Haoyuan Jiang

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RESEARCH INTERESTS

My main research interest is focused on **Reinforcement Learning, LLM Reasoning, GUI Agents, and Embodied AI**, driven by a desire to contribute to the building of AGI world. I have gained substantial experience in reinforcement learning and LM through my experience. I worked closely with Prof. Ziyue Li at the University of Cologne and Principal Researcher Hangyu Mao.

EDUCATION

Zhejiang University, Hangzhou, China — Sep.2017 — Jun.2019
Master of Software Engineering — Cumulative GPA: 3.61/4.00
Supervised by Prof. Jianke Zhu
English: IELTS 6

Jiangsu University of Science and Technology, Zhenjiang, China — Sep.2013 — Jun.2017
Bachelor of Naval Architecture and Ocean Engineering
Postgraduate entrance examination: Fundamentals of Computer Science 127/150; Mathematics 129/150.

SELECTED RESEARCH & WORK EXPERIENCE

Baidu — Shenzhen, China
Senior Algorithm Engineer — Sep.2023 — Present
Autonomous driving part

- We focus on designing and improving a data-driven end-to-end autonomous driving algorithm.
- The innovative techniques used include *imitation learning, reinforcement learning, multi-agent self-play, dataset aggregation(DAgger) and reward model* to improve the algorithm performance.
- We are the first to use reinforcement learning models to conduct road tests in the real world and the first end-to-end model to be successfully put on the road in China.
- VLM Agent: Explore and utilize VLM to describe the vehicle driving environment and make macro decisions.

Foundation model part

- Improve the capabilities of Baidu's Foundation model (ERNIE Bot), focusing on improving *reasoning, audio comprehension and generation* capabilities.
- Carried out extensive *data collection, model training design, and post-training* improvements.

Sensetime — Shenzhen, China
Researcher — Jul.2019 — Sep.2023

- Led the team(5 members) in using reinforcement learning to enhance traffic signal control methods from three perspectives: the algorithm's generalization, collaboration among multiple agents, and industry meetings. *4 top-tier papers* are published.
- Led the team using RL and MARL to participate in competitions: video games and power scheduling. Bronze tier in IJCAI competition and Top 10 in China Southern Power Grid dispatching competition.
- LLM Agent: Use LLM to automatically generate SQL(Text-to-SQL).
- Design and develop a machine learning platform.

PUBLICATIONS

Accepted papers

1. **Haoyuan Jiang**, Ziyue Li, Zhishuai Li, Lei Bai, Hangyu Mao, Wolfgang Ketter, Rui Zhao. A General Scenario-Agnostic Reinforcement Learning for Traffic Signal Control, in IEEE Transactions on Intelligent Transportation Systems (**IEEE TITS, 2024, CCF B**).
2. **Haoyuan Jiang**, Ziyue Li, Hua Wei, Xuantang Xiong, Jingqing Ruan, Jiaming Lu, Hangyu Mao, Rui Zhao. X-Light: Cross-City Traffic Signal Control Using Transformer on Transformer as Meta Multi-Agent Reinforcement Learner, in 33rd International Joint Conference on Artificial Intelligence (**IJCAI 2024, CCF A**).
3. Jiaming Lu, Jingqing Ruan, **Haoyuan Jiang**, Ziyue Li, Hangyu Mao, Rui Zhao. DuaLight: Enhancing Traffic Signal Control by Leveraging Scenario-Specific and Scenario-Shared Knowledge, in 23rd of International Conference on Autonomous Agents and Multiagent Systems (**AAMAS 2024, Oral, CCF B**).

4. Jingqing Ruan, Ziyue Li, Hua Wei, **Haoyuan Jiang**, Jiaming Lu, Xuantang Xiong, Hangyu Mao, Rui Zhao. CoSLight: Co-optimizing Collaborator Selection and Decision-making to Enhance Traffic Signal Control, in ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2024, CCF A**).

Submitted paper

1. **Haoyuan Jiang**, Xuantang Xiong, Ziyue Li, Hangyu Mao, Guanghu Sui, Jingqing Ruan, Yuheng Cheng, Hua Wei, Wolfgang Ketter, Rui Zhao. GuideLight: "Industrial Solutions" Guidance for More Practical Traffic Signal Control Agents. Submitted to **IEEE TITS**.

ACADEMIC SERVICES

Program Committee Member/ Reviewer:

- The Thirty-Ninth Annual Conference on Neural Information Processing Systems (**NeurIPS 2025**)
- International Joint Conference on Artificial Intelligence (**IJCAI 2025**)
- International Conference on Autonomous Agents and Multiagent Systems (**AAMAS 2025**)
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (**KDD 2023**)

SELECTED HONORS & AWARDS

- **14th National Graduate Mathematical Modeling Competition, Second Prize.** 2017
- **11th China College Students' Entrepreneurship Competition, Bronze Award in Zhejiang Province.** 2018
- **IJCAI 2022 - NEURAL MMO CHALLENGE, Bronze Tier Award.** 2022
- **Outstanding Employee** in Sensetime SCG Group 2022
- **Outstanding AIT Project** in Baidu Inc. 2024