Wang Qiuhao (Jerrison)
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Education

- **City University of Hong Kong** — Hong Kong, China
  Ph.D in Data Science — *2019 - 2024 (Spring)*
  - Supervisor: Prof. Li Duan and Prof. Ho Chin Pang
  - Research area: Optimization Algorithms; Robust Optimization; Reinforcement Learning
  - Thesis: Policy Optimization for Complex Systems
- **The Chinese University of Hong Kong** — Hong Kong, China
  M.Sc. in Mathematics — *2018 - 2019*
  - Graduated with GPA 3.54/4.00
- **Xi'an Jiaotong University** — Xi'an, China
  B.S. in Statistics — *2014 - 2018*
  - Graduated with GPA 3.23/4.00 (Class rank 2)
  - Thesis: Joint Chance Constraints Programming with Copula

Research Experience

- **School of Data Science** — City University of Hong Kong
  Doctor of Philosophy — *2020 - 2024*
  - Proposed the first generic policy gradient method for robust MDPs with the global convergence guarantee, which successfully applies to both the tabular case and robust MDPs with continuous state and action space.
  - Developed a new robust reinforcement learning framework to compute the robust optimal solution for the bus scheduling problem and showed the convergence and robustness behaviors numerically compared to the benchmark method (genetic algorithm).
  - Introduced a novel multilevel method to solve a special type of ill-conditioned MDPs, which mainly combines basic first-order iterative methods with multigrid methods to overcome the failure of classic value-based methods.
  - Used distributionally robust optimization (DRO) to evaluate the robust performance of different risk measures, i.e., expected total reward, VaR, and CVaR.
- **Department of Statistics** — Xi'an Jiaotong University
  Undergraduate Student — *2017 - 2018*
  - Catched data sets of S&P 500 and DJIA from Yahoo Finance via Python and study the volatility behaviors via financial time series models.

Publications (Conference)

1. **Wang, Q.H.**, Ho, C. P., Petrik, M., Policy Gradient in Robust MDPs with Global Convergence Guarantee, accepted in the 40th International Conference on Machine Learning (ICML), 2023.

Working Papers

1. **Wang, Q.H.**, Ho, C. P., Fast Policy Iteration for Multiscale MDPs, under review in SIAM Journal on Control and Optimization.
2. **Wang, Q.H.**, Ho, C. P., Petrik, M., Softmax Policy Gradient for Large-scale Robust Reinforcement Learning, in preparation for submission.
3. Yu, Z.D., **Wang, Q.H.**, Chow, A.H.F., Ho, C. P., Skip-stop Bus Scheduling using Robust Markov Decision Processes, in preparation for submission.

Academic Activities

- **Research Supervisions**
  MSc students at City University of Hong Kong (co-supervised with Prof. Chin Pang Ho):
  - Qu Tong, Li Jiaxin and Zhang Junjie, Recommendation System, 2021
  - Wong Ka Wai, Li Ka Ho, and Choi Sheung Shing, Recommendation System, 2021
- **Paper Reviews**
  - Journal: Machine Learning, Journal of Artificial Intelligence Research
  - Conference: 26th International Conference on Artificial Intelligence and Statistics (AISTATS 2023), 37th Conference on Neural Information Processing Systems (NeurIPS 2023), 12th International Conference on Learning Representations (ICLR 2024)
- **Teaching Assistant** School of Data Science, City University of Hong Kong
  - Optimization for Data Science in Autumn 2020, 2021
  - Reinforcement Learning in Spring 2021, 2022

Working Experience

- **Southwest Securities - Quantitative Research Intern** Jan. 2023 - May. 2023
  - Build a regression model with neural network structures to predict daily stock returns using cleaned data from over 3000 A-share market stocks in the last 14 years.
  - Developed strategies for the single asset on both discrete and continuous action space via different reinforcement learning techniques.
- **Roland Berger - Part-time Analyst** Oct. 2022 - Dec. 2022
  - Conducted in-depth market research with over 50 industry reports to support the team in identifying emerging trends and growth opportunities for the client in the coating industry.
  - Compiled summaries of 12 interviews, participated in 2 expert interviews, and assisted the team with the final case study report.

Honours

- Research Scholarship, City University of Hong Kong *2019 - 2023*
- Siyuan Scholarship, Xi'an Jiaotong University *2015 - 2017*

Skills

- **Programming and Markup Languages:** Python, R, C++, LaTeX
- **Software:** MATLAB, MS Excel, MS Word, MS PowerPoint