

Peng Shi

Academic Positions	USC Marshall School of Business , Los Angeles, CA <i>Assistant Professor, Department of Data Science and Operations</i>	2017—Present
	Microsoft Research New England , Cambridge, MA <i>Postdoctoral Researcher, Algorithmic Game Theory Group</i>	2016—2017
Education	Massachusetts Institute of Technology , Cambridge, MA <i>Ph.D. in Operations Research</i> <ul style="list-style-type: none">– Advisor: Itai Ashlagi– Thesis title: Prediction and Optimization in School Choice– GPA: 5.0/5.0	2011—2016
	Duke University , Durham, NC <i>B.S. in Mathematics and Computer Science (double major)</i> <ul style="list-style-type: none">– GPA: 3.984/4.0	2006—2010
Journal Publications	N. Arnosti and P. Shi. " Design of lotteries and waitlists for affordable housing allocation. " <i>Management Science</i> , Forthcoming. <ul style="list-style-type: none">– An earlier version appeared in the ACM conference on Economics and Computation (EC), 2017.	
	P. Pathak and P. Shi. " How well do structural demand models Work? Counterfactual predictions in school choice. " <i>Journal of Econometrics</i> , Forthcoming.	
	I. Ashlagi, M. Braverman, Y. Kanoria and P. Shi. " Clearing matching markets efficiently: informative signals and match recommendations. " <i>Management Science</i> , Forthcoming. <ul style="list-style-type: none">– An earlier version appeared in EC 2017.	
	I. Ashlagi and P. Shi. " Optimal allocation without money: an engineering approach. " <i>Management Science</i> , 62(4), 2015. <ul style="list-style-type: none">– An earlier version appeared in the ACM conference on Economics and Computation (EC), 2014.	
	P. Shi. " Guiding school-choice reform through novel application of Operations Research. " <i>Interfaces</i> , 45(2), 2015.	
	I. Ashlagi and P. Shi. " Improving community cohesion in school choice via correlated-lottery implementation. " <i>Operations Research</i> , 62(6), 2014.	
	S. Guha, K. Munagala and P. Shi. " Approximation algorithms for restless bandit problems. " <i>Journal of the ACM (JACM)</i> , 58(1), 2010.	

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

Working Papers

P. Shi. "[Optimal priority-based allocation mechanisms.](#)" Submitted to Management Science (minor revision), 2019.

P. Shi. "Efficient matchmaking in assignment games with application to online platforms." Working paper, 2020.

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.

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-Present**

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 Presentations

Optimal Priority-Based Allocation Mechanisms

Stanford RAIN Seminar **2019**

INFORMS Annual Meeting **2019**

Clearing Matching Markets Efficiently

Simon's Institute Workshop on Platform Markets **2019**

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

- Served as reviewer for Management Science (MS), Operations Research (OPRE), Math of Operations Research (MOR), Productions and Operations Management (POM), Journal of Machine Learning Research (JMLR), Transportation Research Part B (TRB), 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).
- Served as a program committee member for EC 2017 and WWW 2018, and senior program committee member for EC 2019.
- Marshall Course Match System (MCMS) Implementation Team (2018).
- Invited and Sponsored session chair for the 2015 INFORMS Annual Meeting.
- 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

- Winner of 2017 MSOM SIG Best Paper Award.
- Winner of 2017 ACM SIGecom Doctoral Dissertation Award.
- 1st place in 2014 MIT ORC Best Student Paper Competition.
- 1st place in 2013 INFORMS Public Sector Operations Research Best Paper Competition.
- 1st place in 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.