

WENHAO YANG

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Google scholar: <https://scholar.google.com/citations?user=-GQEMJ8AAAAJ&hl=en>

RESEARCH EXPERIENCES

- **Stanford University** *September 2023 - Present*
Postdoc (Advisor: [Jose Blanchet](#))
- **University of Alberta** *February 2022 - February 2023*
Visiting Ph.D. Student (Advisor: [Martha White](#))

EDUCATION

- **Peking University, Beijing, China** *September 2018 - July 2023*
Academy for Advanced Interdisciplinary Studies
Ph.D. in Data Science (Statistics) (Advisor: [Zhihua Zhang](#))
- **Peking University, Beijing, China** *September 2014 - July 2018*
School of Mathematical Sciences
B.S. in Statistics

RESEARCH INTERESTS

- My research interests lie in **statistical learning** and its applications in data-driven decision making problems.

SELECTED PUBLICATIONS

* denotes equal contribution or alphabetical order.

1. Towards Theoretical Understandings of Robust Markov Decision Processes: Sample Complexity and Asymptotics
Wenhao Yang, Liangyu Zhang, Zhihua Zhang
The Annals of Statistics, 2022, Vol. 50, No. 6, 3223-3248
2. Limit Theorems for Stochastic Gradient Descent with Infinite Variance
Jose Blanchet*, Aleksandar Mijatović*, **Wenhao Yang***
To be submitted
3. Wasserstein Distributionally Robust Policy Learning with Continuous Context
Wenhao Yang, Miao Lu, Zhengyuan Zhou, Jose Blanchet
To be submitted
4. On the Convergence of FedAvg on Non-IID Data
Xiang Li*, Kaixuan Huang*, **Wenhao Yang***, Shusen Wang, Zhihua Zhang
International Conference on Learning Representations (ICLR) 2020 (**Oral**)
Cited by 2422

PUBLICATIONS

* denotes equal contribution or alphabetical order.

1. Distributionally Robust Optimization as a Scalable Framework to Characterize Extreme Value Distributions
Patrick Kendal Kuiper, Ali Hasan, **Wenhao Yang**, Jose Blanchet, Vahid Tarokh, Yuting Ng, Hoda Bidkhor
The 40th Conference on Uncertainty in Artificial Intelligence (**UAI**), 2024
2. Semi-Infinitely Constrained Markov Decision Processes and Provably Efficient Reinforcement Learning
Liangyu Zhang, Yang Peng, **Wenhao Yang**, Zhihua Zhang
IEEE Transactions on Pattern Analysis & Machine Intelligence (**TPAMI**), 1-14
3. Semiparametrically Efficient Off-Policy Evaluation in Linear Markov Decision Processes
Chuhan Xie, **Wenhao Yang**, Zhihua Zhang
International Conference on Machine Learning (**ICML**) 2023
4. Regularization and Variance-Weighted Regression Achieves Minimax Optimality in Linear MDPs: Theory and Practice
Toshinori Kitamura, Tadashi Kozuno, Yunhao Tang, Nino Vieillard, Michal Valko, **Wenhao Yang**, Jincheng Mei, Pierre MENARD, Mohammad Gheshlaghi Azar, Remi Munos, Olivier Pietquin, Matthieu Geist, Csaba Szepesvari, Wataru Kumagai, Yutaka Matsuo
International Conference on Machine Learning (**ICML**) 2023
5. Polyak-Ruppert-Averaged Q-Learning is Statistically Efficient
Xiang Li, **Wenhao Yang**, Jiadong Liang, Zhihua Zhang, Michael I. Jordan
International Conference on Artificial Intelligence and Statistics (**AISTATS**) 2023
6. Semi-infinitely Constrained Markov Decision Processes
Liangyu Zhang, Yang Peng, **Wenhao Yang**, Zhihua Zhang
Neural Information Processing Systems (**NeurIPS**) 2022
7. Federated Reinforcement Learning with Environment Heterogeneity
Hao Jin, Yang Peng, **Wenhao Yang**, Shusen Wang, Zhihua Zhang
International Conference on Artificial Intelligence and Statistics (**AISTATS**) 2022
8. A Regularized Approach to Sparse Optimal Policy in Reinforcement Learning
Wenhao Yang*, Xiang Li*, Zhihua Zhang
Neural Information Processing Systems (**NeurIPS**) 2019

PREPRINTS

* denotes equal contribution or alphabetical order.

1. **Estimation and Inference in Distributional Reinforcement Learning**
Liangyu Zhang, Yang Peng, Jiadong Liang, **Wenhao Yang**, Zhihua Zhang
The Annals of Statistics, Reject with Resubmission
2. **Avoiding Model Estimation in Robust Markov Decision Processes with a Generative Model**
Wenhao Yang, Han Wang, Tadashi Kozuno, Scott M. Jordan, Zhihua Zhang
3. **KL-Entropy-Regularized RL with a Generative Model is Minimax Optimal**
Tadashi Kozuno, **Wenhao Yang**, Nino Vieillard, Toshinori Kitamura, Yunhao Tang, Jincheng Mei, Pierre Ménard, Mohammad Gheshlaghi Azar, Michal Valko, Rémi Munos, Olivier Pietquin, Matthieu Geist, Csaba Szepesvári
4. **Statistical Estimation of Confounded Linear MDPs: An Instrumental Variable Approach**
Miao Lu*, **Wenhao Yang***, Liangyu Zhang*, Zhihua Zhang*

5. **Finding the Near Optimal Policy via Adaptive Reduced Regularization in MDPs**
Wenhao Yang, Xiang Li, Guangzeng Xie, Zhihua Zhang
Workshop on Reinforcement Learning Theory at ICML 2021
6. **Communication Efficient Decentralized Training with Multiple Local Updates**
Xiang Li, **Wenhao Yang**, Shusen Wang, Zhihua Zhang

PROFESSIONAL SERVICES

- Journal reviewer for:
Journal of Machine Learning Research, Operations Research, Mathematics of Operations Research, Transactions on Machine Learning Research, Automatica.
- Conference Reviewer for:
NeurIPS 2022, 2020 & 2019; ICLR 2023, 2022 & 2021; ICML 2022, 2021 & 2020; AISTATS 2023.

PRESENTATIONS

1. “Wasserstein Distributionally Robust Policy Learning with Continuous Context”
 - 2024 INFORMS Annual Meeting, Oct 2024.
2. “Robust Markov Decision Processes without Model Estimation”
 - 2023 INFORMS Annual Meeting, Oct 2023.
3. “Towards Theoretical understandings of Robust MDPs: Sample Complexity and Asymptotics”
 - School of Mathematical Sciences, Peking University, Jan 2022.
 - The China-R Conference 2022, Nov 2022.

TEACHING EXPERIENCES

- “*Reinforcement Learning: Theory and Algorithms*”, Fall 2019, PKU, Teaching Assistant

MENTORING EXPERIENCES

- **Miao Lu**, Ph.D. student at Stanford 2023-2024
- **Chuhan Xie**, Ph.D. student at Peking University. 2022-2023
- **Liangyu Zhang**, Ph.D. student at Peking University, now assistant professor at the School of Statistics and Management at Shanghai University of Finance and Economics. 2021-2023
- **Yang Peng**, Ph.D. student at Peking University. 2021-2022
- **Hao Jin**, Ph.D. student at Peking University. 2021-2022

SELECTED AWARDS AND SCHOLARSHIP

- First Prize, Peking University Scholarship *October 2020*
- NeurIPS Travel Award *December 2019*
- Principal Scholarship, Peking University *October 2019*
- May Forth Scholarship, Peking University *October 2017*
- Honorable Winner, Mathematical Contest In Modeling *May 2017*
- Yizheng Scholarship, Peking University *October 2016*
- Meritorious Winner, Mathematical Contest In Modeling *May 2016*

- Second Prize, Outstanding Freshman Scholarship, Peking University
- Top 4, College Entrance Examination, Sichuan

October 2014

June 2014

LIST OF REFEREES

1. Jose Blanchet (jose.blanchet@stanford.edu)
Professor, Department of Management Science and Engineering
Stanford University
2. Aleksandar Mijatović (a.mijatovic@warwick.ac.uk)
Professor, Department of Statistics
University of Warwick
3. Zhengyuan Zhou (zz26@stern.nyu.edu)
Associate Professor, Stern School of Business
New York University
4. Zhihua Zhang (zhzhang@math.pku.edu.cn)
Professor, School of Mathematical Sciences
Peking University