

QIANYUE HAO

✉ haoqianyue@hotmail.com · 🔗 <https://haohaoqian.github.io>

🎓 EDUCATION

Department of Electronic Engineering, Tsinghua University 2018.08 – 2022.06

Bachelor in Engineering, GPA 3.80/4.00 (Ranking Top 10%), Outstanding Thesis

Department of Electronic Engineering, Tsinghua University 2022.08 – Now

PhD in Engineering

📊 RESEARCH

Research Interests: Reinforcement Learning (RL), Large Language Models (LLMs)

- Reinforcement Learning in the post-training and inference-time of Large Language Models

Recent exploration with Preprints

- Large Language Models for textual data mining

Featured works: Nature, NeurIPS'25 (spotlight), NeurIPS'24

- Reinforcement Learning for large-scale applications

Featured works: KDD'25, KDD'24, KDD'23, KDD'22, KDD'21

Conference Publications

- **[NeurIPS'25 (spotlight)]** LLM-Explorer: A Plug-in Reinforcement Learning Policy Exploration Enhancement Driven by Large Language Models
*Qianyue Hao**, Yiwen Song*, Qingmin Liao, Jian Yuan, Yong Li
- **[NeurIPS'24]** HLM-Cite: Hybrid Language Model Workflow for Text-based Scientific Citation Prediction
Qianyue Hao, Jingyang Fan, Fengli Xu, Jian Yuan, Yong Li
- **[KDD'25]** CoopRide: Cooperate All Grids in City-Scale Ride-Hailing Dispatching with Multi-Agent Reinforcement Learning
*Jingwei Wang**, *Qianyue Hao**, Wenzhen Huang, Xiaochen Fan, Qin Zhang, Zhentao Tang, Bin Wang, Jianye Hao, Yong Li
- **[KDD'24]** DyPS: Dynamic Parameter Sharing in Multi-Agent Reinforcement Learning for Spatio-Temporal Resource Allocation
*Jingwei Wang**, *Qianyue Hao**, Wenzhen Huang, Xiaochen Fan, Zhentao Tang, Bin Wang, Jianye Hao, Yong Li
- **[KDD'23]** GAT-MF: Graph Attention Mean Field for Very Large Scale Multi-Agent Reinforcement Learning
Qianyue Hao, Wenzhen Huang, Tao Feng, Jian Yuan, Yong Li
- **[KDD'22]** Reinforcement Learning Enhances the Experts: Large-scale COVID-19 Vaccine Allocation with Multi-factor Contact Network
Qianyue Hao, Wenzhen Huang, Fengli Xu, Kun Tang, Yong Li
- **[KDD'21]** Hierarchical Reinforcement Learning for Scarce Medical Resource Allocation with Imperfect Information
Qianyue Hao, Fengli Xu, Lin Chen, Pan Hui, Yong Li
- **[KDD'20]** Understanding the Urban Pandemic Spreading of COVID-19 with Real World Mobility Data
*Qianyue Hao**, Lin Chen*, Fengli Xu, Yong Li
- **[CIKM'25]** CityLight: A Neighborhood-inclusive Universal Model for Coordinated City-scale Traffic Signal Control
Jinwei Zeng, Chao Yu, Xinyi Yang, Wenxuan Ao, *Qianyue Hao*, Jian Yuan, Yong Li, Yu Wang, Huazhong Yang

Journal Publications

- **[Nature (accept in principle)]** AI Expands Scientists' Impact but Contracts Science's Focus
Qianyue Hao, Fengli Xu, Yong Li, James Evans
- **[Patterns]** Toward Large Reasoning Models: A Survey of Reinforced Reasoning with Large Language Models
*Fengli Xu**, *Qianyue Hao**, Chenyang Shao*, Zefang Zong*, Yu Li*, Jingwei Wang, Yunke Zhang, Jingyi Wang,

Xiaochong Lan, Jiahui Gong, Tianjian Ouyang, Fanjin Meng, Yuwei Yan, Qinglong Yang, Yiwen Song, Sijian Ren, Xinyuan Hu, Jie Feng, Chen Gao, Yong Li

- [TIST] Hierarchical Multi-agent Model for Reinforced Medical Resource Allocation with Imperfect Information
Qianyue Hao, Fengli Xu, Lin Chen, Pan Hui, Yong Li
- [CSUR] A Survey of Machine Learning for Urban Decision Making: Applications in Planning, Transportation, and Healthcare
Yu Zheng, Qianyue Hao, Jingwei Wang, Changzheng Gao, Jinwei Chen, Depeng Jin, Yong Li

Preprints

- [arxiv] RL of Thoughts: Navigating LLM Reasoning with Inference-time Reinforcement Learning
Qianyue Hao, Sibo Li*, Jian Yuan, Yong Li*
- [arxiv] KeyWorld: Key Frame Reasoning Enables Effective and Efficient World Models
Sibo Li, Qianyue Hao*, Yu Shang, Yong Li*
- [arxiv] Reinforcement Learning Fine-Tuning Enhances Activation Intensity and Diversity in the Internal Circuitry of LLMs
Honglin Zhang, Qianyue Hao*, Fengli Xu, Yong Li*
- [arxiv] Multiple Weak Win Single Strong: Large Language Models Ensemble Weak Reinforcement Learning Agents into a Supreme One
Yiwen Song, Qianyue Hao*, Qingmin Liao, Jian Yuan, Yong Li*
- [ResearchGate] Reinforcement Learning in the Era of Large Language Models: Challenges and Opportunities
Qianyue Hao, Lin Chen, Xiaoqian Qi, Yuan Yuan, Zefang Zong, Hongyi Chen, Keyu Zhao, Shengyuan Wang, Yunke Zhang, Jian Yuan, Yong Li
- [arxiv] A Survey on Human-Centric LLMs
Jing Yi Wang, Nicholas Sukiennik, Tong Li, Weikang Su, Qianyue Hao, Jingbo Xu, Zihan Huang, Fengli Xu, Yong Li

INTERNSHIP

Schlumberger, Intern AI Engineer 2024.07 – 2024.08

- Geo-steering project that includes generation of training environments, RL model training and evaluation.
- High evaluation received from the project leader. US patent in application.

ByteDance, Intern AI Engineer 2021.06 – 2021.09

- Game AI project that includes RL model training and evaluation, as well as performance prediction of the agent.
- High evaluation received from the project leader.

AWARDS

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| Scholarship for Graduate Students , Tsinghua University | 2025.10 |
| Scholarship for Graduate Students , Department of Electronic Engineering, Tsinghua University | 2023.10 |
| Outstanding Undergraduate Thesis Award , Tsinghua University | 2022.06 |
| National Scholarship for Undergraduate Students , Ministry of Education of the PRC | 2021.10 |
| Scholarship for Undergraduate Students , Tsinghua University | 2020.10 |