Ziping Xu

Postdoctoral Research Fellow
Department of Statistics, Harvard University

Department of Statistics
Harvard University
📞 (734)-276-8463
✉ zipingxu@fas.harvard.edu
🏠 https://zipingxu.github.io

Education

2018–2023 **PhD, Statistics**, *University of Michigan*, Ann Arbor, MI.
Advisor: Prof. Ambuj Tewari
Thesis: On the Benefits of Multitask Learning: A Perspective Based on Task Diversity

2014–2018 **Bachelor of Science, Data Science**, *Peking University*, Beijing, China.
Advisor: Prof. Song Xi Chen
Thesis: Meteorological Change and Impacts on Air Pollution: Results from North China

Professional Experience

2023 – now Postdoctoral Research Fellow at **Department of Statistics, Harvard University**
Advisor: Dr. Susan A. Murphy, Professor, Department of Statistics and Computer Science

Summer 2022 Research Intern at **MIT-IBM Watson AI Lab**
Advisor: Dr. Quanfu Fan

Summer 2020 Research Intern at **Adobe Inc.**
Advisor: Dr. Amirhossein Meisami

Publications and Preprints

(* denotes equal contribution)

2024 **Ziping Xu**, Iris Yan, and Susan Murphy. An adaptation of rlsvi with explicit action sampling probabilities. In *RLC 2024 Deployable RL Workshop*, 2024.

2024 **Ziping Xu**, Zifan Xu, Runxuan Jiang, Peter Stone, and Ambuj Tewari. Sample efficient myopic exploration through multitask reinforcement learning with diverse tasks. In *Proceedings of the International Conference on Learning Representations (ICLR)*, 2024.

2024 **Ziping Xu**, Kelly Zhang, and Susan Murphy. The fallacy of minimizing local regret in the sequential task setting. *arXiv*, 2024.

2024 Kevin Tan* and **Ziping Xu***. A natural extension to online algorithms for hybrid RL with limited coverage. *Reinforcement Learning Journal*, volume 1, 2024.

2024 Yongyi Guo*, **Ziping Xu***, and Susan Murphy. Online learning in bandits with predicted context. *In Proceedings of the 27th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2024.

2024 Quanfu Fan, Yilai Li, Yuguang Yao, John Cohn, Sijia Liu, **Ziping Xu**, Seychelle Vos, and Michael Cianfrocco. Cryorl: Reinforcement learning enables efficient cryo-em data collection. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pages 7892–7902, 2024.

2023 **Ziping Xu**, Quanfu Fan, Yilai Li, Emma Rose Lee, John Maxwell Cohn, Ambuj Tewari, Seychelle M Vos, and Michael Cianfrocco. Coupling semi-supervised learning with reinforcement learning for better decision making—an application to cryo-em data collection. In *NeurIPS 2023 AI for Science Workshop*, 2023.

2022 **Ziping Xu** and Ambuj Tewari. On the statistical benefits of curriculum learning. In *ICML*, pages 24663–24682. PMLR, 2022.

2022 **Ziping Xu**, Eunjae Shim, Ambuj Tewari, and Paul Zimmerman. Adaptive sampling for discovery. In *NeurIPS*, 2022.

2022 Hao Sun, **Ziping Xu**, Taiyi Wang, Meng Fang, and Bolei Zhou. Supervised q-learning for continuous control. In *Deep Reinforcement Learning Workshop NeurIPS 2022*, 2022.

2022 Hao Sun, **Ziping Xu**, Zhenghao Peng, Meng Fang, Bo Dai, and Bolei Zhou. Mopa: a minimalist off-policy approach to safe-rl. In *Deep Reinforcement Learning Workshop NeurIPS 2022*, 2022.

2022 Eunjae Shim, Joshua A Kammeraad, **Ziping Xu**, Ambuj Tewari, Tim Cernak, and Paul M Zimmerman. Predicting reaction conditions from limited data through active transfer learning. *Chemical Science*. Royal Society of Chemistry, 2022.

2022 Aditya Modi, **Ziping Xu**, Mohamad KS Faradonbeh, and Ambuj Tewari. Big control actions help multitask learning of unstable linear systems. *In ICML 2022 Complex feedback in online learning Workshop*, 2022.

2022 Yilai Li, Quanfu Fan, **Ziping Xu**, Emma Rose Lee, John Cohn, Veronique Demers, Ja Young Lee, Lucy Yip, Michael A. Cianfrocco, and Seychelle M. Vos. Optimized path planning surpasses human efficiency in cryo-em imaging. *eLife*. Cold Spring Harbor Laboratory, 2022.

2021 **Ziping Xu** and Ambuj Tewari. Representation learning beyond linear prediction functions. *In NeurIPS*, volume 34, pages 4792–4804, 2021.

2021 **Ziping Xu**, Amirhossein Meisami, and Ambuj Tewari. Decision making problems with funnel structure: A multi-task learning approach with application to email marketing campaigns. In *AISTATS*, pages 127–135. PMLR, 2021.

2021 Yangyi Lu*, **Ziping Xu***, and Ambuj Tewari. Bandit algorithms for precision medicine. *arXiv preprint arXiv:2108.04782*, 2021.

2020 **Ziping Xu** and Ambuj Tewari. Reinforcement learning in factored mdps: Oracle-efficient algorithms and tighter regret bounds for the non-episodic setting. *In NeurIPS*, volume 33, pages 18226–18236, 2020.

2020 **Ziping Xu**, Song Xi Chen, and Xiaoqing Wu. Meteorological change and impacts on air pollution: Results from north china. *Journal of Geophysical Research: Atmospheres*, volume 125, page e2020JD032423. Wiley Online Library, 2020.

2020 Tarun Gogineni, **Ziping Xu**, Exequiel Punzalan, Runxuan Jiang, Joshua Kammeraad, Ambuj Tewari, and Paul Zimmerman. Torsionnet: A reinforcement learning approach to sequential conformer search. *In NeurIPS*, 2020.

2019 **Ziping Xu** and Ambuj Tewari. Worst-case regret bound for perturbation based exploration. *In NeurIPS*, 2019.

2018 Wenling Liu, **Ziping Xu**, and Tianan Yang. Health effects of air pollution in china. *International journal of environmental research and public health*, volume 15, page 1471. MDPI, 2018.

2017 Shuyi Zhang, Bin Guo, Anlan Dong, Jing He, **Ziping Xu**, and Song Xi Chen. Cautionary tales on air-quality improvement in beijing. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, volume 473, page 20170457. The Royal Society Publishing, 2017.

Fellowships & Awards

2023 ***Departmental Outstanding Dissertation Award*** (Awarded for outstanding dissertation writing)

2022 ***Rackham Predoctoral Fellowship*** (Awarded to outstanding doctoral students)

2020 ***Outstanding Graduate Student Instructor Awards*** (Awarded to outstanding instructors)

2016 ***Lee Wai Wing Scholarship*** (Awarded to outstanding first year students)

Teaching Experiences

Teaching Faculty

Winter 2024	**STATS 234, Sequential Decision Making**	Harvard University

Graduate Student Instructor

Winter 2020	**STATS 503, Statistical Learning II**	University of Michigan
Fall 2019	**STATS 415, Introduction to Data Mining**	University of Michigan
Winter 2019	**STATS 250, Introduction to Statistics and Data Analysis**	University of Michigan
Fall 2018	**STATS 425, Introduction to Probability**	University of Michigan

Mentoring Experience

2024-Now — **Lutong Zou**
Topic: Reward Design through Causal DAG

2023-2024 — **Iris Yan**
Topic: Approximate Sampling Probability for Online Decision Making

2022 — **Zhiyu Yuan** (Next Step: CMU, MS in Computer Engineer)
Topic: Curriculum Learning for Reinforcement Learning

2022 — **Ruanxuan Jiang** (Next Step: Software Engineer Citadel)
Topic: Theory of Multitask Reinforcement Learning

2020–2021 — **Anh Tuan (Alan) Tran** (Next Step: University of Toronto, MS in Computer Science)
Topic: Sample Efficient Reinforcement Learning

Professional Activities

Organizing Committee

2021	Representative Michigan Student Symposium for Interdisciplinary Statistical Sciences

Journal Paper Reviewer

2023	Statistical Science
2023	Proceedings of the National Academy of Sciences of the United States of America (PNAS)
2022	Journal of the American Statistical Association (JASA)

Conference Paper Reviewer

2020	International Conference on Autonomous Agents and Multiagent Systems (AAMAS)
2021, 2022	International Conference on Artificial Intelligence and Statistics (AISTATS)
2021	International Conference on Algorithmic Learning Theory (ALT)
2023	International Conference on Learning Representations (ICLR)
2022-2024	International Conference on Machine Learning (ICML)
2021-2024	Conference on Neural Information Processing Systems (NeurIPS)