

Peng Shi

Academic Positions **USC Marshall School of Business**, Los Angeles, CA **2017—Present**
Assistant Professor, Department of Data Science and Operations
Robert R. Dockson Assistant Professor in Business Administration

Microsoft Research New England, Cambridge, MA **2016—2017**
Postdoctoral Researcher, Algorithmic Game Theory Group

Education **Massachusetts Institute of Technology**, Cambridge, MA **2011—2016**
Ph.D. in Operations Research
– Advisor: Itai Ashlagi
– Thesis: [Prediction and Optimization in School Choice](#)
– GPA: 5.0/5.0

Duke University, Durham, NC **2006—2010**
B.S. in Mathematics and Computer Science (double major)
– GPA: 3.984/4.0

Journal Publications P. Shi. "[Optimal matchmaking strategy in two-sided marketplaces.](#)" *Management Science*, 69(3), 2023.
(Author names are all in alphabetical order, which is the convention in this field.) – An earlier version was titled "Efficient matchmaking in assignment games with application to online platforms," and appeared in the ACM conference on Economics and Computation (EC), 2020.

P. Shi. "[Optimal priority-based allocation mechanisms.](#)" *Management Science*, 68(1), 2022.
– An earlier version was titled "Assortment planning in school choice."

P. Pathak and P. Shi. "[How well do structural demand models Work? Counterfactual predictions in school choice.](#)" *Journal of Econometrics*, 222(1A), 2021.

N. Arnosti and P. Shi. "[Design of lotteries and waitlists for affordable housing allocation.](#)" *Management Science*, 66(6), 2020.
– An earlier version appeared in EC 2017.

I. Ashlagi, M. Braverman, Y. Kanoria and P. Shi. "[Clearing matching markets efficiently: informative signals and match recommendations.](#)" *Management Science*, 66(5), 2020.
– An earlier version appeared in EC 2017.

I. Ashlagi and P. Shi. "[Optimal allocation without money: an engineering approach.](#)" *Management Science*, 62(4), 2016.
– An earlier version appeared in EC 2014.

P. Shi. "[Guiding school-choice reform through novel application of Operations Research](#)." *Interfaces*, 45(2), 2015.

I. Ashlagi and P. Shi. "[Improving community cohesion in school choice via correlated-lottery implementation](#)." *Operations Research*, 62(6), 2014.

S. Guha, K. Munagala and P. Shi. "[Approximation algorithms for restless bandit problems](#)." *Journal of the ACM (JACM)*, 58(1), 2010.

- An earlier version appeared in the ACM-SIAM Symposium on Discrete Algorithms (SODA), 2009.

Working Papers

P. Shi. "[The welfare effects of selling leads in a two-sided marketplace](#)." Working paper, 2024.

P. Shi. "[Optimal match recommendations in two-sided marketplaces with endogenous prices](#)." Working paper, 2024. (Minor Revision at Management Science)

- An earlier version appeared in EC 2022.

P. Shi and J. Yin.* "[Eliminating waste in cadaveric organ allocation](#)." Working paper, 2023.

- An earlier version appeared in the 18th Conference in Web and Internet Economics (WINE 2022) and won the Best Paper Award.

* denotes a PhD student supervised by me.

Refereed Conference Proceedings

P. Shi, V. Conitzer and M. Guo. "[Prediction mechanisms that do not incentivize undesirable actions](#)." *Workshop on Internet & Network Economics (WINE)*, 2009.

- This is the only paper in this CV with a non-alphabetical order of authorship.

K. Munagala and P. Shi. "[The stochastic machine replenishment problem](#)." *Integer Programming & Combinatorial Optimization (IPCO)*, 2008.

Teaching Experience

USC Marshall School of Business

DSO-570 The Analytics Edge: Data Models and Effective Decisions

2018-Present

DSO-599 Introduction to Python for Business Analytics

2019-2020

Industry Experience

Akamai Technologies, Cambridge, MA

Big Data Analytic Intern

Summer, 2014

Used Hadoop to quickly mine insights from multiple terabytes of router log files.

Used visualization and descriptive analytics to identify botnets and malicious port scanners. Designed and implemented an automated method to detect Distributed Denial of Service (DDoS) attacks using Brownian motion approximations.

Bless China International, Kunming, China

Social Enterprise Analyst

2010–2011

Explored and evaluated business plans that helped poor and marginalized people groups in a financially self-sustaining way. Conducted surveys and focus groups to estimate market segments. Helped to launch a handicraft business and a restaurant. Supported the operations of the handicraft business by developing a point-of-sale system and a web store.

D. E. Shaw Group, New York, NY

Quantitative Analyst Intern

Summer, 2008

Used microsecond-level data of the US stock market to develop a predictive model for intraday trading volume. Wrote code to use hundreds of machines in parallel to quickly process terabytes of data.

Invited

The Welfare Effects of Selling Leads in a Two-Sided Marketplace

Presentations

USC Marshall Junior Faculty Seminar

2023

Optimal Match Recommendations in Two-Sided Marketplaces with Endogenous Prices

Queens's University Smith School of Business OM Seminar

2022

Berkeley Haas OITM Seminar

2022

Duke Fuqua DS Seminar

2022

Cornel Johnson OTIM Seminar

2022

UIUC Gies OM Seminar

2022

Chicago Booth OM Seminar

2022

Shanghai JiaoTong Antai College OM Seminar

2022

Michigan Ross Technology and Operations Seminar

2022

CMU Tepper OM Seminar

2022

Columbia DRO-IEOR Seminar

2022

INFORMS Conference on Service Systems

2022

ACM Conference on Economics and Computation (EC)

2022

Marketplace Innovation Workshop (Plenary Talk)

2022

Optimal Matchmaking Strategy in Two-Sided Marketplaces

NYU Stern OM Seminar

2022

Cornell ORIE Colloquium

2022

University of Toronto Rotman Young Scholar Seminar

2022

Meta Data Science Seminar

2022

University of Tokyo Microeconomics Workshop

2022

MIT Data Science Lab Seminar

2022

University of Maryland Robert H. Smith School of Business DO&IT Seminar

2021

INFORMS Annual Meeting

2021

University of Southern California OM Seminar

2021

Wutong Forum at the Chinese University of Hong Kong, Shen Zhen

2021

Marketplace Innovation Workshop

2021

London Business School MSO Seminar

2021

Efficient Matchmaking in Assignment Games with Application to Online Platforms

Chicago Booth Applied Economics Workshop	2020
Marketplace Algorithms and Design Seminar	2020
ACM Conference on Economics and Computation (EC)	2020

Optimal Priority-Based Allocation Mechanisms

Global Challenges in Economics and Computation (GCEC) Workshop	2020
Stanford RAIN Seminar	2019
INFORMS Annual Meeting	2019

Clearing Matching Markets Efficiently

Simon's Institute Workshop on Platform Markets	2019
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Design of Lotteries and Waitlists for Affordable Housing Allocation

INFORMS Annual Meeting	2018, 2019
Caltech Bray Social Sciences Seminar Series	2018
UCI Paul Merage School of Business ODT Colloquium	2018
SoCal OM Day	2018

Optimal Forecast Disclosure in Ride-Sharing Platforms

INFORMS Annual Meeting	2018
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How (Not) to Allocate Affordable Housing

INFORMS Annual Meeting	2017
Mechanism Design for Social Good Workshop	2017
MIT Data Science Lab Seminar	2017

Communication Requirements and Informative Signaling in Matching Markets

ACM Conference on Economics and Computation (EC)	2017
MATCH-UP Conference	2017

Forecasting and Counterfactuals in School Choice

National Bureau of Economic Research (NBER) Market Design Workshop	2017
USC Conference in Honor of Daniel McFadden	2017
MIT Industrial Organizations Lunch	2017

Assortment Planning in School Choice

Mechanism Design for Social Good Workshop	2017
MATCH-UP Conference	2017
INFORMS Annual Meeting	2015, 2016, and 2017
MSOM Conference	2016

Prediction and Optimization in School Choice

USC Center for AI and Society Seminar	2017
ACM Conference on Economics and Computation (EC)	2017

USC Marshall School of Business	2016
Stanford Graduate School of Business	2016
Harvard Business School	2016
Columbia Business School	2016
Microsoft Research New England	2016
University of Toronto	2016
Chicago Booth School of Business	2015
Northwestern Kellogg School of Business	2015
Georgia Tech School of Industrial and Systems Engineering	2015

Optimal Allocation without Money: an Engineering Approach

MIT ORC Seminar Series	2014
MIT Sloan Operations Management Seminar	2014
MSOM Conference	2014
ACM Conference on Economics and Computation (EC)	2014
INFORMS Annual Meeting	2013

Guiding School Choice Reform through Novel Applications of OR

POMS Conference	2015
Invited Talk, Gordon College	2014
INFORMS Annual Meeting	2013

Improving Community Cohesion in School Choice

INFORMS Annual Meeting	2013
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Approximation Algorithms for Restless Bandit Problems

ACM-SIAM Symposium on Discrete Algorithms (SODA)	2009
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Professional Activities

- Associated Editor at Management Science (2023—Present)
- Senior Program Committee (SPC) member for EC 2024, Area Editor (AE) for EC 2022, Senior Program Committee (SPC) member for EC 2019, and Program Committee (PC) member for EC 2017.
- Ad hoc reviewer for Management Science (MS), Operations Research (OPRE), Manufacturing & Service Operations Management (M&SOM), American Economic Review (AER), American Economic Journal (AEJ), Math of Operations Research (MOR), Productions and Operations Management (POM), Stochastic Systems, Games and Economic Behavior (GEB), Journal of Machine Learning Research (JMLR), Transportation Research Part B (TRB), Journal of the ACM (JACM), ACM Transactions on Economics and Computation (TEAC), Workshop on Internet and Network Economics (WINE), Workshop on Economics and Computation (EC), and the Web Conference (WWW).
- Cluster chair for the market design cluster at the 2022 CORS/INFORMS International Conference.
- Program committee member for WWW 2018.
- USC Marshall Course Match System (MCMS) Implementation Team (2018).
- Member of INFORMS, MSOM and ACM since 2011.

- Worked with Boston Public Schools to reform the student assignment system. Proposed a plan that was implemented across Boston in 2014.

Honors and Awards

- Robert R. Dockson Assistant Professor in Business Administration (2023)
- Best Paper Award at WINE 2022 (18th Conference on Web and Internet Economics)
- Golden Apple Teaching Award for Best MSBA Core Instructor (2021)
- Winner of the 2020 MSOM Responsible Research in OM Award.
- Winner of the DSO Department Excellence in Teaching Award (2019)
- Winner of the 2017 MSOM SIG Best Paper Award.
- Winner of the 2017 ACM SIGecom Doctoral Dissertation Award.
- 1st place in the 2014 MIT ORC Best Student Paper Competition.
- 1st place in the 2013 INFORMS Public Sector Operations Research Best Paper Competition.
- 1st place in the 2013 INFORMS Doing Good with Good Operations Research Best Student Paper Competition.
- Silver Medals in the 2005 and 2006 International Mathematics Olympiad (IMO).
- Silver Medal in the 2006 International Olympiad of Informatics (IOI).
- 3rd place in North America in the 2005 USA Mathematics Olympiad (USAMO).
- Phi Beta Kappa Honors Society.
- Angier B. Duke Memorial Scholarship, 2006-2010.

Personal Information

Citizenship: Canada

Languages: English and Chinese (Mandarin).

Hobbies: badminton, cooking, kayaking/canoeing, salsa dance, studying the Bible.