

SAIF BENJAAFAR
Industrial and Systems Engineering
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Education

1. Ph.D., Purdue University, School of Industrial Engineering, 1992
2. M.S., Purdue University, School of Industrial Engineering, 1989
3. B.S., University of Texas at Austin, Department of Electrical Engineering, 1987

Professional Experience

1. Professor and Founding Director, Program in Industrial and Systems Engineering, University of Minnesota, 2008-present
2. Professor, Department of Mechanical Engineering, University of Minnesota, 2002-present
3. Director, Division of Industrial & Systems Engineering, University of Minnesota, 1997-2008
4. Director, Center for Supply Chain Research, University of Minnesota, 2002-present
5. Faculty Scholar, Center for Transportation Studies, University of Minnesota, 2008-present
6. Co-Director, Manufacturing Systems Engineering Program, 1999-2002
7. Associate Professor, Department of Mechanical Engineering, University of Minnesota, 1997-2002
8. Assistant Professor, Department of Mechanical Engineering, University of Minnesota, 1992-1997s

Visiting Appointments

1. Visiting Professor, Laboratoire Génie Industriel, Ecole Centrale Paris, France, 2003, 2009-2013
2. Visiting Professor, School of Management, University of Science and Technology, China, 2009
3. Visiting Professor, Department of Management Sciences, City University of Hong Kong, 2009
4. Visiting Professor, Business School, Hong Kong University of Science and Technology, 2008
5. Visiting Fellow, Faculty of Applied Economics, Katholieke Universiteit Leuven, Belgium, 2007
6. Visiting Fellow, Logistics Institute-Asia Pacific, National University of Singapore, 2005
7. Visiting Professor, Department of Industrial Engineering and Engineering Management, Hong Kong University of Science and Technology, 2004
8. Distinguished Visiting Senior Scientist, Honeywell Laboratories, Minneapolis, Minnesota, 2002

Research Interests

Broad interest in supply chain management, service and manufacturing operations, production and inventory systems, and applications of stochastic modeling, optimization, and game theory. Current research interests include sustainability and environmental modeling in supply chains, healthcare operations and healthcare supply chains, flexibility in service and manufacturing operations, and cooperation, competition, and incentives and resource sharing in supply chains and operations.

Recent Publications

1. Benjaafar, S., M. Elhafsi, C. Y. Lee and W. Zhou, "Optimal Control of Assembly Systems with Multiple Stages and Multiple Demand Classes," accepted for publication in *Operations Research*, 2010

2. Benjaafar, S., J. P. Gayon, and S. Tepe, "Production-Inventory Systems with Customer Impatience," accepted for publication in *Operations Research Letters*, 2010.
3. Benjaafar, S., M. Elhafsi and T. Huang, "Optimal Control of a Production-Inventory System with both Backorders and Lost Sales," *Naval Research Logistics*, 57, 252-265, 2010.
4. Gayon, J. P., S. Benjaafar and F. de Véricourt, "Using Imperfect Demand Information in Production-Inventory Systems with Multiple Demand Classes," *Manufacturing and Service Operations Management*, 11, 128-143, 2009.
5. Hu, B. and S. Benjaafar, "On Server Partitioning in Queueing Systems during Rush Hour," *Manufacturing and Service Operations Management*, 11, 416-428, 2009.
6. Begnaud, J., S. Benjaafar and L. A. Miller, "The Multilevel Lot Sizing Problem with Flexible Production Sequences," *IIE Transactions*, 41, 702-715, 2009.
7. Gaglioppa, F., L. Miller and S. Benjaafar, "Multi-Task and Multi-Stage Production Planning and Scheduling for Process Industries," *Operations Research*, 56, 110-1025, 2008.
8. Benjaafar, S., Y. Li, D. Xu and S. Elhedhli, "Demand Allocation in Systems with Multiple Inventory Locations and Multiple Demand Sources," *Manufacturing and Service Operations Management*, 4, 43-60, 2008.
9. Benjaafar, S., E. Elahi and K. Donohue, "Outsourcing via Service Quality Competition," *Management Science*, 53, 241-259, 2007.
10. Lahmar Lahmar, M. and S. Benjaafar, "Sequencing with Limited Flexibility," *IIE Transactions*, 39, 937-955, 2007 (**Featured Article in IIE Solutions Magazine**).
11. Benjaafar, S. and M. ElHafsi, "Production and Inventory Control of a Single Product Assemble-to-Order System with Multiple Customer Classes," *Management Science*, 52, 1896-1912, 2006.
12. Benjaafar, S., William L. Cooper and J. S. Kim, "On the Benefits of Inventory Pooling in Production-Inventory Systems," *Management Science*, 51, 548-565, 2005. Extended abstract in *Manufacturing and Service Operations Management Journal*, 4, 12-16, 2002 (**M&SOM Best Paper Award, Finalist**).
13. Lahmar, M. and S. Benjaafar, "Design of Dynamic Distributed Layouts," *IIE Transactions*, 37, 303–318, 2005 (**Outstanding Material Handling & Logistics Research Paper Award, Material Handling Institute; Featured Article in IIE Solutions Magazine**).
14. Benjaafar, S., M. Elhafsi and F. de Véricourt, "Demand Allocation in Multi-Product, Multi-Facility Make-to-Stock Systems," *Management Science*, 50, 1431–1448, 2004.
15. Gurusurthi, S. and S. Benjaafar, "Modeling and Analysis of Flexible Queueing Systems," *Naval Research Logistics*, 51, 755-782, 2004.
16. Benjaafar, S., J. S. Kim and N. Vishwanadham, "On the Effect of Product-Variety in Production-Inventory Systems," *Annals of Operations Research*, 126, 71-101, 2004.
17. Gupta, D. and S. Benjaafar, "Make-to-order, Make-to-stock, or Delay Product Differentiation? - A Common Framework for Modeling and Analysis," *IIE Transactions*, 36, 6, 2004 (**Featured Article in IIE Solution Magazine**).
18. Strike, D. and S. Benjaafar, "Practice Abstract: Optimizing Inventory Control at 3M," *Interfaces*, 34, 2, 2004 (**INFORMS Edelman Award, Semifinalist**).
19. Lahmar, M., Hakan, E. and S. Benjaafar, "Resequencing and Feature Assignment on a Moving Assembly Line," *IEEE Transactions on Robotics and Automation*, 19, 23-37, 2003. Extended Abstract in *Manufacturing and Service Operations Management Journal*, 31, 7-9, 2001 (**M&SOM Best Paper Award, Finalist**).
20. Benjaafar, S., "Modeling and Analysis of Congestion in the Design of Facility Layouts," *Management Science*, 48, 679-204, 2002.
21. Benjaafar, S., S. Heragu and S. Irani, "Next Generation Factory Layouts: Research Challenges and Recent Progress," *Interfaces*, 32, 6, 58-76, 2002.
22. Bar-Cohen, A., Benjaafar, S. and M. Iyengar, "Design for Manufacturability of Natural Convection Cooled Heat Sinks," *International Journal of Transport Phenomenon*, 4, 43-57, 2002.

Recent Grants and Contracts

1. "Optimizing the Supply Chain for Cost and Carbon Footprint," NSF, PI, **\$375,000**, 8/1/09-7/31/12
2. "NSF Symposium on the Carbon-Efficient Supply Chain," NSF, PI, **\$37,000**, 9/1/09-6/31/10
3. "Defending the Food Supply Chain," DHS, PI on sub-award from National Center for Food Safety and Defense, **\$310,000**, 1/01/10-12/31/12
4. "Low Carbon Logistics," USDOT, PI, **\$80,000**, 4/01/09-3/31/10
5. "Promoting Service Quality via Supplier Competition and Incentive Contracts," NSF, PI, **\$250,000**, 9/1/05-8/31/09
6. "Scheduling Algorithms for Multiple Products with Changeover Costs," General Mills, PI, **\$80,000**, 1/1/07-1/1/08
7. "Deploying RFID in the Healthcare Industry," Medical Industry Leadership Institute, University of Minnesota, **\$30,000**, 6/01/07-8/31/08
8. "SBIR Phase I: Applications of Valid Cuts to Optimization of Process Industry Supply Chain Management," NSF, PI on sub-award from Adventium Labs, **\$100,000**, 7/01/2005-6/30/06
9. "Optimizing Flexibility for Military Assets," Honeywell, PI, **\$30,000**, 12/1/06-12/1/07
10. Quantifying Flexibility in Sequential Decision Making," Air Force Office of Scientific Research, Co-PI with Caroline Hayes, **\$450,000**, 1/15/03-1/15/06
11. Product Design and Inventory Deployment for Improving Delivery Performance in the Steel Industry, NSF, Co-PI with Diwakar Gupta, **\$200,000**, 7/01/00-7/01/03
12. Design of Next Generation Factory Layouts, NSF, PI, **\$626,000**, 9/1/99-9/1/03
13. Integrated Planning and Scheduling in the Process Industry, Honeywell Laboratories, PI, **\$75,000**, 4/01/02-12/1/04
14. Symposium on Supply Chain Management in the Process Industry," NSF, PI, **\$20,000**, 12/1/02-12/31/03
15. Distributed Agents, DARPA, Co-PI: with Papanikolopoulos, **\$4,924,407** (**\$409,000** for S. Benjaafar), 4/1/98-4/1/2002

Selected Awards and Honors

1. Fellow of the Institute of Industrial Engineers, 2007
2. The George Taylor/IT Alumni Society Distinguished Teaching Award, University of Minnesota
3. Outstanding Material Handling & Logistics Research Paper Award, College Industry Council on Material Handling Education, Material Handling Institute, 2006
4. IIE Transactions Best Paper Award, Institute of Industrial Engineers, 2000 and 1999
5. IIE Outstanding Young Industrial Engineer Award, Institute of Industrial Engineers
6. Ralph E. Cross Outstanding Young Manufacturing Engineer Award, SME
7. Service Achievement Award, American Production and Inventory Control Society
8. Finalist, MSOM Best Student Paper Award, papers co-authored with Ph.D. students Joon –Seok Kim (2001) and Maher Lahmar (2002)
9. Pristker Best Doctoral Dissertation Award, dissertation of doctoral advisee Yimin Yu, 2010
10. Finalist, ILS El-Maghraby Best Student Paper Award, paper co-authored with Ph.D. student Soumaya Ben-Aicha, 2010
11. Semi-Finalist, INFORMS Edelman Award, Optimizing Inventory Control at 3M, 2003
12. The National Science Foundation Research Initiation Award
13. Keynote Speaker, International Conference on Modeling and Simulation (MOSIM), Tunisia, May 10-12, 2010
14. Featured Speaker, INFORMS Practice Conference, Orlando, Florida. 2010

Selected Professional Activities

1. Associate Editor, Manufacturing and Service Operations Management, 2009-present
2. Department Editor (Production/Inventory Systems), IIE Transactions, 2009-present
3. Associate Editor, Naval Research Logistics, 2007-present
4. Senior Editor, Production and Operations Management, 2006-present
5. Editorial Board Member, Manufacturing & Service Operations Management, 2004-2006
6. Department Editor (Manufacturing Systems), IIE Transactions, 2004-2008
7. Associate Editor, IEEE Transactions on Automation Science and Engineering, 2003-2007
8. Associate Editor, IIE Transactions, 2002-2004
9. Associate Editor, International Journal of Flexible Manufacturing Systems, 1996-2006
10. Chair, NSF Symposium on the Low Carbon Supply Chain, Washington DC, 2010
11. Chair, NIST Symposium on Supply Chain Management for Medical Devices, Minneapolis, 2006
10. Chair, NSF Symposium on Supply Chain Management in Process Industry, Minneapolis, 2004
11. Chair, Supply Chain Management Cluster, INFORMS International Conference, Hong-Kong, 2006
12. Program chair for the Manufacturing and Service Operations Management Cluster, INFORMS Annual Meeting, 2002 and 1996
13. Member, of program Committee for several national and international conferences including IERC, ICRA, IEPM, ISOMA and INCOSE
14. Referee for various journals including Management Science, Operations Research, MSOM, IIE Transactions, NRL, Interfaces, and IEEE Transactions

Recent Courses Taught

1. Production Planning and Inventory Control (at UMN)
2. Advanced Topics in Inventory and Supply Chain Management (at UMN and HK City U)
2. Stochastic Inventory Theory (at UMN & HKUST)
3. Manufacturing Operations and Strategy (at UMN)
4. Design of Manufacturing Systems (at UMN)
5. Stochastic Models in Operations Research (at HKUST)
6. Topics in Optimization (at UMN)

Selected Industry Collaboration and Consulting

Mayo Clinic, Fairview Hospitals, Pearson-Vue, Adventium, General Mills, 3M, Ford, GE, Northwest Airlines, Honeywell, Intel, i2 Technologies, St Jude Medical, Alliant Tech, Celestica, Hunt-Wesson, Recovery Engineering - PÜR, VTC Semiconductor, American Converter, Minnesota Technology, Inc., Systematic Refrigeration, Performax, Doane Pet Food Care, and Murnane-Conlin-White-and-Brandt Law Firm

Selected Invited Talks at Universities

US: MIT, Georgia Institute of Technology, Northwestern University (Kellogg & IEMS), University of Michigan, University of Wisconsin at Madison, Washington University in St Louis, Lehigh University, Virginia Tech, Iowa State University (Miller Endowment Speaker), State University of New York, University of Iowa, and University of Minnesota

International: Chinese Academy of Sciences, Katholieke Universiteit Leuven, Université Catholique de Louvain, National University of Singapore, Koç University, Hong Kong University of Science and Technology (IEMS & Business School), Zhejiang University, Eindhoven Technical University, Ecole Centrale Paris, McGill University, Ecole Polytechnique de Tunis, University of Waterloo, Laval

University, University of Alberta, University of Science and Technology of China (Hefei), Wilfid Laurier
University (Distinguisher Speaker Series)