

ZINIU LI

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EDUCATION

The Chinese University of Hong Kong, Shenzhen, Shenzhen, China August 2020 - Present

Ph.D., School of Data Science.

Advisor: Zhi-Quan (Tom) Luo.

Xi'an Jiaotong University, Xi'an, China August 2015 - June 2019

B.E., School of Electrical Engineering.

Advisor: Zhiyuan Liu.

RESEARCH INTERESTS

Artificial intelligence, machine learning, reinforcement learning, and large foundation models.

WORK EXPERIENCE

Tencent, Shenzhen, China

October 2021 - August 2022

Algorithm Engineer (Intern), Advisor: Peilin Zhao

Cardinal Operations, Shanghai, China

June 2020 - August 2020

Software Engineer (Intern)

Nanjing University, Nanjing, China

July 2019 - June 2020

Research Assistant, Advisor: Yang Yu

Tianrang Technology Inc., Hangzhou, China

December 2018 - February 2019

Algorithm Engineer (Intern), Advisor: Zhenhui (Jessie) Li

PUBLICATIONS

* indicates equal contribution.

- **Ziniu Li**, Tian Xu, Yushun Zhang, Zhihang Lin, Yang Yu, Ruoyu Sun, Zhi-Quan Luo. ReMax: A Simple, Effective, and Efficient Reinforcement Learning Method for Aligning Large Language Models. *In Proceedings of the 41st Conference on International Conference on Machine Learning (ICML)*, 2024.
- **Ziniu Li***, Tian Xu*, Yang Yu. When is RL better than DPO in RLHF? A Representation and Optimization Perspective *In Proceedings of the 12th International Conference on Learning Representations (ICLR) (Tiny Paper Track)*, 2024.
 - This paper is selected as an **oral** presentation at ICLR, 2024.
- **Ziniu Li***, Tian Xu*, Zeyu Qin, Yang Yu, Zhi-Quan Luo. *In Advances in Neural Information Process System 37 (NeurIPS)*, 2023.
 - This paper is selected as an **spotlight** presentation (acceptance rate < 5%) at NeurIPS, 2023.
- Tian Xu*, **Ziniu Li***, Yang Yu, Zhi-Quan Luo. Provably Efficient Adversarial Imitation Learning with Unknown Transitions. *In Proceedings of the 39th Conference on Uncertainty in Artificial Intelligence (UAI)*, 2023.

- This paper is selected as an **oral** presentation (acceptance rate < 3%) at UAI, 2023.
- **Ziniu Li***, Tian Xu*, Yang Yu, Zhi-Quan Luo. Rethinking ValueDice: Does It Really Improve Performance? *In Proceedings of the 10th International Conference on Learning Representations (ICLR) (Blog Track)*, 2022.
- **Ziniu Li**, Yingru Li, Yushun Zhang, Tong Zhang, Zhi-Quan Luo. HyperDQN: A Randomized Exploration Method for Deep Reinforcement Learning. *In Proceedings of the 10th International Conference on Learning Representations (ICLR)*, 2022.
- This paper is selected as an **oral** presentation in Workshop on Ecological Theory of Reinforcement Learning at NeurIPS, 2021.
- Tian Xu, **Ziniu Li**, Yang Yu. Error Bounds of Imitating Policies and Environments for Reinforcement Learning. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2021.
- Tian Xu, **Ziniu Li**, Yang Yu. Error Bounds of Imitating Policies and Environments. *In Advances in Neural Information Process System 34 (NeurIPS)*, 2020.
- **Ziniu Li***, Xiong-Hui Chen*. Efficient Exploration By Novelty-Pursuit. *In Proceedings of the 2nd International Conference on Distributed Artificial Intelligence (DAI)*, 2020.
- Fei-Yu Liu, **Ziniu Li**, Chao Qian. Self-Guided Evolution Strategies with Historical Estimated Gradients. *In Proceedings of the 29th International Conference on Joint Artificial Intelligence (IJCAI)*, 2020.

MANUSCRIPTS

* indicates equal contribution.

- Jiancong Xiao, **Ziniu Li**, Xingyu Xie, Emily Getzen, Cong Fang, Qi Long, Weijie J. Su. On the Algorithmic Bias of Aligning Large Language Models with RLHF: Preference Collapse and Matching Regularization. *arXiv:2405.16455*, 2024.
- Yushun Zhang, Congliang Chen, Tian Ding, **Ziniu Li**, Ruoyu Sun, Zhi-Quan Luo. Why Transformers Need Adam: A Hessian Perspective *arXiv:2402.16788*, 2024.
- **Ziniu Li**, Ke Xu, Liu Liu, Lanqing Li, Deheng Ye, Peilin Zhao. Deploying Offline Reinforcement Learning with Human Feedback. *arXiv:2303.07046*, 2023.
- Tian Xu*, **Ziniu Li***, Yang Yu, Zhi-Quan Luo. Understanding Adversarial Imitation Learning in Small Sample Regime: A Stage-coupled Analysis. *arXiv: 2208.01899*, 2022.
- **Ziniu Li***, Tian Xu*, Yang Yu. A Note on Target Q-learning For Finite MDPs with a Generative Oracle. *arXiv: 2203.11489*, 2022.

SERVICE

- Organizers: Reinforcement Learning Weekly Seminar, Deep Learning Seminar at CUHKSZ.
- Reviewer: T-PAMI, NeurIPS'2024, ICML'2024, ICLR'2024, NeurIPS'2023, ICML'2023, NeurIPS'2022 (Top Reviewer), ICML'2022 (Outstanding Reviewer), ICLR'2022 (Highlighted Reviewer), DAI'2020.
- Technical Program Committee Members: RL4RealLife@NeurIPS2022, DAI'2022.

AWARDS

- Best paper presentation award at the Doctoral and Postdoctoral Forum of Shenzhen Research Institute of Big Data (SRIBD), 2021.

- Honor student of Xi'an Jiaotong University, 2017.
- Second prize of National Electrical Math Modeling Competition, 2017.
- Second prize of Chinese Mathematics Competition, Shaanxi Province, 2016.