

HUI YUAN



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EDUCATION

Princeton University Ph.D. in Electrical and Computer Engineering	2020 - 2025 (Expected)
<ul style="list-style-type: none">• Adviser: Prof. Mengdi Wang• GPA to date: 3.96/4.00	
University of Science and Technology of China B.S. in Statistics	2016 - 2020

AWARDS AND HONORS

- **Anthony Ephremides Fellowship in Electrical Engineering** 2021
Princeton University
- **Best Undergraduate Thesis in Statistics** 2020
University of Science and Technology of China

RESEARCH INTERESTS

General Interest Foundations of machine learning methods (recent focus: generative models) and their applications to real-world decision making.

PROFESSIONAL EXPERIENCE

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| Research Intern Meta | May-Aug 2024 |
| <ul style="list-style-type: none">• Diffusion model for combinatorial optimization | |

PREPRINTS¹

- [1] **A Common Pitfall of Margin-based Language Model Alignment: Gradient Entanglement**
H Yuan*, Y Zeng*, Y Wu*, H Wang, M Wang, L Liu*. (* *leading contributors*)
arXiv: 2410.13828
- [2] **Training Guided Diffusion Solver for Combinatorial Optimization with Imperfect Data**
In submission to ICLR 2025.

PUBLICATIONS

Generative Models

- [3] **Gradient Guidance for Diffusion Models: An Optimization Perspective**
Y Guo*, H Yuan*, Y Yang, M Chen, M Wang. (* *equal contribution*)
NeurIPS 2024

¹ Titles for anonymous submissions are altered to reflect the topics only.

- [4] **MaxMin-RLHF: Towards Equitable Alignment of Large Language Models with Diverse Human Preferences**
S Chakraborty, J Qiu, **H Yuan**, A Koppel, D Manocha, F Huang, A Bedi, M Wang.
ICML 2024
- [5] **Reward-Directed Conditional Diffusion: Provable Distribution Estimation and Reward Improvement**
H Yuan, K Huang, C Ni, M Chen, M Wang.
NeurIPS 2023

Decision Making

- [6] **Conversational Dueling Bandits in Generalized Linear Models**
S Yang, **H Yuan**, X Zhang, M Wang, H Zhang, H Wang.
KDD 2024
- [7] **Tree Search-Based Evolutionary Bandits for Protein Sequence Optimization**
J Qiu*, **H Yuan***, J Zhang*, W Chen, H Wang, M Wang (* *equal contribution*).
AAAI 2024
- [8] **Unified Off-Policy Learning to Rank: A Reinforcement Learning Perspective**
Z Zhang, Y Su, **H Yuan**, Y Wu, R Balasubramanian, Q Wu, H Wang, M Wang.
NeurIPS 2023
- [9] **Bandit Theory and Thompson Sampling-Guided Directed Evolution for Sequence Optimization**
H Yuan, H Wang, C Ni, X Zhang, L Cong, C Szepesvári, M Wang.
NeurIPS 2022

Statistical Machine Learning

- [10] **Learning Entangled Single-Sample Gaussians in the Subset-of-Signals Model**
Y Liang, **H Yuan**.
COLT 2020
- [11] **Learning Entangled Single-Sample Distributions via Iterative Trimming**
H Yuan, Y Liang.
AISTATS 2020
- [12] **Uniform Joint Screening for Ultra-High Dimensional Graphical Models**
Z Zheng, H Shi, Y Li, **H Yuan**.
Journal of Multivariate Analysis

TEACHING AND MENTORING

- **Teaching Assistant** | ECE 535 Machine Learning and Pattern Recognition, Fall 2022, Princeton
- **Research Mentor for Junior Graduate Students** | Summer 2023, Summer 2022, Princeton

PROFESSIONAL SERVICES

- **Reviewer** | NeurIPS 2023, ICML 2023, ICLR 2023, Operation Research
- **Conference Session Organizer** | CISS 2022
- **Committee Member** | SWE (Society of Women Engineers) @ Princeton