

Tongzheng Ren

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EDUCATION BACKGROUND

The University of Texas at Austin (UT Austin)

PhD in Computer Science

Advisor: Prof. Sujay Sanghavi

Austin, Texas

Sep. 2019-Feb.2024

Tsinghua University (THU)

BS in Fundamental Science & BS in Mathematics and Applied Mathematics

Beijing, China

Sep. 2014-Jun. 2018

WORK EXPERIENCE

Citadel Securities

Quantitative Researcher

Leader: Zhuang Ma

Miami, Florida

Feb.2024-Present

Citadel Securities

Quantitative Research Intern

Host: Dr. Xiaojie Huang and Dr. Zhen Zhang

Chicago, Illinois

Jun. 2023-Aug. 2023

Google Research, Brain Team (Now Google DeepMind)

Student Researcher

Host: Prof. Bo Dai and Dr. Hanjun Dai

Mountain View, California

Oct. 2021-May. 2023

The University of Texas at Austin (UT Austin)

Graduate Research Assistant

Advisor: Prof. Sujay Sanghavi

Austin, Texas

Sept. 2020-Present

Tsinghua Statistical Artificial Intelligence & Learning Group (TSAIL)

Research Intern

Advisor: Prof. Jun Zhu and Prof. Hang Su

Beijing, China

Jun. 2017-Jun. 2019

PUBLICATIONS

*: Equal Contribution

Peer Reviewed Conference

- (C1) Hongming Zhang*, **Tongzheng Ren***, Chenjun Xiao, Dale Schuurmans, Bo Dai. "Provable Representation with Efficient Planning for Partially Observable Reinforcement Learning", in **Proceedings of The 39th International Conference on Machine Learning (ICML) 2024**
- (C2) Pedram Akbarian*, **Tongzheng Ren***, Jiacheng Zhuo, Sujay Sanghavi, Nhat Ho. "Improving Computational Complexity in Statistical Models with Local Curvature Information", in **Proceedings of The 39th International Conference on Machine Learning (ICML) 2024**
- (C3) Khai Nguyen, **Tongzheng Ren**, Nhat Ho. "Markovian Sliced Wasserstein Distances: Beyond Independent Projection", in **Advances in Neural Information Processing System (NeurIPS) 2023**
- (C4) Xing Han, **Tongzheng Ren**, Tan Minh Nguyen, Khai Nguyen, Joydeep Ghosh, Nhat Ho. "Robustify Transformers with Robust Kernel Density Estimation", in **Advances in Neural Information Processing System (NeurIPS) 2023**

- (C5) **Tongzheng Ren**, Zhaolin Ren, Na Li, Bo Dai. "Stochastic Nonlinear Control via Finite-dimensional Spectral Dynamic Embedding", in **62nd IEEE Conference on Decision and Control (CDC) 2023**
- (C6) Tianjun Zhang*, **Tongzheng Ren***, Chenjun Xiao, Wenli Xiao, Joseph E. Gonzalez, Dale Schuurmans, Bo Dai. "Energy-based Predictive Representations for Partially Observed Reinforcement Learning", in **Proceedings of the 39th Conference on Uncertainty in Artificial Intelligence (UAI) 2023**
- (C7) **Tongzheng Ren***, Chenjun Xiao*, Tianjun Zhang, Na Li, Zhaoran Wang, Sujay Sanghavi, Dale Schuurmans, Bo Dai. "Latent Variable Representation for Reinforcement Learning", in **International Conference on Learning Representations (ICLR) 2023**
- (C8) Khai Nguyen, **Tongzheng Ren**, Huy Nguyen, Litu Rout, Tan Nguyen, Nhat Ho. "Hierarchical sliced Wasserstein distance", in **International Conference on Learning Representations (ICLR) 2023**
- (C9) **Tongzheng Ren***, Tianjun Zhang*, Lisa Lee, Joseph E. Gonzalez, Dale Schuurmans, Bo Dai. "Spectral Decomposition Representation for Reinforcement Learning", in **International Conference on Learning Representations (ICLR) 2023**
- (C10) **Tongzheng Ren***, Tianjun Zhang*, Csaba Szepesvári, Bo Dai. "A Free Lunch from the Noise: Provable and Practical Exploration for Representation Learning", in **Proceedings of the 38th Conference on Uncertainty in Artificial Intelligence (UAI) 2022**
- (C11) Tianjun Zhang*, **Tongzheng Ren***, Sherry Yang, Joseph Gonzalez, Dale Schuurmans, Bo Dai. "Making Linear MDP Practical via Contrastive Representation Learning", in **Proceedings of The 39th International Conference on Machine Learning (ICML) 2022**
- (C12) Shuo Yang, **Tongzheng Ren**, Sanjay Shakkottai, Eric Price, Inderjit S. Dhillon, Sujay Sanghavi. "Linear Bandit Algorithms with Sublinear Time Complexity", in **Proceedings of The 39th International Conference on Machine Learning (ICML) 2022**
- (C13) **Tongzheng Ren***, Fuheng Cui*, Alexia Atsidakou*, Sujay Sanghavi, Nhat Ho. "Towards Statistical and Computational Complexities of Polyak Step Size Gradient Descent", in **Proceedings of The 25th International Conference on Artificial Intelligence and Statistics (AISTATS 2022)**
- (C14) Jialian Li, **Tongzheng Ren**, Dong Yan, Hang Su, Jun Zhu. "Policy Learning for Robust Markov Decision Process with a Mismatched Generative Model", in **Proceedings of The 36th AAAI Conference on Artificial Intelligence (AAAI) 2022**
- (C15) Ziyu Wang*, Yuhao Zhou*, **Tongzheng Ren**, Jun Zhu. "Scalable Quasi-Bayesian Inference For Instrumental Variable Regression", in **Advances in Neural Information Processing System (NeurIPS) 2021**
- (C16) **Tongzheng Ren**, Jialian Li, Bo Dai, Simon S. Du, Sujay Sanghavi. "Nearly Horizon-Free Offline Reinforcement Learning", in **Advances in Neural Information Processing System (NeurIPS) 2021**
- (C17) Keyang Xu, **Tongzheng Ren**, Shikun Zhang, Yihao Feng, Caiming Xiong. "Unsupervised Out-of-Domain Detection via Pre-trained Transformers". in **Proceedings of The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021)**

- (C18) Chengyue Gong*, **Tongzheng Ren***, Mao Ye, Qiang Liu. "MaxUp: A Simple Way to Improve Generalization of Neural Network Training", in **Proceedings of The IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR) 2021**
- (C19) Haosheng Zou*, **Tongzheng Ren***, Dong Yan, Hang Su, Jun Zhu. "Learning Task-Distribution Reward-Shaping with Meta-Learning", in **Proceedings of The 35th AAAI Conference on Artificial Intelligence (AAAI) 2021**
- (C20) Mao Ye*, **Tongzheng Ren***, Qiang Liu. "Stein Self-Repulsive Dynamics: Benefits from Past Samples", in **Advances in Neural Information Processing Systems (NeurIPS) 2020**
- (C21) Xiaoxia Wu*, Edgar Dobriban*, **Tongzheng Ren***, Shanshan Wu*, Zhiyuan Li, Suriya Gunasekar, Rachel Ward, Qiang Liu. "Implicit Regularization and Convergence for Weight Normalization", in **Advances in Neural Information Processing Systems (NeurIPS) 2020**
- (C22) Yihao Feng*, **Tongzheng Ren***, Ziyang Tang and Qiang Liu. "Accountable Off-Policy Evaluation via a Kernelized Bellman Statistics", in **Proceedings of The 37th International Conference on Machine Learning (ICML) 2020**.
- (C23) Jialian Li, Yichi Zhou, **Tongzheng Ren**, and Jun Zhu. "Exploration Analysis in Finite-Horizon Turn-based Stochastic Games", in **Proceedings of the 36th Conference on Uncertainty in Artificial Intelligence (UAI) 2020**
- (C24) Yichi Zhou, **Tongzheng Ren**, Jialian Li, Dong Yan and Jun Zhu. "Lazy-CFR: a fast regret minimization algorithm for extensive games with imperfect information", in **International Conference on Learning Representations (ICLR) 2020**
- (C25) Jialian Li, Tongzheng Ren, Hang Su, Jun Zhu. "Learn a Robust Policy in Adversarial Games via Playing with an Expert Opponent", in **Proceedings of The 18th International Conference on Autonomous Agents and Multi Agent Systems (AAMAS) 2019 (Extended Abstract)**
- (C26) Ziyu Wang, **Tongzheng Ren**, Jun Zhu and Bo Zhang. "Function Space Particle Optimization for Bayesian Neural Networks", in **International Conference on Learning Representations (ICLR) 2019**
- (C27) Danyang Sun*, **Tongzheng Ren***, Chongxuan Li, Hang Su and Jun Zhu. "Learning to write stylized Chinese Characters by Reading a Handful of Examples", in **Proceedings of The 27th International Joint Conferences on Artificial Intelligence (IJCAI) 2018**

Preprints.....

- (P1) Qiujiang Jin, **Tongzheng Ren**, Nhat Ho, Aryan Mokhtari. "Statistical and Computational Complexities of BFGS Quasi-Newton Method for Generalized Linear Models", arXiv preprint arXiv:2206.00207
- (P2) Xing Han, **Tongzheng Ren**, Jing Hu, Joydeep Ghosh, Nhat Ho. "Efficient Forecasting of Large Scale Hierarchical Time Series via Multilevel Clustering", arXiv preprint arXiv:2205.14104
- (P3) **Tongzheng Ren***, Fuheng Cui*, Sujay Sanghavi, Nhat Ho. "Beyond EM Algorithm on Over-specified Two-Component Location-Scale Gaussian Mixtures", arXiv preprint arXiv:2205.11078
- (P4) Nhat Ho, **Tongzheng Ren**, Sujay Sanghavi, Purnamrita Sarkar, Rachel Ward (α - β order). "An Exponentially Increasing Step-size for Parameter Estimation in Statistical Models", arXiv preprint arXiv:2205.07999

(P5) Shuo Yang, **Tongzheng Ren**, Inderjit S. Dhillon, Sujay Sanghavi. "Combinatorial Bandits without Total Order of Arms", arXiv preprint arXiv:2103.02741

PROFESSIONAL ACTIVITIES

- Conference Review: NeurIPS (Area Chair), ICML, ICLR, AISTATS, AAAI
- Journal Review: JMLR, TMLR, TNNLS