

# TIANYU WANG

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

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

## Education

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### 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

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- 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

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- Garud Iyengar, Henry Lam, **Tianyu Wang\***. Hedging against Complexity: Distributionally Robust Optimization with Parametric Approximation. *Journal version to be submitted*.
  - Short version. *AISTATS 2023*.
- Chi Seng Pun, **Tianyu Wang**, Zhenzhen Yan\*. Data-Driven Distributionally Robust CVaR Portfolio Optimization Under Regime-Switching Ambiguity Set. *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

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- Hedging against Complexity: Distributionally Robust Optimization with Parametric Approximation  
*PhD seminar, Sept. 2022*.
- 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

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- 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

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### 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

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- 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

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- 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