

Zishuo Zhao 赵梓硕

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PhD, ISE, University of Illinois Urbana-Champaign

Background

- **2025/07 - now** Research Intern, Gradient Network [Website]
Research Topic: Incentive & protocol design of decentralized AI systems.
- **2021/01 - 2026/01** PhD Candidate (ABD), Department of Industrial & Enterprise Systems Engineering,
University of Illinois Urbana-Champaign
Research Area: Operations Research
Advisor: Yuan Zhou
Thesis Title: *Incentive Design for Digital Economy and AI Platforms*
- **2023/09 - 2024/08** Visiting Student, Institute for Data Systems and Society (IDSS),
Massachusetts Institute of Technology
Research Topic: Data-Driven Dynamic Mechanism Design
Advisor: David Simchi-Levi
- **2020/08 - 2021/01** Research Assistant, Haihua Institute for Frontier Information Technology
Research Topic: Network Optimization
Advisor: Longbo Huang
- **2016/05 - 2020/07** Undergraduate Student, Institute for Interdisciplinary Information Sciences (Yao Class), Tsinghua University
Research Topic: Geometry-Based Visual SLAM
Advisor: Shi-Min Hu
- **2015/08 - 2016/05** Undergraduate Student, Department of Computer Science and Technology, Tsinghua University

Research Interest

I am a PhD in UIUC, majoring in operations research. My general research interest lies in the incentive design for digital economy and AI platforms, with applications in both centralized and decentralized platforms.

I have a special interest in the mechanism design for blockchain and decentralized economics, with a (starry-eyed) dream [i*] on the exploration of the design and theoretical boundaries of **decentralized trustworthy AI** platforms, including (particularly) the current concern and initiative of **AI safety** for the upcoming AGI era.

Particularly, I am recently interested in the exploration into a novel paradigm of *incentive security* on blockchain and AI platforms, which aims to combine game-theoretic and systematic/cryptographic methodologies to prevent dishonest behavior of *untrusted but rational* parties.

Selected Papers

Bayesian Mechanism Design for Blockchain Transaction Fee Allocation [Link]

Xi Chen*, David Simchi-Levi*, Zishuo Zhao*, Yuan Zhou*. (alphabetical order)

Operations Research, 73(4), 1944-1964, 2025.

Best Paper Award, *NeurIPS Workshop on Decentralization and Trustworthy Machine Learning in Web3 (NeurIPS DMLW'22)*.

Crypto Economics Security Conference (CESC 2022).

Invited to OR Talk by 运筹OR帷幄 (OR China) in 2024.

Invited to *INFORMS Annual Meeting 2022*.

It Takes Two: A Peer-Prediction Solution for Blockchain Verifier's Dilemma [i*] [Link]

Zishuo Zhao, Xi Chen, Yuan Zhou.

Under review in Operations Research (2025).

Invited to OR Talk by 运筹OR帷幄 (OR China) in 2024.

Proof-of-Learning with Incentive Security [i*] [Link]

Zishuo Zhao, Zhixuan Fang, Xuechao Wang, Xi Chen, Hongxu Su, Haibo Xiao, Yuan Zhou.

In preparation for an extended version (2025).

Invited to *INFORMS Conference on Security (ICoNS'24)*.

ACM EC Workshop on Foundation Models and Game Theory (ACM EC FMGT'24).

A preliminary version presented on *INFORMS Annual Meeting 2023*.

Other Papers

Multi-agent Adaptive Mechanism Design [Link]

Qiushi Han*, David Simchi-Levi*, Renfei Tan*, Zishuo Zhao*. (alphabetical order)

VeriLLM: A Lightweight Framework for Publicly Verifiable Decentralized Inference [Link]

Ke Wang, Zishuo Zhao, Xinyuan Song, Bill Shi, Libin Xia, Chris Tong, Lynn Ai, Felix Qu, Eric Yang

Personalized Pricing with Group Fairness Constraint [Link]

Xin Chen*, Zexing Xu*, Zishuo Zhao*, Yuan Zhou*. (alphabetical order)

ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT 2023)

Dynamic Car Dispatching and Pricing: Revenue and Fairness for Ridesharing Platforms

[Link]

Zishuo Zhao, Xi Chen, Xuefeng Zhang, Yuan Zhou

International Joint Conference on Artificial Intelligence (IJCAI 2022), Long Oral (3.75%).

Invited to *INFORMS Annual Meeting 2021*.

ClusterSLAM: A SLAM Backend for Simultaneous Rigid Body Clustering and Motion Estimation [Link]

Jiahui Huang, Sheng Yang, Zishuo Zhao, Yukun Lai, Shi-Min Hu.

Computational Visual Media (CVM), Volume 7, pages 87–101 (2021).

International Conference on Computer Vision (ICCV 2019).

Working Projects

T'AIMER: Trustworthy AI Multi-round pEer veRification mechanism [i*]

(Collaborators TBA)

Awards

Academic

- **Best Paper Award**, NeurIPS Workshop on Decentralization and Trustworthy Machine Learning in Web3, 2022
- Crypto Economics Security Conference (CESC) Travel Award, 2022
- UIUC Graduate College Conference Presentation Award, 2021
- Xuetang Scholarship in Tsinghua University, 2016-2020

- 12th place in 2nd THUCTF Cybersecurity Contest in Tsinghua University, 2020
- 12th place in 24th Artificial Intelligence Programming Contest in Tsinghua University, 2020
- 15th place in 20th Artificial Intelligence Programming Contest in Tsinghua University, 2016.
- Second Prize in Chinese Mathematical Olympiad (CMO), 2014
- First Prize in National Olympiad in Informatics in Provinces (NOIP), 2013

Arts

- Finalist Award in the “一盏茶时 (*IIIS Tea Time*)” photography exhibition for the 12th Anniversary of IIIS, Tsinghua University, 2023.
- Scholarship for Arts Excellence in Tsinghua University, 2018.
- Third Prize in the Art Festival of No.1 Middle School affiliated to CCNU, for piano performance *Hatsukoi*, 2013.

Academic Activities

Academic Services

- Invited to MIT DSL Seminar for the talk “Decentralized AI: Economics of Trust” in Oct 2025.
- Invited to OR Talk by 运筹OR帷幄 (OR China) for two talks in 2024.
- Facilitator in section Revenue & Pricing, INFORMS Annual Meeting, 2021.
- Invited to the Alumni Forum for the 10th Anniversary of IIIS, Tsinghua University in 2021.

Conference & Journal Reviewing

- Journal Reviewing: Operations Research (2025)
- Conference Reviewing: ESA (2024)

Mentoring

- Renfei Tan (PhD student at MIT)
- Qiushi Han (Undergraduate at UIUC. Next step: MIT ORC PhD)
- Haibo Xiao (Undergraduate at Tsinghua University. Next step: Tsinghua PhD)
- Hongxu Su (PhD student at HKUST(GZ))

Teaching

- Guest lecture on decentralized AI, IE598 Foundations of Modern Machine Learning, UIUC, Fall 2025.
- Guest lecture on blockchain transaction fee mechanism, IE524 Optimization in Finance, UIUC, Fall 2025.
- Teaching Assistant, Causal & Statistical Inference, Tsinghua University, Fall 2018.
- Discussion Session, Calculus, Tsinghua University, Fall 2015.

Miscellaneous

Languages

- Mandarin Chinese (native)
- English (fluent)
- Classical Chinese (writing as a hobby)

Coding Skills

- Mainly using C++, MATLAB and Mathematica, also with command of Python, Java, PHP.
- With some knowledge in ROS, Verilog HDL and assembly language.
- Open to learn new programming languages when in need.

Extracurricular Activities

- I have an amateur interest in Capture-The-Flag (CTF) cybersecurity competitions, and developed two Reverse challenges in the TQLCTF 2022.
- I have a wide scope of hobbies in arts and aerobic sports, especially in vocal music, photography, piano, calligraphy, table tennis and orienteering.

(Updated on Jan 9, 2026)