

# YUANYANG ZHU

☺ Interpretability Tamer in RL

🏠 02/03/1993

☎ (+86)18851858558

✉ zhuyuanyang32@gmail.com

🏠 google scholar

🐙 github.com/zhuyuanyang

## 🎓 EDUCATIONS

**Nanjing University** P.h.D in Management Science and Engineering 09/2020 -

- I won the National Ph.D. Scholarship in 2021 and 2023.
- I won the First Prize Scholarship in 2020, 2021, and 2022.
- My research interests are in Multi-Agent Reinforcement Learning, supervised by Prof. Chunlin Chen.

**Nanjing University** Master in Control engineering 09/2018 - 06/2020

- I won the Jiangsu Financial Leasing Scholarship in 2019.
- I won the First Prize Scholarship in 2018 and 2019.
- I won the Outstanding Graduates in 2020.
- My research interests are in Multi-Agent Reinforcement Learning, supervised by Prof. Chunlin Chen.

**Huaiyin Institute of Technology** Bachelor in Automation 09/2013 - 06/2017

- I won the Excellent Student Cadre and Outstanding Graduates in 2017.

## 📖 PUBLICATIONS AND SUBMISSIONS

- Junyi Wang\*, **Yuanyang Zhu**\*, Zhi Wang, Yan Zheng, Jianye Hao, Chunlin Chen. BiERL: A Meta Evolutionary Reinforcement Learning Framework via Bilevel Optimization In *European Conference on Artificial Intelligence (ECAI'23)*. (CCF-B)
- Zichuan Liu, **Yuanyang Zhu**<sup>†</sup>, Chunlin Chen. NA<sup>2</sup>Q: Neural Attention Additive Model for Interpretable Multi-Agent Q-Learning. In *Proceedings of the 40th International Conference on Machine Learning (ICML'23)*, Honolulu, Hawaii, USA, 2023. (CCF-A)
- **Yuanyang Zhu**, Xiao Yin, Chunlin Chen. Extracting Decision Tree From Trained Deep Reinforcement Learning in Traffic Signal Control. In *IEEE Transactions on Computational Social Systems*, 2022, doi: 10.1109/TCSS.2022.3225362. (SCI, CCF-C)
- **Yuanyang Zhu**, Zhi Wang, Chunlin Chen, Daoyi Dong. Rule-Based Reinforcement Learning for Efficient Robot Navigation with Space Reduction. In *IEEE/ASME Transactions on Mechatronics*, vol. 27, no. 2, pp. 846-857, April 2022, doi: 10.1109/TMECH.2021.3072675. (SCI District 1)
- Xuanmin Ruan, **Yuanyang Zhu**, Jiang Li, Ying Cheng. Predicting the Citation Counts of Individual Papers via a BP Neural Network. In *Journal of Informetrics*, 2020. (SSCI District 1)

- **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: arXiv:2305.07182*. (Rejected by IJCAI'23, Ratings 4/5/6)
- **Yuanyang Zhu**, Zhi Wang, Yuanheng Zhu, Chunlin Chen, Dongbin Zhao, Discretizing Continuous Action Space with Unimodal Probability Distributions for On-Policy Reinforcement Learning, Under review, IEEE TNNLS (Round 2).
- Zichuan Liu, **Yuanyang Zhu**<sup>†</sup>, 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. (Rejected by NeurIPS'22, Ratings 5/6/6/8), Under review, IEEE PAMI (Round 2).

\* Equal contribution, <sup>†</sup> Corresponding author.

## ♡ RESEARCH

My research focuses on machine learning tools that help humans make better decisions, mainly **interpretable machine learning and its applications**.

🔗 Two essential facets of **human intelligence** are:

- *Interpretable Multi-Agent Reinforcement Learning*
- *Logics for Knowledge Representation and Reasoning*

🔗 **Academic Services:**

- Reviewer for Conferences: ICML (2022, 2023), NeurIPS (2023), IJCAI (2023), ECAI (2023), IEEE SMC (2021).
- Reviewer for Journals: IEEE TNNLS, IEEE TMECH, IEEE TCSS, IEEE CoG.