Peng Shi

Peng Shi is an operations management scholar whose research advances the design of matching markets in both private and public sectors. His work integrates theoretical and empirical methods to improve digital platforms and public resource allocation. His research has shaped policy and earned multiple best paper and impact awards, including the 2024 INFORMS Lanchester Prize.

Academic Positions	USC Marshall School of Business , Los Angeles, CA Assistant Professor, Operations Management Group, DSO Department – Parental leaves in Fall 2018, Spring 2021, and Spring 2023	2017—Present
	Robert R. Dockson Assistant Professor in Business Administration	2023–Present
	Microsoft Research New England , Cambridge, MA Postdoctoral Researcher, Algorithmic Game Theory Group	2016-2017
	 Massachusetts Institute of Technology, Cambridge, MA Ph.D. in Operations Research Advisor: Itai Ashlagi Thesis: Prediction and Optimization in School Choice 	2011-2016
	Duke University , Durham, NC B.S. in Mathematics and Computer Science (double major) – Angier B. Duke Memorial Scholarship.	2006-2010
Area of Research	 Design and analysis of matching markets, with applications in: Digital platforms connecting customers with providers of go Public resource allocation (e.g., school choice, affordable hou Methodologies: optimization; game theory; stylized modeling; empirication 	ods or services; sing). rical analysis.
Honors and Awards	 Jagdish Sheth Impact on Practice Award, USC Marshall (2025). Frederick W. Lanchester Prize, INFORMS (2024). Best Paper, Conference on Web and Internet Economics (WINE 20) Responsible Research in OM Award, MSOM Society (2020). Service Management SIG Best Paper, MSOM Society (2017). Doctoral Dissertation Award, ACM SIGecom (2017). Best Student Paper, MIT ORC (2014). Public Sector OR Best Paper, INFORMS (2013). Doing Good with Good OR Best Student Paper, INFORMS (2013) 	
	 Golden Apple Teaching Award, USC Marshall (2025 and 2021). Excellence in Teaching Award, DSO Department (2019). 	
	 Silver Medal in the 2006 International Olympiad of Informatics (I Silver Medals in the 2005 and 2006 International Mathematics Oly 3rd place in North America in the 2005 USA Mathematics Olympia 	OI). 7mpiad (IMO). ad (USAMO).

Journal Publications

(Author names are all in alphabetical order, which is the convention in this field.)

- 1. P. Shi. (2024) "Optimal match recommendations in two-sided marketplaces with
 - endogenous prices." Management Science, Forthcoming.
 - An earlier version appeared in the Conference on Economics and Computation (EC), 2022.
- 2. P. Shi. (2022) "<u>Optimal matchmaking strategy in two-sided marketplaces</u>." (Lead *article*) Management Science 69(3): 1323–1340.
 - <u>Highlighted by the editor-in-chief</u> as an example of a paper that is "theoretically elegant and practically insightful."
 - <u>Blog commentary</u> at *Management Science Review* by Fuhito Kojima, Federico Echenique and Peter Doe.
 - An earlier version was titled "Efficient matchmaking in assignment games with application to online platforms," and appeared in EC 2020.
- 3. P. Shi. (2021) "<u>Optimal priority-based allocation mechanisms.</u>" *Management Science* 68(1): 171–188.
- P. Pathak and P. Shi. (2021) "<u>How well do structural demand models work?</u> <u>Counterfactual predictions in school choice</u>." *Journal of Econometrics* 222(1A): 161–195.
- 5. N. Arnosti and P. Shi. (2020) "Design of lotteries and waitlists for affordable housing allocation." (*Lead article*) Management Science 66(6): 2291–2307.
 - <u>Blog commentary</u> at *Management Science Review* by Paul Milgrom, Mitchell Watt, and Martin Lariviere.
 - An earlier version appeared in EC 2017.
- Ashlagi, M. Braverman, Y. Kanoria and P. Shi. (2019) "<u>Clearing matching</u> <u>markets efficiently: informative signals and match recommendations</u>." *Management Science* 66(5): 2163–2193.
 - Shared the INFORMS Frederick W. Lanchester Prize for "the best contribution to operations research and the management sciences published in English in the past five years" (2024).
 - An earlier version appeared in EC 2017.
- 7. Ashlagi and P. Shi. (2015) "<u>Optimal allocation without money: an engineering</u> <u>approach</u>." *Management Science* 62(4): 1078–1097.
 - MSOM Responsible Research in Operations Management Award (2020).
 - MSOM Service Management SIG Best Paper (2017).
 - Public Sector Operations Research Best Paper (2013).
 - MIT ORC Best Student Paper (2014).
 - An earlier version appeared in EC 2014.
- 8. P. Shi. (2015) "<u>Guiding school-choice reform through novel application of</u> <u>Operations Research</u>." *Interfaces* 45(2): 117–132.
 - Doing Good with Good OR Best Student Paper (2013).

	9. Ashlagi and P. Shi. (2014) " <u>Improving community cohesion in school cho</u> <u>correlated-lottery implementation</u> ." <i>Operations Research</i> , 62(6): 1247–1264	
	 10. S. Guha, K. Munagala and P. Shi. (2010) "<u>Approximation algorithms for restless</u> <u>bandit problems</u>." <i>Journal of the ACM (JACM)</i> 58(1), Article 3, 1–50. An earlier version appeared in the Symposium on Discrete Algorithms (SODA), 2009. 	
Working Papers (Author names are all in	 P. Shi. (2025) "<u>The welfare effects of selling leads in a two-sided marketplace.</u>" Major Revision at <i>Management Science</i>. An earlier version appeared in the ACM conference on Economics and Computation (EC), 2024. 	
alphabetical order, which is the convention in this field.)	 P. Shi. (2025) "Welfare-optimal policies for sponsored advertising in a two-sided marketplace." Targeting Operations Research. – To appear in EC 2025. 	
	 P. Shi and J. Yin.* (2022) "Eliminating waste in cadaveric organ allocation." Targeting Manufacturing & Service Operations Management (MSOM). 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. 	
Work in Progress	M. Alyakoob and P. Shi. "Estimating the quality of general contractors using city inspection data." (Data collection in progress.)	
(Author names are all in	M. Alyakoob and P. Shi. "On the adoption of digital platforms in the US home improvement industry." (Data collection in progress.)	
alphabetical order, which is the convention in this field.)	P. Shi. "On the Pareto optimality of wasteful allocation mechanisms." (Have preliminary results.)	
Refereed Conference Proceedings	 P. Shi, V. Conitzer and M. Guo. "<u>Prediction mechanisms that do not incentivize</u> <u>undesirable actions</u>." Workshop on Internet & Network Economics (WINE), 89–100, 2009. This is the only paper in this CV with a non-alphabetical order of authorship. 	
	K. Munagala and P. Shi. " <u>The stochastic machine replenishment problem</u> ." <i>Integer Programming & Combinatorial Optimization (IPCO)</i> , 163–183, 2008.	
Teaching Experience	USC Marshall School of Business2025—PresentDSO-577 Optimization Modeling for Prescriptive Analytics2025—PresentDSO-576 Algorithmic Thinking with Python2025—PresentDSO-570 The Analytics Edge: Data Models and Effective Decisions2017—2024DSO-599 Introduction to Python for Business Analytics2019—2021	

Doctoral Students Supervised	 Junxiong Yin (Operations Management, Graduated 2024) Primary PhD advisor. First position after graduation: Uber. 	
	 Liron Cohen (Computer Science, Graduated 2020) Member of dissertation committee. First position after graduation: Waymo. 	
	Hao Sun (Operations Management, Visiting student in 2018) – Primary advisor during one-year visit.	
Service to School	Operations Management (OM) PhD Program Coordinator Co-Chair of Hiring Committee for the OM group OM Seminar Co-Coordinator USC Marshall Course Match System Implementation Team	2025—Present 2022—Present 2020—2022 2018—2019
Service to Community	Associate Editor at Management Science Senior Program Committee (SPC) for the EC Conference Cluster chair at the CORS/INFORMS International Conference Reviewer for major journals and conferences in OM, economics and o Management Science (MS); Operations Research (OPRE); Man Service Operations Management (M&SOM); Math of Operatio (MOR); Productions and Operations Management (POM); Sto Systems; Transportation Research Part B (TRB); American Eco (AER); American Economic Journal (AEJ); Games and Econom (GEB); Journal of Machine Learning Research (JMLR); Journal (JACM); ACM Transactions on Economics and Computation Conference on Internet and Network Economics (WINE); Cor Economics and Computation (EC); Web Conference (WWW).	2023—Present 2019, 2022, 2024 2022 computation: nufacturing & ons Research ochastic onomic Review nic Behavior l of the ACM (TEAC); nference on
Invited Presentations	Welfare-Optimal Policies for Sponsored Advertising in a Two-Side ACM Conference on Economics and Computation (EC) Google Research Algorithms Seminar Marketplace Innovation Workshop Boston University Operations and Technology Management Seminar	ed Marketplace 2025 2025 2025 2025 2025
	The Welfare Effects of Selling Leads in a Two-Sided Marketplace INFORMS Annual Meeting UCLA DOTM Seminar INFORMS Revenue Management and Pricing Conference ACM Conference on Economics and Computation (EC) MSOM Service Management Special Interest Group (SIG) Marketplace Innovation Workshop USC Marshall Junior Faculty Seminar	2024 2024 2024 2024 2024 2024 2024 2023

Optimal Match Recommendations in Two-Sided Marketp	laces with Endogenous
Prices	
$S_{0}C_{0}IOMD_{0}T_{0}(IICIA)$	2024

1 mes	
SoCal OM Day (UCLA)	2024
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 EfficientlySimon's Institute Workshop on Platform Markets2019

Design of Lotteries and Waitlists for Affordable Housing Allocation

Peng Shi – CV May 2025	He Googl	ome Page: <u>[link]</u> e Scholar: <u>[link]</u>
	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
	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	g 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 Worksho	p 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, 20	16, 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	2014
	MIT Sloan Operations Management Seminar	2014
	MSOM Conference	2014
	ACM Conference on Economics and Computation (EC)	2014

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	INFORMS Annual Meeting	2013
	Guiding School Choice Reform through Novel Applications of OR	
	POMS Conference	2015
	Gordon College	2014
	INFORMS Annual Meeting	2013
	Improving Community Cohesion in School Choice	0010
	INFORMS Annual Meeting	2013
	Approximation Algorithms for Restless Bandit Problems	
	ACM-SIAM Symposium on Discrete Algorithms (SODA)	2009
Industry	Akamai Technologies, Cambridge, MA	
Experience	Big Data Analytic Intern	Summer, 2014
	Used Hadoop to quickly mine insights from multiple terabytes of route Used visualization and descriptive analytics to identity botnets and ma scanners. Designed and implemented an automated method to detect I Denial of Service (DDoS) attacks using Brownian motion approximatio	er log files. Alicious port Distributed ons.
	Bless China International, Kunming, China	2010 2011
	Explored and evaluated business plans that helped poor and marginal groups in a financially self-sustaining way. Conducted surveys and foc estimate market segments. Helped to launch a handicraft business and Supported the operations of the handicraft business by developing a p system and a web store.	ized people cus groups to a restaurant. oint-of-sale
	D. E. Shaw Group, New York, NY	
	Quantitative Analyst Intern	Summer, 2008
	Used microsecond-level data of the US stock market to develop a pred	ictive model
	for intraday trading volume. Developed software to use hundreds of n parallel to quickly process terabytes of data.	nachines in
Personal	Citizenship: Canada	
Information	Languages: English and Chinese (Mandarin).	
	Hobbies: badminton, cooking, kayaking/canoeing, salsa dance, studyir	ng the Bible.