Qiuhao Wang (Jerrison)

School of Data Science,
City University of Hong Kong, Tat Chee Avenue,
Kowloon, Hong Kong

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jerrison.wang@my.cityu.edu.hk

Education

- **City University of Hong Kong** — Hong Kong, China
  Ph.D in Data Science — *2019 - 2024 (expected)*
  - Supervisor: Dr. Chin Pang Ho and Prof. Duan Li
  - Research area: Dynamic Decision Making; Optimization Algorithms; Robust Optimization; Reinforcement Learning
- **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
  Ph.D Candidate — *2020 -*
  - Solve the bus scheduling problem with robust MDP techniques and tend to obtain a robust optimal skip-stop strategy.
  - Proposed the first generic policy gradient method for RMDPs, which monotonically reduces approximation errors to guarantee convergence to a globally optimal policy in both tabular RMDPs and RMDPs with continuous state and action space (practically).
  - Introduced a multilevel method (FPI) 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 the classic policy iteration method.
  - Used distributionally robust optimization (DRO) technology to evaluate the robust performance, *i.e.*, expected total reward, VaR or CVaR, by choosing the worst-case heavy-tailed distribution only.
- **Department of Statistics** — Xi'an Jiaotong University
  Undergraduate Student — *2017 - 2018*
  - Used Python to catch data sets of S&P 500 and DJIA from Yahoo Finance and applied final time series methods to study the volatility behaviors of these two indexes.

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 Singularly Perturbed MDPs, under review in SIAM Journal on Control and Optimization.
2. **Wang, Q.H.**, Ho, C. P., Petrik, M., On the Convergence of Policy Gradient in Robust MDPs, Available online.

Work in Progress

1. Yu, Z.D., **Wang, Q.H.**, Chow, A.H.F., Ho, C. P., Skip-stop Bus Scheduling using Robust Markov Decision Processes

Academic Activities

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

Honours

- School-level Award for Excellent Student *September, 2017*
- School-level Award for Excellent Leader *September 2016*
- School-level Award for Active Participants in Social Practic *September, 2015*
- Siyuan Scholarship for Outstanding Students (three times) *2015, 2016, 2017*

Skills

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