

# WENHAO YANG

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

## RESEARCH EXPERIENCES

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

## EDUCATION

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- **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

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

## SELECTED PUBLICATIONS

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\* 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  
**Cited by 2277**

## PUBLICATIONS

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\* 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

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\* 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

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- Journal reviewer for:  
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

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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.
3. “Wasserstein Distributionally Robust Policy Learning with Continuous Context”
  - 2024 INFORMS Annual Meeting, Oct 2024.

## TEACHING EXPERIENCES

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

## MENTORING EXPERIENCES

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- **Miao Lu**, Ph.D. student at Stanford 2023-2024
- **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
- **Chuhan Xie**, Ph.D. student at Peking University. 2022-2023

## SELECTED AWARDS AND SCHOLARSHIP

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- NeurIPS Travel Award *December 2019*

## LIST OF REFEREES

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1. Jose Blanchet ([jose.blanchet@stanford.edu](mailto:jose.blanchet@stanford.edu))  
Professor, Department of Management Science and Engineering  
Stanford University
2. Aleksandar Mijatović ([a.mijatovic@warwick.ac.uk](mailto:a.mijatovic@warwick.ac.uk))  
Professor, Department of Statistics  
University of Warwick

3. Zhengyuan Zhou ([zz26@stern.nyu.edu](mailto:zz26@stern.nyu.edu))  
Associate Professor, Stern School of Business  
New York University
4. Zihua Zhang ([zhzhang@math.pku.edu.cn](mailto:zhzhang@math.pku.edu.cn))  
Professor, School of Mathematical Sciences  
Peking University