TIANYU WANG

Columbia University
Mudd 315, 500 W 120th Street
New York, NY 10027, United States

Email: tw2837@columbia.edu
Phone: +1 (347) 291-5823
Homepage: https://wangtianyu61.github.io

Education

Columbia University — New York, United States
Ph.D. in Operations Research — Aug. 2021 - Present
M.S. in Operations Research — Aug. 2021 - Jun. 2022
Overall GPA: 4.08/4.33
Advisors: Garud Iyengar, Henry Lam

Tsinghua University — Beijing, China
B.E. in Information Management and Information Systems — Aug. 2017 - Jun. 2021
B.S. in Pure and Applied Mathematics — Aug. 2018 - Jun. 2021
Overall GPA: 3.87/4.00 Rank: 1/28

National University of Singapore — Singapore
Exchange Student — 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 (**Oral Presentation, acceptance rate 32/1689 = 1.9%**)*.
- 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