

WENHAO YANG

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<https://yangwenhaosms.github.io/>

EDUCATION

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

RESEARCH INTERESTS

- Markov Decision Processes: theory and algorithms.
- Statistical Theory.
- Other Topics: Semi-parametric statistics, Optimization, Applied probability.

RESEARCH EXPERIENCES

- **Face++(Megvii)** *October 2017 - February 2018*
Research Intern (Advisor: Dr. Shuchang Zhou)
- **University of Alberta** *February 2022 - February 2023*
Visiting Ph.D. Student (Advisor: Prof. Martha White)
- **Stanford University** *September 2023 - Present*
Postdoc (Advisor: Prof. Jose Blanchet)

SELECTED AWARDS AND SCHOLARSHIP

- NeurIPS Travel Award *December 2019*

PROFESSIONAL SERVICES

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

PUBLICATIONS

* denotes equal contribution or alphabetical order.

1. **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, 1-14
2. **Semiparametrically Efficient Off-Policy Evaluation in Linear Markov Decision Processes**
Chuhan Xie, **Wenhao Yang**, Zhihua Zhang
International Conference on Machine Learning (ICML) 2023

3. **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
4. **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
5. **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
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. **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
9. **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
Under-review
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
Under-review
4. **Statistical Estimation of Confounded Linear MDPs: An Instrumental Variable Approach**
Miao Lu*, **Wenhao Yang***, Liangyu Zhang*, Zhihua Zhang*
Under-review
5. **Finding the Near Optimal Policy via Adaptive Reduced Regularization in MDPs**
Wenhao Yang, Xiang Li, Guangzeng Xie, Zhihua Zhang

6. **Communication Efficient Decentralized Training with Multiple Local Updates**

Xiang Li, **Wenhao Yang**, Shusen Wang, Zhihua Zhang

PRESENTATIONS

1. “Robust Markov Decision Processes without Model Estimation”
 - 2023 INFORMS Annual Meeting, Oct 2023.
2. “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