

TIANYU WANG

Columbia University
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EDUCATION

Columbia University

Ph.D. in Operations Research

M.S. in Operations Research

Overall GPA: 4.08/4.33

Advisors: Garud Iyengar, Henry Lam

New York, United States

Aug. 2021 - Present

Aug. 2021 - Jun. 2022

Tsinghua University

B.E. in Information Management and Information Systems

B.S. in Pure and Applied Mathematics

Overall GPA: 3.87/4.00 Rank: 1/28

Beijing, China

Aug. 2017 - Jun. 2021

Aug. 2018 - Jun. 2021

National University of Singapore

Exchange Student

Singapore

Jul. 2019 - Dec. 2019

RESEARCH INTERESTS

- Online and Offline Data-Driven Decisions (Methodology): robust models with and without distribution shift, sequential decision making, off-policy estimation and learning.
- Trustworthy Machine Learning (Application): robustness, fairness, causality and their interplay in real operations problems.

PUBLICATIONS

- Garud Iyengar, Henry Lam, **Tianyu Wang***. Hedging against Complexity: Distributionally Robust Optimization with Parametric Approximation. *Journal version in preparation*.
 - Short version. arXiv: 2212.01518. *to appear in AISTATS 2023*.
- Chi Seng Pun, **Tianyu Wang**, Zhenzhen Yan*. Hedging Time-variant Model Risks: A Hidden Markov Regime-Switching Approach. *Under major revision at Manufacturing & Service Operations Management*.
- **Tianyu Wang**, Ningyuan Chen, Chun Wang. Contextual Optimization under Covariate Shift: A Doubly Robust Perspective. arXiv: 2106.05724. *Journal version in preparation*.
- **Tianyu Wang**, Chenye Wu, Wei Qi. On Data-Driven Multi-Product Pricing. *IEEE Control Systems Letters*, 5(5): 1687-1692, 2020. doi: 10.1109/LCSYS.2020.3043591.

*: Authors are listed in alphabetical order.

TALKS

- Hedging against Complexity: Distributionally Robust Optimization with Parametric Approximation
PhD seminar, Sept. 2021.
- Distributionally Robust Prescriptive Analytics with Wasserstein Distance
INFORMS Annual Meeting, Oct. 2021 (Remote).
- On Data-Driven Multi-Product Pricing
American Control Conference (ACC), May. 2021 (Remote).

RESEARCH PROJECTS

- Model Selection in Contextual Bandits
Advisor: David Simchi-levi, at MIT (remote), 2020
Proposed a nearly optimal and computationally efficient general contextual bandit algorithm to handle model selection problems.

- Real-world Performance Evaluations of General Contextual Bandit Algorithms
Advisor: David Simchi-levi, at MIT (remote), 2020
Conducted extensive numerical studies between different general contextual bandit algorithms under different real-world machine learning and revenue management datasets.
- Robust Stochastic Portfolio Optimization: a Clustering Approach
Advisor: Melvyn Sim, at National University of Singapore, 2019 - 2020.
Established a distributionally robust portfolio model with event-wise moments ambiguity sets, derived tractable reformulations and implemented efficiently using unsupervised learning approaches.

TEACHING EXPERIENCE

At Columbia University:

Teaching Assistant, IEOR 4650: Business Analytics

Spring 2022

- Hold office hours, give lectures for basic machine learning models, help prepare exam questions (coding in R) and evaluate group projects.
- TA evaluation: 4.75/5.00 (Enrollment: 29)

At Tsinghua University:

Tutor, Basic Courses

Fall 2018 - Spring 2021

- Provide academic and problem-solving guidance in courses such as *Calculus, Linear Algebra, Probability and Statistics* and *Computer Programming* for junior students.
- Tutor evaluation: 4.99/5.00 (Service hours: over 300)

HONORS AND AWARDS

- Columbia IEOR Department Fellowship, Columbia University 2021
- Distinguished Undergraduate Thesis Award, Tsinghua University 2021
- Comprehensive Excellence Scholarship, Tsinghua University 2018, 2019, 2020
- Fellowship of the 13th "Spark" Innovative Talent Cultivation Program 2019

ADDITIONAL INFORMATION

- Languages: English (Fluent, TOEFL: 104, GRE: 331), Mandarin (Native)
- Computer Skills:
 - Data/Statistic Packages: R, SPSS, Stata
 - Optimization Tools: Gurobi, CPLEX, LINGO
 - Languages: C/C++, Java, Python, SQL, MATLAB, LaTeX
- Hobbies: Running; Swimming; Hiking; Badminton; Reading