

Matthew Zurek

University of Wisconsin–Madison, Department of Computer Sciences
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Research Interests

Reinforcement learning, learning theory, optimization, high-dimensional statistics

Education

University of Wisconsin–Madison 2021 - Present

PhD Candidate in Computer Sciences, Minor in Mathematics

Advisor: Yudong Chen

GPA: 4.00/4.00

University of California, Berkeley 2017 - 2021

B.A. in Computer Science, B.A. in Applied Mathematics

GPA: 3.99/4.00

Awards and Honors

- University of Wisconsin–Madison Cisco Graduate Fellowship (2025)
- INFORMS Applied Probability Society Best Student Paper Prize Winner (2024)
- Neural Information Processing Systems Conference (NeurIPS) Oral Presentation (2024)
- Institute for Foundations of Data Science Research Assistantship (2023, 2024)
- University of Wisconsin–Madison Computer Sciences Departmental Scholarship (2021)

Publications

1. Matthew Zurek & Yudong Chen.
Span-Agnostic Optimal Sample Complexity and Oracle Inequalities for Average-Reward RL.
Conference on Learning Theory (COLT), 2025.
2. Matthew Zurek & Yudong Chen.
The Plug-in Approach for Average-Reward and Discounted MDPs: Optimal Sample Complexity Analysis.
International Conference on Algorithmic Learning Theory (ALT), 2025.
3. Matthew Zurek & Yudong Chen.
Span-Based Optimal Sample Complexity for Weakly Communicating and General Average Reward MDPs.
Neural Information Processing Systems Conference (NeurIPS), **Oral (0.46%)**, 2024.
INFORMS Applied Probability Society Best Student Paper Prize Winner
4. Brahma S. Pavse, Matthew Zurek, Yudong Chen, Qiaomin Xie, & Josiah P. Hanna.
Learning to Stabilize Online Reinforcement Learning in Unbounded State Spaces.
International Conference on Machine Learning (ICML), 2024.

5. Matthew Zurek & Yudong Chen.
Gap-Free Clustering: Sensitivity and Robustness of SDP.
Conference on Learning Theory (COLT), 2024.
6. Gaurav R. Ghosal, Matthew Zurek, Daniel S. Brown, Anca Dragan.
The Effect of Modeling Human Rationality Level on Learning Rewards from Multiple Feedback Types.
AAAI Conference on Artificial Intelligence, 2023.
7. Matthew Zurek, Andreea Bobu, Daniel S. Brown, Anca Dragan.
Situational Confidence Assistance for Lifelong Shared Autonomy.
IEEE International Conference on Robotics and Automation (ICRA), 2021.

Preprints

- M1. Matthew Zurek, Guy Zamir, & Yudong Chen.
Optimal Single-Policy Sample Complexity and Transient Coverage for Average-Reward Offline RL.
- M2. Matthew Zurek & Yudong Chen.
Faster Fixed-Point Methods for Multichain MDPs.

Invited Talks

- **IFDS Seminar**, Optimal Sample Complexity for Average-Reward Reinforcement Learning, UW–Madison, October 2024
- **Reinforcement Learning Theory Seminar**, Span-Based Optimal Sample Complexity for Average Reward MDPs, Virtual Seminar Series Supported by Universitat Pompeu Fabra, Imperial College London, University of Alberta, and Google DeepMind, April 2024
- **IFDS Seminar**, Robustness and Adaptivity in Learning Mixtures of Strong and Weak Signals, UW–Madison, November 2023

Teaching Experience

- Guest Lecturer, Nonlinear Optimization I (CS 726), UW–Madison, Spring 2025
- TA, Nonlinear Optimization I (CS 726), UW–Madison, Spring 2024
- Head TA, Introduction to Algorithms (CS 577), UW–Madison, Spring 2022
- TA, Introduction to Algorithms (CS 577), UW–Madison, Fall 2021

Reviewing

- International Conference on Learning Representations (ICLR), 2025
- International Conference on Artificial Intelligence and Statistics (AISTATS), 2025
- Conference on Learning Theory (COLT), 2024
- Neural Information Processing Systems (NeurIPS), 2024, 2025