

# TIAN XU

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## Education

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### Nanjing University

Ph.D. in Computer Science, School of Artificial Intelligence, Advisor: Yang Yu.

Sep. 2019 – Present

Nanjing, China

### Northwestern Polytechnical University

B.S. in Mathematics and Applied Mathematics, School of Natural and Applied Sciences.

Sep. 2015 – June 2019

Xi'an, China

GPA: 92.1/100

## Research Interests

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Reinforcement learning theory and algorithms.

## Experience

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### The Chinese University of Hong Kong, Shenzhen

Visiting Student, Advisor: Zhi-Quan (Tom) Luo.

Jun. 2021 – Sep. 2021

Shenzhen, China

## Publications and preprints

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\* indicates equal contribution.

- Ziniu Li\*, **Tian Xu\***, Yang Yu, Zhi-Quan Luo. Data Selection in Imitation Learning: Theoretical Justifications and Algorithms. *In Advances in Neural Information Processing Systems 36 (NeurIPS)*, 2023. **Spotlight**.
- Chengxing Jia\*, Fuxiang Zhang\*, **Tian Xu**, Jing-Cheng Pang, Zongzhang Zhang, Yang Yu. Model Gradient: Unified Model and Policy Learning in Model-based Reinforcement Learning. *Frontiers of Computer Science*, 2023.
- **Tian Xu\***, Ziniu Li\*, Yang Yu, Zhi-Quan Luo. Provably Efficient Adversarial Imitation Learning with Unknown Transitions. *In Proceedings of the Thirty-Ninth Conference on Uncertainty in Artificial Intelligence (UAI)*, 2023. **Oral Presentation (acceptance rate 16/778 = 2.0%)**
- Fan-Ming Luo, **Tian Xu**, Hang Lai, Xiong-Hui Chen, Weinan Zhang, Yang Yu. A Survey on Model-based Reinforcement Learning. *SCIENCE CHINA Information Sciences*, 2023.
- **Tian Xu\***, Ziniu Li\*, Yang Yu, Zhi-Quan Luo. Understanding Adversarial Imitation Learning in Small Sample Regime: A Stage-coupled Analysis. Submitted to *TPAMI*. *arXiv*: 2208.01899, 2022.
- 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\*, **Tian Xu\***, Yang Yu. A Note on Target Q-learning For Finite MDPs with a Generative Oracle. Submitted to *Artificial Intelligence*. *arXiv*: 2203.11489, 2022.
- Jing-Cheng Pang, **Tian Xu**, Shengyi Jiang, Yu-Ren Liu, Yang Yu. Reinforcement Learning With Sparse-Executing Actions via Sparsity Regularization. Submitted to *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*. *arXiv*: 2105.08666, 2022.
- **Tian Xu\***, Ziniu Li\*, Yang Yu. More Efficient Adversarial Imitation Learning Algorithms with Known and Unknown Transitions. Ecological Theory of RL Workshop in NeurIPS 2021. *arXiv*: 2106.10424v2, 2021.
- **Tian Xu**, Ziniu Li, Yang Yu. Error Bounds of Imitating Policies and Environments for Reinforcement Learning. *In 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 Processing Systems 33 (NeurIPS)*, 2020.

## Talks

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- **A Deeper Look at BC and Adversarial based Methods**. DAI 2020, Imitation Learning: Single & Multi-Agent Workshop.

## Service

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- Conference Reviewer: ICML (2022, 2023), UAI (2021, 2022, 2023), NeurIPS (2022).
- Journal Reviewer: IEEE Transactions on Emerging Topics in Computational Intelligence (TETCI).

## Awards

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- 2<sup>nd</sup> winner on KDD CUP 2020 Reinforcement Learning Competition Track.
- National Scholarship for Graduates, 2020.
- National Scholarship for Undergraduates, 2016, 2017.
- The Mathematical Contest in Modeling, M Prize, 2017.