Ruiyang Jin

Postdoctoral Fellow
Department of Systems Engineering
City University of Hong Kong
E-mail: ruiyajin@cityu.edu.hk
Homepage: Ruiyang_HomePage

Research Interests

My research interests lie in the **modeling and optimization of complex systems,** especially in designing efficient learning and optimization algorithms. The techniques mainly include **zeroth-order optimization**, **reinforcement learning**, and **simulation-based optimization**. The applications include demand side management, renewable energy integration, and energy storage planning & operation in low-carbon energy systems.

Education

- **09/2019-07/2024**
  Department of Industrial Engineering and Management, Peking University
  Ph.D. in Management Science and Engineering   Advisor: Prof. Jie Song
- **12/2022-12/2023**
  Department of Computing and Mathematical Sciences, California Institute of Technology
  Visiting Scholar   Advisor: Prof. Adam Wierman
- **09/2015-07/2019**
  College of Engineering, Peking University
  B.E. in Aerospace Engineering

Appointments

- **09/2024-present**
  Department of Systems Engineering, City University of Hong Kong
  Postdoctoral Fellow   Advisor: Prof. Siyang Gao
- **07/2024-09/2024**
  CityU Shenzhen Research Institute
  Assistant Researcher

Publications

Preprints & Ongoing Work

1. **Ruiyang Jin**, Yujie Tang, Jie Song. Decentralized and Zeroth-Order Feedback-based Algorithms for Distributed Demand Response. Under review at IEEE Transactions on Automatic Control.

2. Zhengrun Wu, **Ruiyang Jin,** Guannan He. Zeroth-order Optimization Method for Decision-making of Energy Arbitrage with Degradation. Under review at IEEE Transactions on Smart Grid.

3. **Ruiyang Jin**, Yujie Tang, Jie Song, Siyang Gao. Leveraging Coordinate Updates to Improve the Performance of Zeroth-Order Optimization. Under review at Operations Research.

Journal publications

1. **Ruiyang Jin**, Yuke Zhou, Chao Lu, Jie Song. Deep Reinforcement Learning-based Strategy for Charging Station Participating in Demand Response. Applied Energy, 2022, 328: 120140.

2. Pengya Wang, Jianxiao Wang, **Ruiyang Jin**, Gengyin Li, Ming Zhou. Integrating Biogas in Regional Energy Systems to Achieve Near-zero Carbon Emissions. Applied Energy, 2022, 322: 119515.

3. Tiance Zhang, Jianxiao Wang, Hao Wang, **Ruiyang Jin**, Gengyin Li, Ming Zhou. On the Coordination of Transmission-Distribution Grids: A Dynamic Feasible Region Method. IEEE Transactions on Power Systems, 2022.

4. **Ruiyang Jin**, Chao Lu, Jie Song. Manage distributed energy storage charging and discharging strategy: Models and algorithms. IEEE Transactions on Engineering Management, 2020.

5. **Ruiyang Jin**, Jie Song, Jie Liu, et al. Location and capacity optimization of distributed energy storage system in peak-shaving. Energies, 2020, 13(3): 513.

Conference Proceedings

1. **Ruiyang Jin**, Zaiwei Chen, Yiheng Lin, Jie Song, Adam Wierman. Approximate Global Convergence of Independent Natural Actor-Critic in Multi-Agent Systems. The 28th International Conference on Artificial Intelligence and Statistics (AISTATS), 2025.

2. Yuke Zhou, **Ruiyang Jin**, Jie Song. An online learning method for industrial demand response based on load disaggregation. IEEE I&CPS Asia 2022.

3. **Ruiyang Jin,** Yunlei Lu, Yunhong Wang, et al. The Short-Term Power Consumption Forecasting Based on the Portrait of Substation Areas. 2020 IEEE International Conference on Knowledge Graph (ICKG). IEEE, 2020: 649-653.

Talks

1. Randomized Zeroth-Order Feedback-Based Coordinate Descent Algorithm for Simulation-Embedded Problems, INFORMS Annual Meeting, 2024

2. Approximate Global Convergence of Independent Learning in Multi-Agent Systems, SCIS Salon on Frontiers of Information Science and Technology, 2024

3. Decentralized Zeroth-order Algorithms for Distributed Energy Systems, *Group Intelligence Seminar*, 2023

4. Reinforcement Learning and Its Application for Demand Response, *PKU*, 2021

5. Deep Reinforcement Learning-based Strategy for Charging Station Participating in Demand Response. *IEEE PES General Meeting*, 2021

Honors and Awards

- **Outstanding graduates of Beijing (and Peking University):** Beijing Municipal Education Commission, 2024
- **BHP "Carbon and Climate" Weiming Scholar:** Peking University, 2022, among 10 selected graduate students of PKU
- **Best Student Paper Award:** IEEE I&CPS Asia, 2022
- **Young Talent in China High-Tech Innovation Think Tank,** China Association for Science and Technology, 2021
- **The 3rd China Industrial Engineering and Lean Management Innovation Competition:** Top prize, 2020, group leader
- **Peking University President Scholarship:** Peking University, 2020
- **Dean's scholarship of COE:** Peking University, 2020, 2023
- **Wu Kangming Scholarship**: Peking University, 2019
- **Yang Fuqing-Wang Yangyuan Scholarship**: Peking University, 2018
- **Wei Lin Scholarship**: Peking University, 2017

Membership and Service

1. Reviewer for **Applied Energy, IEEE Transactions on Automation Science and Engineering, Operations Research**
2. **Teaching Assistant** at PKU: Simulation and Modelling in 2021 Fall
3. **Teaching Assistant** at PKU: Applied Statistics in 2020 spring
4. **Research mentor** for two undergraduate students in 2021 and 2022
5. **IEEE member, Informs member**
6. **Chairman of Chinese calligraphy and painting association of PKU** in 2019