

Cheung Wang Chi

Job Title: Assistant Professor

Year of Birth: 1987

ORCID: 0000-0001-9380-5673

Webpage: <https://www.eng.nus.edu.sg/isem/staff/cheung-wang-chi/>

Academic Positions

Assistant Professor Dept of Industrial Systems Engineering & Mgmt	National University of Singapore February 2019 - Present
Scientist I Institute of High Performance Computing	Agency of Science, Technology And Research September 2016 - January 2019
Research Assistant Operations Research Center	Massachusetts Institute of Technology September 2011 - August 2016

Academic Qualifications

Ph.D. in Operations Research	Massachusetts Institute of Technology February 2017
B.A. in Mathematics	University of Cambridge June 2010

Research Interests

Online learning, multi-armed bandits, reinforcement learning.
Applications to revenue management, service operations.

Work in Progress

[W1] Xilin Zhang, **Wang Chi Cheung**, "[Online Resource Allocation for Reusable Resources](#)", Major Revision at Management Science, submitted May 2024,

[W2] Tianming Huo, **Wang Chi Cheung**, "[Online Reusable Resource Allocations with Multi-class Arrivals](#)", Major revision at Operations Research, submitted in August 2022.

[W3] Tianming Huo, **Wang Chi Cheung**, "Online Lead Time Quotation with Predictions", Major Revision at the INFORMS Journal of Computing, submitted in 2025.

[W4] **Wang Chi Cheung**, Zitian Li, "[Episodic Contextual Bandits with Knapsacks under Conversion Models](#)", in submission.

[W5] Lixing Lyu, Jiashuo Jiang, **Wang Chi Cheung**, "[Efficiently Solving Discounted MDPs with Predictions on Transition Matrices](#)". in submission.

Selected Publications

- [P1] **Wang Chi Cheung**, Guodong Lyu, “*Online Planning in Non-stationary Environments*”, Operations Research, accepted in 2025.
- [P2] Xilin Zhang, **Wang Chi Cheung**, “*Online Allocation of Reusable Resources in Non-stationary Environments*”, Mathematics of Operations Research, accepted in 2025.
- [P3] Zitian Li, **Wang Chi Cheung**, “Near Optimal Non-asymptotic Sample Complexity of 1-Identification”, ICML 2025.
- [P4] Xilin Zhang, **Wang Chi Cheung**, “Piecewise-Stationary Bandits with Knapsacks.” NeurIPS 2024.
- [P5] **Wang Chi Cheung**, Lixing Lyu, “Leveraging (Biased) Information: Multi-armed Bandits with Offline Data”, ICML 2024 (Spotlight).
- [P6] Guodong Lyu, **Wang Chi Cheung**, Chung Piau Teo, Hai Wang, “[Multi-objective online ride-matching](#)”, Manufacturing & Service Operations Management, 26(2): 500-518, 2024.
- [P7] Li Zitian, **Wang Chi Cheung**, “*Best Arm Identification with Resource Constraints*”, PMLR 238:253-261, AISTATS 2024.
- [P8] Xilin Zhang, **Wang Chi Cheung**, “Online Stochastic Allocation of Reusable Resources”, IEEE Conference on Decision and Control (CDC), 4620-4625, 2023.
- [P9] Zixin Zhong, **Wang Chi Cheung**, and Vincent Y. F. Tan, “Achieving the Pareto Frontier of Regret Minimization and Best Arm Identification in Stochastic Bandits” (featured certification), Transactions on Machine Learning Research (TMLR), 2023
- [P10] Lixing Lyu, **Wang Chi Cheung**, “*Non-stationary Bandits with Knapsack Problems with Advice*”, ICML 2023, 23212-23238
- [P11] **Wang Chi Cheung**, David Simchi-Levi, Ruihao Zhu, “[Non-Stationary Reinforcement Learning: The Blessing of \(More\) Optimism](#)”, Management Science, [69\(10\)](#): 5722-5739, 2023
- [P12] **Wang Chi Cheung**, Will Ma, David Simchi-Levi, Xinshang Wang, “*Inventory Balancing with Online Learning*”, Management Science, Special Issue on Data-Driven Prescriptive Analytics, 68(3): 1776-1807, (2022).
- [P13] **Wang Chi Cheung**, David Simchi-Levi, Ruihao Zhu, “*Hedging the Drift: Learning to Optimize under Non-Stationarity.*” Management Science, Special Issue on Data-Driven Prescriptive Analytics, 68(3): 1696-1713, (2022).
- [P14] Zixin Zhong, **Wang Chi Cheung**, and Vincent Y. F. Tan, “*Thompson Sampling Algorithms for Cascading Bandits*”, Journal of Machine Learning Research (JMLR), Vol. 22, No. 218, Pages 1 - 66, September 2021.
- [P15] Zixin Zhong, **Wang Chi Cheung**, Vincent Y. F. Tan, “*Probabilistic Sequential Shrinking: A Best Arm Identification Algorithm for Stochastic Bandits with Corruptions.*” ICML 2021: 12772-12781

[P16] **Wang Chi Cheung**, David Simchi-Levi, Ruihao Zhu, “*Reinforcement Learning for Non-Stationary Markov Decision Processes: The Blessing of (More) Optimism.*”, ICML 2020.

[P17] Zixin Zhong, **Wang Chi Cheung**, Vincent Y. F. Tan. “*Best Arm Identification for Cascading Bandits in the Fixed Confidence Setting.*” ICML 2020.

[P18] **Wang Chi Cheung**, “*Regret Minimization for Reinforcement Learning with Vectorial Feedback and Complex Objectives*”, NeurIPS 2019, 724-734.

[P19] **Wang Chi Cheung**, Vincent Tan, Zixin Zhong, “*Thompson Sampling for Cascading Bandits*”, AISTATS 2019, PMLR 89:438-447. **(Oral Presentation, top 2.5 % submission).**

[P20] Guodong Lyu, **Wang Chi Cheung**, Mabel Chou, Chung-Piaw Teo, Zhichao Zheng and Yuanguang Zhong, “*Capacity Allocation in Flexible Production Networks: Theory and Applications*”, Management Science 65(11), page 5091-5109 (2019).

[P21] **Wang Chi Cheung**, David Simchi-Levi, “*Sampling-Based Approximation Schemes for Capacitated Stochastic Inventory Control Models*”, Mathematics of Operations Research 44 (2), 2019, 668-692.

[P22] **Wang Chi Cheung**, David Simchi-Levi, He Wang, “*Dynamic pricing and demand learning with limited price experimentation*”, Operations Research 65 (6), 2017, 1722-1731.

[P23] **Wang Chi Cheung**, Michel X Goemans, Sam Chiu-wai Wong, “Improved algorithms for vertex cover with hard capacities on multigraphs and hypergraphs”, Proceedings of the Twenty-Fifth Annual ACM-SIAM Symposium on Discrete Algorithms 2014.

[P24] **Wang Chi Cheung**, Chris Godsil, “*Perfect state transfer in cubelike graphs*”, Linear Algebra and Its Applications 435 (10), 2468-2474.

Awards and Honors

[P6]: (SIG) Outstanding Paper in Urban Transportation Planning and Modeling (2024)
[P13]: Finalist in POMS-JD.com Best Data-Driven Research Paper Competition (2019)
[P21]: Finalist in George Nicholson Student Paper Competition INFORMS (2015)
National Science Scholarship (PhD), A*STAR, Singapore (2011 -2016)
National Science Scholarship (BS), A*STAR, Singapore (2007 -2010)

Memberships of Scientific Societies

Institute for Operations Research and the Management Sciences (INFORMS),
Manufacturing & Service Operations Management (MSOM)

Services

Reviewer for the Operations Research journal, Management Science journal, Mathematics of Operations Research journal, Journal of Machine Learning Research, the Manufacturing & Service Operations Management journal, Production & Operations Management journal.

Reviewer for Israel Science Foundation for grant proposal, Singapore Ministry of Education Tier 1 grant proposal.

Reviewer for the ICML 2019-2025, NeurIPS 2018-2025, AAAI 2020-2021.

Research Grants

[G1] PI, "*Capitalizing (Possibly biased) Offline Data for Sequential Learning: Theoretical Foundation and Algorithm Design*". \$453,674, Academic Research Fund Tier 2, MOE, Feb 2025-2028.

[G2] PI, "*Online Allocation of Reusable Resources: Theory and Algorithms*". \$656,916, Academic Research Fund Tier 2, MOE, Feb 2022 – Feb 2025.

[G3] PI, "*Thompson Sampling Algorithms for Combinatorial Bandits with Partial Feedback*". \$250,000, NUS Start-up Grant, April 2019 - March 2023.

[G4] Co-PI, "*Science of Prescriptive Analytics (SPA): Solvers, Platforms and Applications*". \$8,170,800, Academic Research Fund Tier 3, MOE.

[G5] Co-PI, "*Nonnegative Matrix Factorization: Geometry, Privacy and Statistical Lower Bounds*". \$449,340, Academic Research Fund Tier 2, MOE.

Current Research Fellow

Le Yang (co-funded with Prof Vincent Tan), Sep 2024-Sep 2025

Huo Tianming, April 2025-April 2026.

Current Ph.D. Students

Lyu Lixing (co-supervised with Prof Chung Piaw Teo), Jan 2021 – Present, funded by [G3] until Aug 2024. Will be funded by [G1] for his fifth year.

Li Zitian, Aug 2023 - Present, funded by a ring-fence scholarship from the University.

Past Ph.D. Students

Zixin Zhang (co-supervised with Assoc Prof Vincent Tan), Feb 2019 – May 2022, currently an assistant professor at the Hong Kong University of Technology (Guangzhou).

Xilin Zhang (co-supervised with Assoc Prof He Shuangchi), May 2020 - February 2024, currently a research fellow supervised by Prof Ming Hu from the University of Toronto.

Huo Tianming, Aug 2020 – Aug 2025. Currently a research fellow supervised by myself.

Past Master Student

Ewe Ziyi, Aug-2019 – Aug-2020. Currently a research engineer at Gojek (self-funded).

Eloise Lim, Aug 2022—Aug 2023, Currently at the Land and Transportation Authority, Singapore, funded by [G2].

Research Engineers (Undergraduates)

Hu Renjun, Aug 2019 – June 2020, funded by [G3,G4]. Currently a PhD candidate at the University of Michigan, Ross School of Business.