

# 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

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- **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

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- 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

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- 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