Zihao Li

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Education

Ph.D.: School of Physical and Mathematical Sciences (SPMS), Nanyang Technological University, from 2020.8 to 2025.1.

Undergraduate: Computer Science, Institute for Interdisciplinary Information Sciences (IIIS), Tsinghua University, from 2016.8 to 2020.6.

Award

Singapore Mathematical Society Medal in Mathematical Sciences, 2025

AcRF Research Scholarship, 2020, 2021, 2022, 2023

Outstanding Student Paper Award at AAAI 2020

Academic Excellence Award, 2017

Freshmen Scholarship, 2016

Xuetang Scholarship, 2016, 2017, 2018, 2019

the gold medal, National Olympiad in Informatics, 2015

the silver medal, National Olympiad in Informatics, 2014

Research Interest

Online Resource Allocation, including Online Matching and Online Packing

Revenue Management

Efficiency and Fairness in Resource Allocation

Algorithmic Game Theory and Mechanism Design

Algorithm Design and Approximation Analysis

Publications

1. Fully Online Matching with Stochastic Arrivals and Departures.
   Zihao Li (National University of Singapore), Hao Wang (University of Science and Technology of China), Zhenzhen Yan (Nanyang Technological University). (alphabetical order)
   Accepted by Operations Research, 2025 (forthcoming).
   Note: Preliminary version is accepted as a full paper by Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI-23).

2. Approximability Landscape of Welfare Maximization within Fair Allocations.
   Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
   Accepted by The Twenty-Sixth ACM Conference on Economics and Computation (EC'25).

3. Appointment Scheduling with Sequential Servers using Distributionally Robust Optimization.
   You Hui Goh (Nanyang Technological University), **Zihao Li*** (Nanyang Technological University), Zhenzhen Yan (Nanyang Technological University). (alphabetical order)
   Accepted by Manufacturing & Service Operations Management, 2025.
   $*$ Corresponding author

4. Fair Division of Indivisible Goods with Comparison-Based Queries.
   Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
   Accepted by the 20th Conference on Web and Internet Economics (WINE 2024).

5. Best-of-Both-Worlds Fair Allocation of Indivisible and Mixed Goods.
   Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Xinhang Lu (UNSW Sydney), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
   Accepted by the 20th Conference on Web and Internet Economics (WINE 2024).

6. Allocating Mixed Goods with Customized Fairness and Indivisibility Ratio.
   Bo Li (Department of Computing The Hong Kong Polytechnic University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Zekai Wu (Harbin Institute of Technology, Shenzhen). (alphabetical order)
   Accepted as a full paper by the 33rd International Joint Conference on Artificial Intelligence (IJCAI-24).

7. A Complete Landscape for the Price of Envy-Freeness.
   Zihao Li (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Xinhang Lu (UNSW Sydney), Biaoshuai Tao (Shanghai Jiao Tong University), Yichen Tao (University of Michigan). (alphabetical order)
   Accepted as a full paper by Proceedings of the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2024.

8. Fair Division with Allocator's Preference.
   Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
   Accepted as a full paper by Web and Internet Economics. WINE 2023.

9. Truthful Fair Mechanisms for Allocating Mixed Divisible and Indivisible Goods.
   Zihao Li (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Xinhang Lu (UNSW Sydney), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
   Accepted as a full paper by Proceedings of the Thirty-Second International Joint Conference on Artificial Intelligence (IJCAI-23).

10. Fully Online Matching with Stochastic Arrivals and Departures.
    Zihao Li (Nanyang Technological University), Hao Wang (Nanyang Technological University), Zhenzhen Yan (Nanyang Technological University). (alphabetical order)
    Accepted as a full paper by Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI-23).

11. Fair Division with Prioritized Agents.
Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
Accepted as a full paper by Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI-23).

12. Fair and Efficient Multi-Resource Allocation for Cloud Computing.
Xiaohui Bei (Nanyang Technological University), **Zihao Li** (Nanyang Technological University), Junjie Luo (Beijing Jiaotong University). (alphabetical order)
Accepted by The 18th Conference on Web and Internet Economics (WINE 2022). Cham: Springer International Publishing, 2022: 169-186.

13. Proportional Allocation of Indivisible Resources under Ordinal and Uncertain Preferences.
Zihao Li (Nanyang Technological University), Xiaohui Bei (Nanyang Technological University), Zhenzhen Yan (Nanyang Technological University).
Accepted by 38th Conference on Uncertainty in Artificial Intelligence (UAI 2022). PMLR, 2022: 1148-1157.

14. Fair Division of Mixed Divisible and Indivisible Goods.
Xiaohui Bei (Nanyang Technological University), **Zihao Li** (Nanyang Technological University), Jinyan Liu (Beijing Institute of Technology), Shengxin Liu (Nanyang Technological University), Xinhang Lu (Nanyang Technological University). (alphabetical order)
Accepted by Artificial Intelligence, Vol. 293, April 2021, 103436.
Note: Preliminary version is awarded Outstanding Student Paper Award at AAAI 2020.

Working Papers

1. Fair and Efficient Multi-Resource Allocation for Cloud Computing.
Xiaohui Bei (Nanyang Technological University), **Zihao Li** (Nanyang Technological University), Junjie Luo (Beijing Jiaotong University). (alphabetical order)
Under **Minor Revision** at Mathematics of Operations Research.

2. Fair Division with Prioritized Agents.
Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
Under **Major Revision** at Information and Computation.

3. Logarithmic Comparison-Based Query Complexity for Fair Division of Indivisible Goods.
Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
Submitted to Artificial Intelligence.

4. Sample-Based Online Generalized Assignment Problem with Unknown Poisson Arrivals.
Zihao Li (Nanyang Technological University), Hao Wang (Nanyang Technological University), Zhenzhen Yan (Nanyang Technological University). (alphabetical order)
arXiv preprint arXiv:2302.08234, 2023. To be submitted to Operations Research.

5. Online Stochastic Generalized Assignment Problem with Demand Learning.
Yanwen Li (Nanyang Technological University), **Zihao Li** (Nanyang Technological University), Limeng Liu (Nanyang Technological University), Hao Wang (Nanyang Technological University),

Zhenzhen Yan (Nanyang Technological University). (alphabetical order)
To be submmitted to Operations Research.

6. Approximability Landscape of Welfare Maximization within Fair Allocations.
Xiaolin Bu (Shanghai Jiao Tong University), **Zihao Li** (Nanyang Technological University), Shengxin Liu (Harbin Institute of Technology, Shenzhen), Jiaxin Song (Shanghai Jiao Tong University), Biaoshuai Tao (Shanghai Jiao Tong University). (alphabetical order)
To be submmited to SIAM Journal on Computing.

Research Experiences

Research Fellow. Institute of Operations Research and Analytics (IORA), National University of Singapore, ongoing, starting from 2025.2. Advised by Teo Chung Piaw.

Visiting Student, Institute for Data, Systems, and Society (IDSS), Massachusetts Institute of Technology, from 2024.11 to 2025.2. Advised by David Simchi-Levi.

Visiting student, School of Physical and Mathematical Sciences (SPMS), Nanyang Technological University, from 2019.3 to 2019.8. Advised by Xiaohui Bei.

Academic Services

AAAI 2026 Program Committee member

Informs International 2025 Section Chair

UAI 2025 Program Committee member

AAAI 2025 Program Committee member

UAI 2024 Program Committee member

AAAI 2024 Program Committee member

UAI 2023 Program Committee member

Teaching Experiences

MH1811 Mathematics 2, Teaching Assistant and Tutor, NTU SPMS, Spring 2023

MH1811 Mathematics 2, Teaching Assistant and Tutor, NTU SPMS, Fall 2022

MH1810 Mathematics 1, Teaching Assistant and Tutor, NTU SPMS, Fall 2022

MH1811 Mathematics 2, Teaching Assistant and Tutor, NTU SPMS, Spring 2022

MH1805 Calculus, Teaching Assistant and Tutor, NTU SPMS, Fall 2021

MH1810 Mathematics 1, Teaching Assistant and Tutor, NTU SPMS, Fall 2021