation (ICRA 25), *Under Review*.
*Yixuan Li†, Jiajun Li†, Xiao Liu, Weiwei Wu, Wanyuan Wang**
3. **Multiagent Reinforcement Learning Method based on Structural Coordination**. *Under Review*.
*Yixuan Li, Yi Huang, Junlan Feng, Chao Deng, Chunyu Liu, Vincent Chau, Wanyuan Wang**
4. **MicLog: Log Parsing with Meta In-Context Learning**. Submitted to The Web Conference 2025 (WWW 25), *Under Review*.
*Jianbo Yu, Yixuan Li, Hai Xu, zhijing Li, Kang Xu, Wanyuan Wang**
5. **FluencyVE: Marrying Temporal-Aware Mamba with Agent Attention for Video Editing**. Submitted to IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), *Under Review*.
Mingshu Cai, Yixuan Li, Osamu Yoshie, Yuya Ieiri.*

Internship

Huawei Technologies

Noah's Ark Lab

Advisors: Jiahui Duan and Xiongwei Han

Aug. 2024 –
Shenzhen, China

- Exploration of enhanced reasoning capabilities in large language models (LLMs), contributed to general reasoning framework based on Agent systems, Monte-Carlo Tree Search and Reflection.
- Applications of LLMs and AI methods to accelerate Mixed-Integer Linear Program solving. Deployed on four real-world corporation scenarios: bidirectional simulation, silicon production planning, collective communication and power grid system.

Research Projects

Data and Knowledge-Driven Optimization Problem Strategies

Jan. 2023 – Jun. 2025

Huawei Technologies

Shenzhen, China

- Developed a solver acceleration method based on parsimonious model for CO, predicted integers and identified active constraints to reduce the number of redundant constraints for a rapid solution.
- Reduced solution time to milliseconds on Huawei's real-world scenarios while ensuring 99% fidelity.
- With the warm start technology, achieved over ten times speed improvement on average compared to CPLEX under the same solution gap, won the Huawei Spark Award, advancing a collaborative project.

DRL Based Data Center Cooling System Optimization

Sep. 2022 – Dec. 2023

China Mobile Communications Group

Wuxi, China

- Trained a thermodynamic model of the cooling system using GNN and the relationship of the units.
- Designed a DRL-based control algorithm for cooling systems by DDPG with imitation learning.
- Test results showed a total power usage effectiveness (PUE) reduction of 35% compared to the original scheme, successfully deployed at the China Mobile Wuxi Data Center.

Multi-Agent Coordinated RL Based Traffic Signal Control

Apr. 2022 – Sep. 2022

China Computer Federation (CCF) and Tencent Fund

Nanjing, China

- Established a value function between agents to explicitly quantify the impact of neighbours.
- Utilized a message-passing algorithm based on relational collaboration graphs for decision making.
- Designed an efficient Shapley value decomposition reward function based on local interaction structures to promote cooperation. Contributed to three EI-indexed conference papers.

Intelligent Anomaly Detection and Root Cause Localization

Jan. 2020 – Jun. 2022

State Key Laboratory of Smart Grid Protection and Control, NARI Group

Nanjing, China

- Designed data-driven anomaly detection algorithms based on modeling and machine learning.
- Contributed to two papers and one patent, with papers accepted by SCI-JCR Q2/Q3 journals.

Awards

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| • 2023 Nov, Southeast University, Scholarship | Algorithm Competition, Global Top 3% |
| • 2023 Jul, Huawei Spark Award, Value Prize | • 2021 Nov, "Challenge Cup" Academic Science and Technology Competition, National First Prize |
| • 2023 Jan, China Graduate Mathematical Contest in Modeling, National Third Prize | • 2020 Dec, Nanjing University of Posts and Telecommunications, Scholarship |
| • 2022 Nov, Southeast University, Scholarship | • 2020 Oct, "Yuezuan Cup" Software Design Competition, Third Prize |
| • 2022 Apr, Alibaba Cloud Panjiu Intelligent | |

Technical Skills

Languages: Python, C/C++

Frameworks: Pytorch, Gym, PyG, CVXPY, CPLEX, Gurobi