

# YULAI ZHAO

[Homepage](#) [Google Scholar](#) [DBLP](#) [ORCID](#) [Semantic Scholar](#) [ResearchGate](#) [GitHub](#) [LinkedIn](#)

yulaiz@princeton.edu

## RESEARCH INTERESTS

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Machine Learning, Reinforcement Learning, Generative AI

## EDUCATION

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**Princeton University, Department of Electrical and Computer Engineering**

2022 - Present

- Ph.D. in Machine Learning
- Advisor: S. Y. Kung

**Tsinghua University, Department of Electronic Engineering**

2018 - 2022

- B.Eng. in Electronic Information Science and Technology
- Advisors: Simon S. Du, Hongwei Chen

## RESEARCH INTERNSHIPS

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**Genentech, BRAID (Biology Research | AI Development)**

May 2024 - Aug 2024

- Affiliated to gRED (Research & Early Development) Computational Science.
- Worked on diffusion models specifically tailored for DNA/RNA sequences.
- Mentors: Ehsan Hajiramezanali, Masatoshi Uehara

## PUBLICATIONS

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\* denotes equal contribution or alphabetical ordering.

### Conference Proceedings

1. **Feedback Efficient Online Fine-Tuning of Diffusion Models**

Masatoshi Uehara\*, Yulai Zhao\*, Kevin Black, Ehsan Hajiramezanali, Gabriele Scalia, Nathaniel Lee Diamant, Alex M Tseng, Sergey Levine, Tommaso Biancalani  
*International Conference on Machine Learning (ICML) 2024*

2. **Provably Efficient CVaR RL in Low-rank MDPs**

Yulai Zhao\*, Wenhao Zhan\*, Xiaoyan Hu\*, Ho-fung Leung, Farzan Farnia, Wen Sun, Jason D. Lee  
*International Conference on Learning Representations (ICLR) 2024*

3. **Local Optimization Achieves Global Optimality in Multi-Agent Reinforcement Learning**

Yulai Zhao, Zhuoran Yang, Zhaoran Wang, Jason D. Lee  
*International Conference on Machine Learning (ICML) 2023*

4. **Blessing of Class Diversity in Pre-training**

Yulai Zhao, Jianshu Chen, Simon S. Du  
*International Conference on Artificial Intelligence and Statistics (AISTATS) 2023*  
(Oral presentation & notable paper, 2% acceptance rate)

5. **Provably Efficient Policy Gradient Methods for Two-Player Zero-Sum Markov Games**

Yulai Zhao, Yuandong Tian, Jason D. Lee, Simon S. Du  
*International Conference on Artificial Intelligence and Statistics (AISTATS) 2022*

### Working Papers

1. **Adding Conditional Control to Diffusion Models with Reinforcement Learning**

Yulai Zhao\*, Masatoshi Uehara\*, Gabriele Scalia, Tommaso Biancalani, Sergey Levine, Ehsan Hajiramezanali  
*arXiv preprint*

2. **Bridging Model-Based Optimization and Generative Modeling via Conservative Fine-Tuning of Diffusion Models**  
Masatoshi Uehara\*, **Yulai Zhao\***, Ehsan Hajiramezanali, Gabriele Scalia, Gökçen Eraslan, Avantika Lal, Sergey Levine, Tommaso Biancalani  
*arXiv preprint*
3. **Fine-Tuning of Continuous-Time Diffusion Models as Entropy-Regularized Control**  
Masatoshi Uehara\*, **Yulai Zhao\***, Kevin Black, Ehsan Hajiramezanali, Gabriele Scalia, Nathaniel Lee Diamant, Alex M Tseng, Tommaso Biancalani, Sergey Levine  
*arXiv preprint*
4. **Optimizing the Performative Risk under Weak Convexity Assumptions**  
**Yulai Zhao**  
*NeurIPS 2022 Workshop on Optimization for Machine Learning*

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#### AWARDS/HONORS

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|---|------------------|
| <b>International Conference on Artificial Intelligence and Statistics (AISTATS) Notable Paper</b> | <i>2023</i>      |
| <b>Scholarship of Academic Excellence</b>   | <i>2019,2020</i> |
| Awarded to Tsinghua students ranking top 5 %.   |                  |
| <b>Toyota Scholarship</b>   | <i>2019</i>      |
| Awarded to the department's top 3 out of 260+ students.   |                  |
| <b>Top 10 in the <i>Infinity of Math</i> Competition</b>  | <i>2018</i>      |
| Awarded to students outperforming 150+ participants in the school-wide calculus contest.          |                  |

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#### PROGRAMMING AND COMPUTING SKILLS

- Proficient: Python (NumPy, PyTorch, pandas)
- Intermediate: MATLAB, C/C++, Kdb+