

PENG SUN

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Academic Position

Duke University: the Fuqua School of Business, Durham, NC
J.B. Fuqua Professor, July 2019 -
Full Professor, 2015 - 2019
Associate Professor, 2008 - 2015
Assistant Professor, 2003 - 2008

Education

Ph.D., Operations Research Center, Massachusetts Institute of Technology, 2003
B. Eng., Tsinghua University, Beijing, China, July 1998

Publication

- P. Sun and R. M. Freund, (2004) "Computation of Minimum Volume Covering Ellipsoids," *Operations Research*, 52(5), pp. 690-706.
- D.I. Simester, P. Sun and J.N. Tsitsiklis, (2006) "Dynamic Catalog Mailing Policies," *Management Science*, 52(5), pp. 683-696.
- S. Mannor, D.I. Simester, P. Sun and J.N. Tsitsiklis, (2007) "Bias and Variance Approximation in Value Function Estimates," *Management Science*, 53(2), pp. 308-322.
- X. Chen, M. Sim, D. Simchi-Levi and P. Sun, (2007) "Risk Aversion in Inventory Management," *Operations Research*, 55(5), pp. 828-842.
- X. Chen, M. Sim, and P. Sun, "A Robust Optimization Perspective to Stochastic Models," (2007) *Operations Research*, 55(6), pp. 1058-1071.
- X. Chen, M. Sim, P. Sun and J. Zhang, (2008) "A Linear Decision Based Approximation Approach to Stochastic Programming," *Operations Research*, 56(2), pp. 344-357.
- D. Ahipasaoglu, P. Sun and M. Todd, (2008) "Linear Convergence of a Modified Frank-Wolfe Algorithm for Computing Minimum Volume Enclosing Ellipsoids," *Optimization Methods and Software*, 23(1), pp. 5-19,

- P. Sun, L. Yang and F. De Vericourt, (2009) "Selfish Drug Allocation for Containing an International Influenza Pandemic," *Operations Research*, 57(6), pp. 1320-1332.
- S. Wang, F. de Vericourt and P. Sun, (2009) "Decentralized Resource Allocation to Control an Epidemic: A Game Theoretic Approach," *Mathematical Biosciences*, 22(1), pp. 1-12.
- D. Brown, J.E. Smith and P. Sun, (2010) "Information Relaxation and Duality in Stochastic Dynamic Programs," *Operations Research*, 58(4), pp. 785-801.
- G. Lopomo, L. Marx and P. Sun, (2011) "Linear Programming for Mechanism Design: An Application to Bidder Collusion in First Price Auctions," *Review of Economic Design*, 15:177-211.
- X. Chen and P. Sun, (2012) "Optimal Structural Policies for Ambiguity and Risk Averse Inventory and Pricing Models," *SIAM Journal on Control and Optimization*, 50(1), 133-146.
- S. Alizamir, F. de Vericourt and P. Sun, (2013) "Diagnostic Accuracy under Congestion," *Management Science*, 59(1), 157-171.
- L. Yang, F. de Vericourt and P. Sun, (2013) "Duopoly Competition in Waiting Time with Reference Effect," *Manufacturing & Service Operations Management*, 16(1), 119-132.
- K. Johnson, D. Simchi-Levi and P. Sun, (2014) "Managing Scrip Systems," *Operations Research*, 62(3), 524-534.
- S. Alizamir, F. de Vericourt and P. Sun, (2016) "Efficient Feed-In-Tariff Policies for Renewable Energy Technologies," *Operations Research*, 64(1), pp. 52-66.
- S. Wang, P. Sun and F. de Vericourt, (2016) "Inducing Environmental Disclosure: A Dynamic Mechanism Design Approach," *Operations Research*, 64(2), pp. 371-389.
- P. Sun and F. Tian, (2018) "Optimal Contract to Induce Continued Effort," *Management Science*, 64(9), pp. 4193-4217.
- S. Balsiero, H. Gurkan and P. Sun, (2019) "Multi-agent Mechanism Design without Money," *Operations Research*, 67(5), pp. 1417-1436.
- S. Alizamir, F. de Vericourt and P. Sun, "Search under Accumulated Pressure," accepted for publication, *Operations Research*, 2019.
- M. Chen, P. Sun, and Y. Xiao, "Optimal Monitoring Schedule in Dynamic Contracts," accepted for publication, *Operations Research*, 2019.

F. Tian, P. Sun, and I. Duenyas, “Optimal Contract for Machine Repair and Maintenance,” accepted for publication, *Operations Research*, 2020.

Working papers

C. Lin, K. Shang and P. Sun, “Wait Time Based Pricing for Queues with Customer-Chosen Service Times,” submitted, 2020.

Y. Liang, P. Sun, R. Tang and C. Zhang, “Efficient Resource Allocation Contracts to Reduce Adverse Events,” submitted, 2020.

S. Wang, F. de Vericourt and P. Sun, “Audit and Remediation Strategies in the Presence of Evasion Capabilities,” working paper, 2017.

A. Belloni, B. Chen and P. Sun, “Structures of Optimal Policies in Dynamic Mechanism Design with One Agent,” 2016, under revision, 2019.

Grant

Co-PI, National Science Foundation #SES-0849349, “Applied Mechanism Design,” 2009-2011. (PI: Leslie Marx, Co-PIs: A. Belloni, G. Lopomo, P. Sun.)

Award

2018 ENRE Best Publication – Environment and Sustainability: Wang, Sun, and de Vericourt (2016), “Inducing Environmental Disclosure: A Dynamic Mechanism Design Approach,” *Operations Research*, 64(2).

2019 ENRE Best Publication – Environment and Sustainability (honorable mention): Alizamir, de Vericourt, and Sun (2016), “Efficient Feed-In-Tariff Policies for Renewable Energy Technologies,” *Operations Research*, 64(1).

PhD Student Supervision

Liu Yang, “Application of Game Theory Analysis in Epidemiology and Service Management,” Duke FSB, 2010. (co-advisor; first appointment: Tsinghua University, China.)

Saed Alizamir, “Essays on Optimal Control of Dynamic Systems with Learning,” Duke FSB, 2013. (co-advisor; first appointment: Yale University)

Kai Wang, “Heuristics for Inventory Systems Based on Quadratic Approximation of L^{β} -Convex Value Functions,” Duke FSB, 2014. (first job: data scientist at Electronic Arts, Inc.)

Huseyin Gurkan, Duke FSB (first appointment: ESMT, Berlin)

Mingliu Chen, Duke FSB (first appointment: associate research scientist at Columbia)

PhD Thesis Committee Member

Gavin Taylor, “Feature Selection for Value Function Approximation,” 2011. (Duke Computer Science.)

Shouqiang Wang, “Essays on Individual Incentives and Private Information,” 2011. (Duke Decision Sciences.)

Alvaro Mendoza, “Decision Models for Corporate Sustainability,” 2013. (Duke Decision Sciences.)

Bo Zhou, “Family Plans: Market Segmentation with Non-Linear Pricing,” 2014. (Duke Marketing.)

Zhankun Sun, “Priority Scheduling of Jobs with Hidden Types,” 2014. (University of North Carolina Chapel Hill, Operations Research.)

Yiting Deng, “A Household Level Model of Television Viewing with Implications for Advertising Targeting,” 2015. (Duke Marketing.)

Lu Huang, “Responsible Sourcing and Supply Chain Risk Management,” 2015. (Duke Operations Management.)

Jongsoo Hong, “Optimal Capital Requirements in Financial Networks with Fire Sales,” 2016. (Duke Decision Sciences.)

Ruoyu Wang, “Essays on Dynamic Tournaments,” 2017. (Duke Decision Sciences.)

Yue Zhang, “Global Supply Chain Management with Advanced Information and Production Technologies,” 2017. (Duke Operations Management.)

Van Vinh Nguyen, “Essays on Online Decisions, Model Uncertainty, and Learning,” 2017. (Duke Decision Sciences.)

Sajad Modaresi, “Dynamic Clustering and Assortment Personalization,” 2018. (Duke Operations Management.)

Chengyu Wu, “Effective Heuristics for Dynamic Pricing and Scheduling Problems with High Dimensionality,” 2019. (Duke Operations Management.)

Yunke Mai, “Analytical Models for Strategic Decisions in Settings with Asymmetric Information,” 2019. (Duke Decision Sciences.)

Chen Chen, “Performance Analysis in Large-Scale Stochastic Dynamic Programs,” 2020. (Duke Decision Sciences.)

Professional Activities

Associate Editor, *Operations Research*, 2006 - .

Associate Editor, *Management Science*, 2012 - .

Referee, *Operations Research*, *Management Science*, *Econometrica*, *SIAM Journal on Optimization*, *Mathematics of Operations Research*, *Mathematical Programming*, *Journal of Machine Learning Research*, *Manufacturing & Service*

Operations Management, SIAM Journal on Control and Optimization, Journal of Optimization Theory and Application, Journal of Marketing Research, Computational Optimization and Applications, Decision Analysis, IEEE Transactions on Neural Network, IEEE Transactions on Automatic Control, etc.

Management Science Meritorious Service Award, 2011, 2014, 2015.
 Operations Research Meritorious Service Award, 2012.
 Sponsored Sessions Chair, INFORMS Annual Meeting, Charlotte, 2011.
 NSF Panelist, 2011.
 Co-Chair, MSOM Sustainability SIG Conference, INSEAD, 2013.
 Discussant, MSOM Sustainability SIG Conference, INSEAD, 2013.
 Discussant, MSOM Sustainability SIG Conference, Toronto, 2015.
 Panelist, Hong Kong Research Grant Council (RGC), 2019-
 Judge, Decision Analysis Best Paper Award, 2019.

Invited Seminar Presentations

- University of California, Riverside, October 2020
- Purdue University, October 2020
- New York University, December 2019
- University of Illinois Urbana-Champaign, September 2019
- Tutorial, POMS International Conference, Tianjin, China, June 2019
- Hunan University, Changsha, China, June 2019
- Hong Kong University of Science and Technology, May 2019
- Stanford University, April 2019
- University of California Los Angeles, September 2018
- 15th ICSSSM (keynote speech), July 2018
- University of Southern California, April 2018
- University of Texas, Dallas, September 2017
- Fuqua Brown Bag seminar, August 2017
- University of Chicago, March 2017
- MIT, March 2017
- Northwestern University, October 2016
- Yale University, September 2016
- Shanghai Jiaotong University, July 2016
- Tsinghua University, June 2016
- Southwestern University of Finance and Economics, Chengdu, China, June 2015
- Beijing Foreign Studies University, June 2015
- University of Hong Kong, March 2015
- Tsinghua MostlyOM Workshop, Tsinghua University, Beijing, June 2014
- University of Minnesota, February 2014
- Tsinghua MostlyOM Workshop, Tsinghua University, Beijing, May 2013
- London Business School, March 2013
- University College London, March 2013
- NYU Stern School of Business, New York, March 2012
- UNC, Chapel Hill, April 11, 2011

- University of Illinois, Urbana-Champaign, March 11, 2010
- University of Michigan, An Arbor, February 24, 2010
- University of British Columbia, Vancouver, Canada, January 18, 2010
- Columbia University, New York, November 24, 2009
- National Singapore University, Singapore, May 2008
- Tsinghua University, Beijing, China, May 2008
- NYU Stern School of Business, New York, November 2007
- University of North Carolina at Chapel Hill, November 2003
- University of Western Ontario, Texas A&M University, University of Florida, University of Chicago, Duke University, Queens University and University of Iowa, January-February 2003

Teaching

Decision Models, core course, Daytime MBA, and Weekend, Cross Continent, Duke-Goethe EMBA, GEMBA, MQM, MSQM:HA, and MSQM:ABA programs, 2003-2009, 2015-.

Strategic Modeling and Business Dynamics, MBA elective, 2010-2014.

Dynamic Programming and Optimal Control, PhD course, 2005-2018 (approximately every other year).

Global Academic Travel Experience (GATE), MBA elective, 2010, 2012.

Service at the Fuqua School of Business

Senior Review Committee (elected by faculty), 2020-2022

Curriculum Committee, 2019-2021

Decision Sciences PhD Coordinator, 2019-2020

Curriculum Review Committee, 2019

Strategic Planning Committee, 2018

Online MQM Committee, 2018

Decision Sciences Area Coordinator, 2013-2016

Curriculum Committee, 2011-2013

Honor Code Committee, 2010-2011

China Strategy Committee, 2010-2011

Dean's Advisory Committee (elected by faculty), 2008 - 2010

Ad hoc promotion, appointment, and PhD admission committees.