Jingyi Zhao

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EDUCATION

08/2019–05/2023 **Doctor of Philosophy (PhD), Industrial and Systems Engineering**, *National University of Singapore*.

2015–2019 : **Bachelor of Computing in Computer Science**, *Northwestern Polytechnical University of China*.

WORK

06/2024 – present: **Research Scientist**, *Department of Solver Development, Shenzhen Research Institute of Big Data (task: develop optimization solver)*.

06/2023 – 06/2024: **Postdoctoral Fellow**, *Department of Mathematics and Industrial Engineering, Polytechnique Montréal (task: publish one paper)*.

INTERESTED AREA

1. Integrated learning to optimize for solving dynamic and/or stochastic problems.
2. Design effective methods based on data structures and algorithms for NP-hard problems.
3. GPU-based accelerated algorithm solving large-scale scenario stochastic problems.
4. Combining OR technology with other fields, for example, with energy or with genetic screening for biological cancers.

PUBLICATIONS

JOURNAL PAPERS

2025 ***Jingyi Zhao****, **Claudia Archetti,Tuan Anh Pham, Thibaut Vidal**, Large Neighborhood and Hybrid Genetic Search for Inventory Routing Problems, Minor Revision at *European Journal of Operational Research*.

2025 ***Jingyi Zhao*, Zirong Zeng, Yang Liu***, Electric Vehicle Routing Problem Considering Traffic Conditions and Real-time Loads, *Transportation Research Part C: Emerging Technologies*.

2024 ***Jingyi Zhao*, Mark Poon, Vincent Y. F. Tan, Zhenzhen Zhang***, A Hybrid Genetic Search and Dynamic Programming-based Split Algorithm for the Multi-trip Time-dependent Vehicle Routing Problem, European Journal of Operational Research.

2022 ***Jingyi Zhao*, Mark Poon , Zhenzhen Zhang* , Ruixue Gu**, Adaptive Large Neighborhood Search for the Time-dependent Profitable Dial-a-ride Problem, Computers & Operations Research.

2025 **Kai Yang, Zhenzhen Zhang*, *Jingyi Zhao*, Zhe Liang**, A Neighborhood-based Mathematical Heuristic for the Vehicle Routing Problem with Delivery Options, Transportation Research Part E: Logistics and Transportation Review.

2023 **Weiquan Wang*** ***Jingyi Zhao***, Partial Linear Recharging Strategy for the Electric Fleet Size and Mix Vehicle Routing Problem with Time Windows and Recharging Stations , European Journal of Operational Research.

CONFERENCE PAPERS

2024 ***Jingyi Zhao*, Linxin Yang, Haohua Zhang, Tian Ding***, GPU-based Split algorithm for Large-Scale CVRPSD, *ScaleOPT: GPU-Accelerated and Scalable Optimization NeurIPS 2025 Workshop*.

2024 **Runze Ni, *Jingyi Zhao****, Enhancing Urban Intelligent Traffic Simulations of Human-driven Car-following Behavior Using Deep Learning Techniques, *The 24th COTA International Conference of Transportation Professionals (CICTP 2024)*.

2024 ***Jingyi Zhao****, **Thibaut Vidal***, A Hybrid Genetic Algorithm for the Inventory Routing Problem, *The Ninth International Workshop on Freight Transportation and Logistics (ODYSSEUS Conference 2024)*.

PAPERS UNDER REVIEW

2025 ***Jingyi Zhao*, Linxin Yang, Haohua Zhang, Qile He, Tian Ding**, From Sequential to Parallel: Reformulating Dynamic Programming as GPU Kernels for Large-Scale Stochastic Combinatorial Optimization, Under Revision at *ICLR 2026*.

2024 **Jianhua Xiao, Detian Kong, Zhiguang Cao, *Jingyi Zhao**** , Deep Reinforcement Learning for the Vehicle Routing Problem with Route Balancing, 1st revision at *Transportation Research Part E: Logistics and Transportation Review*.

2024 **Yaping Zhao, Xuewen Lei, Xinyue Zhang, *Jingyi Zhao**** , Machine Learning-Enhanced Rolling Horizon Optimization Algorithm for Dynamic Scheduling in AGV-Supported Rice Production, at *Omega*.

JOURNAL PAPERS in Progress

2024-2025 ***Jingyi Zhao*, Youxuan Pan, Haoxiang Yang, Yang Liu***, Large Neighborhood Search and Bitmask Dynamic Programming for Dynamic Mobile Charging Electric Vehicle Routing Problems in Medical Transportation.

2024-2025 ***Jingyi Zhao*, Kris Braekers, Youxuan Pan, Haoxiang Yang***, A Mathematical Heuristic Method for Time-Dependent Vehicle Routing Problem Integrating Autonomous Electric Vehicles and Shared Distribution Locations.

2025 ***Jingyi Zhao*, Haoxiang Yang** , Learning to Generate Lagrangian Cut for Two-stage Stochastic Mixed-integer Programs.

2024-2026 ***Jingyi Zhao*, Xianzhi Wu, Daniele Vigo, Zhenzhen Zhang*** , Learning to search in the configuration of s stochastic vehicle routing problem with packing containers under demand uncertainty .

2024-2026 ***Jingyi Zhao*, Hongjun Chen, Bo Tang*** , Combinatorial Optimization and Machine Learning for Multi-stage Stochastic Inventory Routing.

2024-2026 ***Jingyi Zhao*, Xiaodong Luo, Juan Chen, Dong Zhang*** , Parallel Evaluation of Large-scale Pickup and Delivery Problem with Time Window.

2024-2026 ***Jingyi Zhao****, **Theo Guyard, and Thibaut Vidal*** , Large Neighborhood and Hybrid Genetic Search for 2-stage Stochastic Inventory Routing Problem.

2024-2025 **Hanrui Ye, *Jingyi Zhao*, Haoxiang Yang*** , Integrated Learning and Optimization of Bidding Strategies in Renewable Energy Electricity Markets.

2024 **Bo Tang, *Jingyi Zhao*, Elias B. Khalil*, Jan Drgona** , Learning to Optimize for Mixed-Integer Nonlinear Programming.

SCIENTIFIC TALKS

2024 A hybrid genetic algorithm for the inventory routing problem (Odysseus 2024, Spain)

2025 An Enhanced Learning-to-Optimize Framework for the Stochastic Inventory Routing Problem (International Conference on Stochastic Programming 2025, France)

2025 GPU-accelerated Dynamic Programming for the Large-scaled Stochastic Inventory Routing Problem (Poms China 2025,China)

AWARDS

2025 Runner-up of Counterfactual Routing Competition CRC 25 34th International Joint Conference on Artificial Intelligence (IJCAI 2025))

2023 Best Paper Award in the 14th Workshop on Computational Transportation Science (CTS 2023)

2017 Golden medal in ACM-ICPC Asia Regional Contest (2017, Qingdao)

2017 Golden medal in ACM-ICPC Asia Regional Contest (2017, Nanning)

2016 Silver medal in ACM-ICPC Asia Regional Contest (2016, Qingdao)

TEACHING EXPERIENCE

2020-2022: **Modeling for Supply Chain Systems**, ISEM, National University of Singapore.

2025-2026: **Data, Modeling, and Decisions**, Shenzhen Research Institute of Big Data .

SKILLS

Languages C++, Python, Julia

Algorithms Heuristic Algorithms, Dynamic Programing, Graph Theory, Benders Deposition

Server Gurobi, Google OR-tools, Bonmin, COPT

FUNDINGS

Project title	My role	Funding body	Budget (RMB)	Period
Reservoir Optimization Algorithms	PI	Shenzhen Water Affairs Bureau	1,200,000	2025.11–2026.11
MILP Solver Development	Researcher	Shenzhen Big-Data Inst	600,000	2025.06–2026.12
Large-Scale MIP Algorithms	Researcher	National Key R&D Program of China	5,000,000	2023.01–2028.01

SUPERVISION

Co-supervise Xinyue Zhang, Master student at Wuhan Univerisity

Co-supervise Tingting Su, Ph.D student at Department of Research group Logistics, Hasselt University, Belgium

Co-supervise Jiwei Zhang, Ph.D student at The Chinese University of Hong Kong (Shenzhen)

Co-supervise Xingyan Shi, Ph.D student at The Chinese University of Hong Kong (Shenzhen)

REFEREES

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SCALE-AI Chair in Data-Driven Supply Chains & Department of Mathematics and Industrial Engineering (MAGI).
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