Zixian Yang

zixian@txstate.edu | https://sites.google.com/view/zixian

EDUCATION

Ph.D., Electrical and Computer Engineering Aug 2019-Jan 2025

University of Michigan, Ann Arbor

Dissertation: "Online Learning and Decision Making for Resource Allocation"
Committee: Lei Ying (chair), Xiuli Chao, Rayadurgam Srikant, Vijay Subramanian

M.E., Information and Communication Aug 2016-Jun 2019

Sun Yat-sen University (China)

B.E., Communication Engineering Sep 2012-Jun 2016

Sun Yat-sen University (China)

ACADEMIC APPOINTMENTS

Texas State University, San Marcos Aug 2026-Present

Assistant Professor**,** Department of Computer Science

University of Michigan, Ann Arbor Jan 2025-Jan 2026

Postdoctoral Research Fellow**,** EECS (with Professor Lei Ying)

PROFESSIONAL EXPERIENCE

Philo Homes AI Jan 2026-Aug 2026

Machine Learning Engineer for AI-driven interior design

PEER-REVIEWED PUBLICATIONS/WORKS UNDER REVIEW

- 2025 **Zixian Yang**, R. Srikant, and Lei Ying, "Learning While Scheduling in Multi-Server Systems with Unknown Statistics: MaxWeight with Discounted UCB," *Minor revision, Operations Research*, 2026.

  Link: https://arxiv.org/abs/2209.01126v3

- 2025 **Zixian Yang** and Lei Ying, "Learning-Based Pricing and Matching for Two-Sided Queues," *Stochastic Systems*, 2025.

  Link: https://pubsonline.informs.org/doi/full/10.1287/stsy.2024.0073

- 2025 **Zixian Yang**, Sushil Mahavir Varma, and Lei Ying, "Near-Optimal Regret-Queue Length Tradeoff in Online Learning for Two-Sided Markets," in *Conference on Neural Information Processing Systems (NeurIPS 2025)* (acceptance rate 25%).

  Link: https://arxiv.org/abs/2510.14097

- 2024 **Zixian Yang**, Xin Liu, and Lei Ying. "Exploration. Exploitation, and Engagement in Multi-

Armed Bandits with Abandonment." *Journal of Machine Learning Research*.

Link: https://www.jmlr.org/papers/v25/22-1251.html

➢ 2023 **Zixian Yang**, R. Srikant, and Lei Ying, "Learning While Scheduling in Multi-Server Systems with Unknown Statistics: MaxWeight with Discounted UCB," in *Proc. 26th International Conference on Artificial Intelligence and Statistics (AISTATS 2023)* (acceptance rate 29%).

Link: https://proceedings.mlr.press/v206/yang23d.html

➢ 2023 Honghao Wei, **Zixian Yang**, Xin Liu, Zhiwei Qin, Xiaocheng Tang, and Lei Ying. "A Reinforcement Learning and Prediction-Based Lookahead Policy for Vehicle Repositioning in Online Ride-Hailing Systems." *IEEE Transactions on Intelligent Transportation Systems*.

Link: https://ieeexplore.ieee.org/document/10251782

➢ 2023 Xin Liu, **Zixian Yang**, and Lei Ying, "Online Nonstochastic Control with Adversarial and Static Constraints," in *Proc. 40th International Conference on Machine Learning (ICML 2023)* (acceptance rate 28%).

Link: https://proceedings.mlr.press/v202/liu23at

➢ 2018 **Zixian Yang**, Ming Jiang, Lin Zhang, and Hong-Zhou Tan, "Enhanced Multiple Pulse Position Modulation Aided Reverse Polarity Optical OFDM System With Extended Dimming Control," *IEEE Photonics Journal*.

Link: https://ieeexplore.ieee.org/document/8361415

➢ 2018 **Zixian Yang**, Ming Jiang, and Lin Zhang, "MPPM Aided Dimmable Reverse Polarity OFDM for Visible Light Communication," in *Proc. 2018 IEEE International Conference on Communications (IEEE ICC 2018)* (acceptance rate 40%).

Link: https://ieeexplore.ieee.org/document/8422208

BOOK/OPEN EDUCATION RESOURCE

Zixian Yang and Lei Ying, *Introduction to Reinforcement Learning* (an open-access introductory book, 120 pp., 10 examples with GitHub code), 2024.

The book is available at https://sites.google.com/view/intro-to-rl

Examples and code are available at https://github.com/Multi-wavelength/Introduction-to-Reinforcement-Learning-with-Examples-and-Codes

SELECTED RESEARCH PROJECTS

➢ **Learning-Based Pricing, Matching, and Repositioning for Two-Sided Markets**

(1) Developed online learning algorithms for dynamic pricing that balances platform profit with matching delays across customer and server classes by implicitly learning customer/server price response curves; proved near-optimal regret-queue-length tradeoff.

(2) Developed a reinforcement learning + fluid lookahead policy for repositioning idle drivers in ride-

hailing that learns nonstationary demand patterns and accounts for partial driver compliance, raising order-completion rate by up to 9.3% in simulations built from real trip data.

- **Learning While Scheduling in Multi-Server Systems with Unknown Statistics**

Designed MaxWeight-Discounted-UCB, the first algorithm that simultaneously learns time-varying service rates, guarantees stability, and attains order-optimal queue length without prior statistics; applicable to healthcare resource scheduling, crowdsourcing task assignment, and job scheduling in cloud datacenters.

- **Online-Education Platforms as Bandits with User Abandonment**

Developed KL-ULCB algorithm that adapts exploration and exploitation to user satisfaction for recommendation systems and achieves asymptotically optimal regret. The key idea is to explore more when the user is more satisfied and to recommend more conservatively when they are not. The methods are applicable to online education, e-commerce, and short-video platforms.

- **Online Nonstochastic Control with Adversarial and Static Constraints**

Studied online nonstochastic control under adversarial and static constraints. Achieved sublinear regret, sublinear adversarial constraint violation, and diminishing static constraint violation. Conducted experiments demonstrating lower costs than existing algorithms.

- **Learning and Modulation for Indoor and Underwater Visible Light Communication Systems**

(1) Proposed a modulation scheme that efficiently combines Multiple Pulse Position Modulation (MPPM) with Reverse Polarity Optical OFDM to enhance spectral efficiency for dimmable visible light communication systems. By exploiting MPPM patterns to deliver additional bits, the overall data rate can be increased by up to 35% across a wide dimming range, as confirmed by USRP-based experiments.

(2) Designed an underwater visible light communication system which uses multiple light-emitting diodes (LED) of different colors as well as deep neural networks and feedback approaches. The system can learn how to adapt to the varying underwater environments including turbulence.

TEACHING & CURRICULUM DEVELOPMENT

- Graduate Student Instructor, University of Michigan

School of Information - *Reinforcement Learning Algorithms* F21, W22, Su22, W23, Su23

(Students are from diverse backgrounds including industry professionals)

EECS - *Reinforcement Learning Theory* F20, W22, W24

- GSI Honorable Mention, ECE Department (2020).
- Curriculum Development

Co-designed *Reinforcement Learning Algorithms*, writing all homework and programming assignments.

Co-authored most assignments for *Reinforcement Learning Theory.*

- Mentoring Experience

Co-mentored undergraduate student, with Prof. Lei Ying, University of Michigan, 2024-present, on a project implementing wireless scheduling for federated learning in a real-world testbed.

Co-mentored PhD student, with Prof. Lei Ying, University of Michigan, 2024-present, guided research on reinforcement learning for queueing systems and cascading bandits for recommendation.

PROFESSIONAL SERVICES

- Reviewer (journals): *IEEE/ACM Transactions on Networking 2023-2026*; *IEEE Open Journal of the Communications Society 2024-2025*; *Stochastic Models 2025*; *Management Science 2025, 2026; Manufacturing and Service Operations Management 2026; IEEE Transactions on Pattern Analysis and Machine Intelligence 2025.*
- Reviewer (conferences): *AISTATS 2022-2024, 2026*; *UAI 2024-2026*; *L4DC 2025*; *NeurIPS 2025, 2026.*
- Student Volunteer, INFORMS Applied Probability Society Summer School/Conference, 2025.

HONORS AND AWARDS

- Travel Grant Award for the 2025 INFORMS Applied Probability Society Conference
- Graduate Student Instructor Honorable Mention, ECE, University of Michigan, 2020
- National Scholarship (China), 2013, 2014, 2018 (top 0.2% nationwide)
- Honors Graduate in Sun Yat-sen University, 2016