WENHAO YANG

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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)
- **Face++(Megvii)** *October 2017 - February 2018*
  Research Intern (Advisor: Shuchang Zhou)

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. Convergence in Distribution of Stochastic Gradient Descent with Infinite Variance
   Jose Blancet*, 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

* 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 Bidkhori
   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:
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. "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

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

SELECTED AWARDS AND SCHOLARSHIP

- NeurIPS Travel Award *December 2019*

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. Zhihua Zhang (zhzhang@math.pku.edu.cn)
Professor, School of Mathematical Sciences
Peking University