

# WENHAO YANG

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

## EDUCATION

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- **Peking University, Beijing, China** *September 2018 - Present*  
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

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- Reinforcement Learning: theory and algorithms.
- Statistical Learning Theory.
- Other Topics: Semi-parametric statistics, Optimization, Applied probability.

## RESEARCH EXPERIENCES

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

## SELECTED AWARDS AND SCHOLARSHIP

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- Second Prize, Outstanding Freshman Scholarship, Peking University *October 2014*
- Yizheng Scholarship, Peking University *October 2016*
- May Forth Scholarship, Peking University *October 2017*
- Principal Scholarship, Peking University *October 2019*
- NeurIPS Travel Award *December 2019*
- First Prize, Peking University Scholarship *October 2020*

## PROFESSIONAL SERVICES

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

## PUBLICATIONS

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\* denotes equal contribution or alphabetical order.

1. **Semiparametrically Efficient Off-Policy Evaluation in Linear Markov Decision Processes**  
Chuhan Xie, **Wenhao Yang**, Zihua Zhang  
*International Conference on Machine Learning (ICML) 2023*
2. **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*
3. **Polyak-Ruppert-Averaged Q-Learning is Statistically Efficient**  
Xiang Li, **Wenhao Yang**, Jiadong Liang, Zihua Zhang, Michael I. Jordan  
*International Conference on Artificial Intelligence and Statistics (AISTATS) 2023*
4. **Towards Theoretical Understandings of Robust Markov Decision Processes: Sample Complexity and Asymptotics**  
**Wenhao Yang**, Liangyu Zhang, Zihua Zhang  
*The Annals of Statistics 2022, Vol. 50, No. 6, 3223-3248*
5. **Semi-infinitely Constrained Markov Decision Processes**  
Liangyu Zhang, Yang Peng, **Wenhao Yang**, Zihua Zhang  
*Neural Information Processing Systems (NeurIPS) 2022*
6. **Federated Reinforcement Learning with Environment Heterogeneity**  
Hao Jin, Yang Peng, **Wenhao Yang**, Shusen Wang, Zihua Zhang  
*International Conference on Artificial Intelligence and Statistics (AISTATS) 2022*
7. **On the Convergence of FedAvg on Non-IID Data**  
Xiang Li\*, Kaixuan Huang\*, **Wenhao Yang\***, Shusen Wang, Zihua Zhang  
*International Conference on Learning Representations (ICLR) 2020*
8. **A Regularized Approach to Sparse Optimal Policy in Reinforcement Learning**  
**Wenhao Yang\***, Xiang Li\*, Zihua Zhang  
*Neural Information Processing Systems (NeurIPS) 2019*

## PREPRINTS

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\* denotes equal contribution or alphabetical order.

1. **Avoiding Model Estimation in Robust Markov Decision Processes with a Generative Model**  
**Wenhao Yang**, Han Wang, Tadashi Kozuno, Scott M. Jordan, Zihua Zhang  
(Under-review)
2. **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)
3. **Statistical Estimation of Confounded Linear MDPs: An Instrumental Variable Approach**  
Miao Lu\*, **Wenhao Yang\***, Liangyu Zhang\*, Zihua Zhang\*  
(Under-review)

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

## PRESENTATIONS

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1. “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

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