

Junyu Cao

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Employment

The University of Texas at Austin

Assistant Professor in IROM, McCombs School of Business

2020 – Present

Education

The University of California, Berkeley

Ph.D. in Industrial Engineering and Operations Research

2015 – 2020

Xi'an Jiaotong University

B.S. in Mathematics (Elite Program)

2011 – 2015

Graduated with the highest honor (10/30000)

Research Interests

- Data-driven stochastic modeling and applied probability, with applications to the sharing economy and smart city operations.
- Machine learning and sequential decision making, with applications to recommendation systems and revenue management.

Research Papers

• Journal Publications

1. Junyu Cao, Mariana Olvera-Cravioto, Zuo-Jun (Max) Shen. Last-mile Shared Delivery: A Discrete Sequential Packing Approach. *Mathematics of Operations Research*, 2020.
Finalist in INFORMS IBM Service Science Best Student Paper
2. Junyu Cao, Alexander B. Herman, Geoffrey B. West, Gina Poe, Van M. Savage. Unraveling Why We Sleep: Quantitative Analysis Reveals Abrupt Transition From Neural Reorganization to Repair in Early Development. *Science Advances*, 2020.
3. Junyu Cao, Mariana Olvera-Cravioto. Connectivity of a General Class of Inhomogeneous Random Digraphs. *Random Structures & Algorithms*, 2020.
4. Junyu Cao*, Danqing Zhang*, Sid Feygin, Dounan Tang, Zuo-Jun (Max) Shen, Alexei Pozdnoukhov. Connected Population Synthesis for Urban Simulation. *Transportation Research Part C: Emerging Technologies*, 2019. (* stands for equal contribution)
5. Tong Xin, Junyu Cao. Some Discussions About The Best Approximate Element For A Closed Set In Euclidean Space. *Studies In College Mathematics*, 2015, 18(1).
6. Junyu Cao. An Alternative Proof of Cauchy Criterion. *Studies In College Mathematics*, 2012,15(5).

• Conference Proceedings (Machine Learning)

7. Junyu Cao, Wei Sun, Zuo-Jun (Max) Shen, Markus Ettl. Fatigue-Aware Bandits for Dependent Click Models. *Thirty-fourth AAAI Conference on Artificial Intelligence (AAAI)*, 2020.
8. Junyu Cao, Wei Sun. Dynamic Learning with Frequent New Product Launches: A Sequential

Multinomial Logit Bandit Problem. *Thirty-sixth International Conference on Machine Learning (ICML)*, 2019.

9. Junyu Cao, Wei Sun. Dynamic Learning of Sequential Choice Bandit Problem under Marketing Fatigue. *Thirty-third AAAI Conference on Artificial Intelligence (AAAI)*, 2019.

Working Papers

10. Junyu Cao, Wei Sun, Zuo-Jun (Max) Shen. Sequential Choice Bandits: Learning with Marketing Fatigue, under review.
Katta Murty Best Paper Prize
11. Mengxin Wang, Meng Qi, Junyu Cao, Zuo-Jun (Max) Shen. Urban Courier: Operational Innovation and Data-driven Coverage-and-Pricing, under review.
12. Hansheng Jiang, Junyu Cao, Zuo-Jun (Max) Shen. Intertemporal Pricing under Reference Effects and Consumer Heterogeneity via Nonparametric Estimation, under review.

Teaching Experience

Instructor, Department of IROM, McCombs School of Business, UT Austin

- STA 371G Statistics and Modeling 2020 Fall

Graduate Student Instructor, Industrial Engineering & Operations Research, UC Berkeley

- IEOR 263A Applied Stochastic Processes (graduate) 2018 Fall
- IEOR 173 Introduction to Stochastic Processes 2018 Spring
- IEOR 263A Applied Stochastic Processes 2017 Fall
- IEOR 172 Probability and Risk Analysis for Engineers 2016 Fall

Graduate Student Instructor, Haas School of Business, UC Berkeley

- UGBA 103 Introduction to Finance 2016 Summer
- UGBA 131 Corporate Finance and Financial Statement Analysis 2016 Summer

Work Experience

- Research Summer Intern at IBM Thomas J. Watson Research Center 2019 Summer
- Research Summer Intern at IBM Thomas J. Watson Research Center 2018 Summer

Patents

- System and Method for Merchandise Planning with Short Life Cycle Products
Status: submitted to U.S. Patent Office
- System and Method for Automated Discovery of Personalized Offers
Status: submitted to U.S. Patent Office

Academic Honors and Awards

- Finalist in INFORMS IBM Service Science Best Student Paper 2019
- Katta Murty Best Paper Prize 2019
- IBM Ph.D. Fellowship (16 total worldwide) 2019
- 2nd place at Citadel Datathon Competition 2018
- Outstanding Graduate Student Instructor 2018

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| Summer Research Grant | 2017 |
| Outstanding Graduates | 2015 |
| Research Scholarship at UCLA | 2015 |
| Outstanding Student (The highest honor on campus, 10/30000) | 2014 |
| National Scholarship (Top 2%) | 2014 |
| Microsoft Research Asia Fellowship (39 total in China) | 2014 |
| UCLA CSST Scholarship (89 total in China) | 2014 |
| National Scholarship (Top 2%) | 2012 |

Invited Talks

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| INFORMS Annual Conference | Oct. 2019 |
| IBM Thomas J. Watson Research Center | Aug. 2019 |
| Applied Probability Society Conference | July 2019 |
| International Conference on Machine Learning (ICML) | June 2019 |
| POMS Annual Conference | May 2019 |
| IBM Research - Almaden | May 2019 |
| AAAI Conference on Artificial Intelligence (AAAI) | Jan. 2019 |
| INFORMS Annual Conference | Oct. 2018 |
| IBM Thomas J. Watson Research Center | Aug. 2018 |

Computer Skills

R, Python, Pascal, C, Matlab, Mathematica, Sage, SPSS, Lingo, AMPL