

Seyed M.R. Iravani

Department of Industrial Engineering and Management Sciences

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RESEARCH INTEREST

I am interested in the applications of stochastic processes, game theory, social networks and queueing theory to the design and control of manufacturing, service operations systems, health care, and supply chains, and non-profit systems focusing on improving their *flexibility*, *coordination*, and *responsiveness*. My goal is to develop mathematical models that provide scientific principles and tools to improve the performance of such systems. I am particularly interested in developing *easy-to-implement* and *cost-effective* practices (e.g., management control policies, design principles) for complex operations problems whose optimal control is not practical, or is not computationally feasible.

EDUCATION

1993–1997, Ph.D. in Industrial Engineering, University of Toronto, Canada.

1986–1989, M. S. in Industrial and System Engineering, Iran University of Science and Technology (IUST), Tehran, Iran.

1982–1986, B. S. in Industrial and System Engineering, Iran University of Science and Technology (IUST), Tehran, Iran.

1979–1981, Training courses in Electronics and Electrical Engines and Relays, Tehran Institute of Technology, Tehran, Iran.

EMPLOYMENT

2012, *Visiting Professor*, Booth School of Business, Chicago, IL.

2011, *Visiting Professor*, KAIST Business School, Seoul, South Korea.

2010 – Present, *Professor*, Northwestern University, Evanston, IL.

2005 – 2010, *Associate Professor*, Northwestern University, Evanston, IL.

1998 – 2005, *Assistant Professor*, Northwestern University, Evanston, IL.

2003, (*On Leave*) at Scientific Research Laboratory, Ford Motor Company, Dearborn, MI.

1997, *Postdoctoral Fellow*, Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, Michigan.

1989 – 1992, *Instructor*. Taught various courses in Operations Research and Production/Logistics at industrial engineering departments, business schools, and Executive programs (in Industry Center) in Iran.

PUBLICATIONS

Published or Accepted for Publication

- J1. Bayram, A., Deo, S., Iravani, S.M.R., and K. Smilowitz (2019), "Managing Virtual Appointments in Chronic Care." To appear in *IIE Transactions on Healthcare systems Engineering*.
- J2. Ansari, S., Iravani, S.M.R., and Q. Shao (2019), "Optimal Control Policies in Service Systems with Limited Information on the Downstream Stage," *Naval Research Logistics* **66** (5), 367-392.
- J3. Ng Lane, J., Ankenman, B. and S.M.R. Iravani (2018). "Insight into Gender Differences in Higher Education: Evidence from Peer Reviews in an Introductory STEM Course." *Service Science*, **10** (4) 442-456.

- J4. Saghaian, S., Hopp, W.J., Iravani, S.M.R., Cheng, Y. and D. Diermeire (2018). "Workload Management in Telemedical Physician Triage and Other Knowledge-Based Service Systems." *Management Science*, **64** (11) 5180-5197.
- J5. Yu, Q., Allon, G., Bassamboo, A. and S.M.R. Iravani (2017). "Managing Customer Expectations and Priorities in Service Systems." *Management Science* **64** (8) 3942-3970.
- J6. Lien, R., Iravani, S.M.R., and K. Smilowitz (2014), "Sequential Resource Allocation for Nonprofit Operations." *Operations Research* **62** 301-317. **2008 MS&OM Student Paper Competition Finalist.**
- J7. Balcik, B., Iravani, S.M.R., and K. Smilowitz. (2014) Multi-vehicle sequential resource allocation for a nonprofit distribution systems. *IIE Transactions* **46** (12), pp. 1279-1297.
- J8. Ebrahimi, N., Iravani, S.M.R., and H. Shin (2014), "The Role of Salesperson with Demand Information in a Supply Chain: The Wholesale vs. Retail Salesperson." *Manufacturing and Service Operations Management*, **16** 76-88.
- J9. Deo, S., Iravani, S.M.R., Jiang, T., Smilowitz, K. and S. Samuelson. "Improving access to community-based chronic care through improved capacity allocation." *Operations Research* **61** (2013) 1277-1294.
- J10. Gokpinar, B., Hopp, W.J., and S.M.R. Iravani. "In-house Globalization: The Role of Globally Distributed Design and Product Architecture on Product Development Performance." *Production and Operations Management* **22** (2014) 1509-1523.
- J11. Iravani, S.M.R., Kolfal, B., and M.P. Van Oyen. "Process Flexibility and Inventory Flexibility via Product Substitution." *Flexible Services and Manufacturing*, **26** (2014) 320-343.
- J12. Iravani, S.M.R., Liu, T., and D. Simchi-Levi. "Optimal Production and Admission Policies in Make-to-Order/Make-to-Stock Manufacturing Systems." *Production and Operations Management* **21** (2012) 224-235
- J13. Arifoglu, K., Deo, S., and S.M.R. Iravani. "Coordinating Influenza Vaccine Supply Chain: Role of Consumption Externality and Yield Uncertainty." *Management Science* **58** (2012) 1072-1091 **MS&OM Student Paper Competition Finalist.**
- J14. Ebrahim Kanjari, N. Hopp, W.J., and S.M.R. Iravani. "Trust and Information Sharing in Supply Chains." *Production and Operations Management* **21** (2012) 444-464.
- J15. Iravani, S.M.R., Kolfal, B. and M.P. Van Oyen. "Capability Flexibility: A Decision Support Methodology for Parallel Service and Manufacturing Systems with Flexible Servers." *IIE Transactions* **43** (2011) 363-382.
- J16. Ilhan, T., Iravani, S.M.R., and M. Daskin. "The Adaptive Knapsack Problem with Stochastic Demands." *Operations Research* **59** (2011) 242-248
- J17. Lien, R. Iravani, S.M.R., Smilowitz, K., and M. Tzur. "Efficient and Robust Transshipment Network Design." *Production and Operations Management* **20** (2011) 699-713.
- J18. Gokpinar, B., Hopp, W.J., and S.M.R. Iravani. "The Impact of Product Architecture and Organization Structure on Efficiency and Quality of Complex Product Development." *Management Science* **56** (2010) 468-484.
- J19. Hopp, W.J., Iravani, S.M.R., and W. Lu Xu. "Vertical Flexibility in Supply Chains." *Management Science*. **56** 495-502.
- J20. Chao, G., Iravani, S.M.R. and C. Savaskan (2009), "Quality Improvement Incentives and Product Recall Cost Sharing Contracts." *Management Science* **55** (2009) 1122-1138.
- J21. Hopp, W.J., Iravani, S.M.R., and F. Liu. "White Collar Workforce Management: An Operations-Oriented Survey." *Production and Operations Management* **18** (2009) 1-32.
- J22. Hopp, W.J., Iravani, S.M.R., Shou, B. and R. Lien. "Design and Control of Agile Automated CONWIP Production Lines." *Naval Research Logistics* **56** (2009) 42-56.
- J23. Ilhan, T., Iravani, S.M.R., and M. Daskin. "The Orienteering Problem with Stochastic Demand," *IIE Transactions* **40** (2008) 406-421.

- J24. Huang, B. and S.M.R. Iravani. "A Make-to-Stock System with Multiple Customer Classes and Batch Ordering." *Operations Research* **56** (2008) 1312–1320.
- J25. Hopp, W.J., Iravani, S.M.R., and B. Shou. "A Diagnostic Tree for Improving Serial Manufacturing Environments." *Production and Operations Management* **16** (2007) 77–92.
- J26. Iravani S.M.R., Krishnamurthy, V., and G.H. Chao. "Optimal Server Scheduling in Nonpreemptive Finite-Population Queueing Systems." *Queueing Systems* **55** (2007) 95–105.
- J27. Huang, B. and S.M.R. Iravani. "Optimal Production and Rationing Decisions in Supply Chains with Information Sharing." *Operations Research Letters* **35** (2007) 669–676.
- J28. Iravani, S.M.R., Liu, T., Luangkesorn, L. and D. Simchi-Levi. "A Produce-to-Stock System with Advanced Order Information and Secondary Customers." *Naval Research Logistics* **54** (2007) 331–345.
- J29. Iravani, S.M.R., Kolfal, B., and M.P. Van Oyen. "Call Center Labor Cross-Training: It's a Small World After All." *Management Science* **53** (2007) 1102–1112.
- J30. Hopp, W., Iravani, S.M.R., and G. Yuen. "Discretionary Task Completion: A Key Difference between White-Collar and Blue-Collar Work Systems." *Management Science* **53** (2007) 61–77. **MS&OM Student Paper Competition Finalist.**
- J31. Iravani, S.M.R. and V. Krishnamurthy. "Workforce Agility in Repair and Maintenance Environments." *Manufacturing and Service Operations Management* **9** (2007) 168–184.
- J32. Sennott, L. I., M. P. Van Oyen and S.M.R. Iravani. "Optimal Dynamic Assignment of a Flexible Worker on an Open Production Line with Specialists." *European Journal of Operational Research* **170** (2006) 541–566.
- J33. Huang, B. and S.M.R. Iravani. "Production Control Policies in Supply Chain under Selective Information Sharing." *Operations Research* **53** (2005) 662–674.
- J34. Iravani, S.M.R., Sims, K. and M.P. Van Oyen. "Structural Flexibility: A New Perspective on the Design of Manufacturing and Service Operations." *Management Science* **51** (2005) 151–166.
- J35. Hopp, W.J., Iravani, S.M.R., and B. Shou. "Serial Agile Production Systems with Automation." *Operations Research* **53** (2005) 852–866.
- J36. Iravani, S.M.R. and C.P. Teo. "Asymptotically Optimal Schedules for Single-Server Flow Shop Problems with Setup Costs and Times." *Operations Research Letters* **33** (2005) 421–430.
- J37. Iravani, S.M.R., and B. Kolfal. "When Does The $c\mu$ Rule Apply to Finite-Population Queueing Systems." *Operations Research Letters* **33** (2005) 301–304.
- J38. Iravani, S.M.R., Buzacott, J.A. and M.J.M. Posner. "Robustness of Limited Policy in an Agile Production System." *Naval Research Logistics* **52** (2005) 58–73.
- J39. Kula, U., Duenyas, I. and S.M.R. Iravani. "Estimating Job Waiting Times in Production Systems with Cross-Trained Setup Crews." *IIE Transactions* **36** (2004) 999–1010.
- J40. Iravani, S.M.R., Luangkesorn, L. and D. Simchi-Levi. "A General Decomposition Algorithm for Parallel Queues with Correlated Arrivals." *Queueing Systems* **47** (2004) 313–344.
- J41. Iravani, S.M.R., Posner, M.J.M. and J.A. Buzacott. "Operations and Shipment Scheduling of a Batch on a Flexible Machine." *Operations Research* **51** (2003) 585–601.
- J42. Iravani, S.M.R., Luangkesorn, L. and D. Simchi-Levi. "On Assemble-To-Order Systems with Flexible Customers." *IIE Transactions* **35** (2003) 389–403.
- J43. Iravani, S. M. R. and I. Duenyas. "Integrated Maintenance and Production Control of a Deteriorating Production System." *IIE Transactions* **34** (2002) 423–435.
- J44. Iravani, S.M.R., Duenyas I. and T.L. Olsen. "A Production/Inventory System Subject to Failure with Limited Repair Capacity." *Operations Research* **48** (2000) 951–964.
- J45. Iravani, S.M.R., Posner, M.J.M. and J.A. Buzacott. "A Two-Stage Tandem Queue Attended by a Moving Server with Holding and Switching Costs." *Queueing Systems* **26** (1997) 203–228.

- J46. Iravani, S.M.R. and M.J.M. Posner. "An $M/G/1$ Queue with Cyclic Service Times." *Queueing Systems* **22** (1996) 145–169.
- J47. Birnbaum, B., Hopp, W.J., Iravani, S.M.R., Livingston, K., Shou, B. and T. Tirpak. "Task Aware Information Access for Diagnosis of Manufacturing Systems." *The Proceeding of 2005 International Conference on Intelligent User Interfaces., (IUI'05)* pp. 308–310.

Papers Submitted and Under Revision:

- S1. Yu, L., Iravani, S.M.R., and O. Perry (2019). "A Fluid-Diffusion Hybrid Limit for Priority Systems with Fast and Slow Customers." Under revision for *Operations Research*.
- S2. Li, L., Duenyas, I. and S.M.R. Iravani (2016), "Capacity Option Transfer Rights: Do They Benefit Suppliers?" Under second revision for *Production and Operations Management*.
- S3. Kim, B., Park, K. S., S.M.R. Iravani (2018), "Sequential Capacity Allocation under Order Manipulation: Efficiency and Fairness." Under second revision for *Production and Operations Management*.
- S4. Iravani, S.M.R., Khanjari, N., and H. Shin (2017), "Demand Information Sharing in a Supply Chain of Durable Goods with Pricing Decisions," under revision for *Manufacturing and Service Operations Management*.
- S5. Ansari, S., Debo, L. and S.M.R. Iravani (2018), "Optimal Policy in Single-Server Multi-Class Queuing Systems with Abandonments," Submitted to *Queueing Systems*.

Books and Book Chapters:

- B1. Diermeier, D., Hopp, W.J., and S.M.R. Iravani "Innovating Under Pressure – Towards A Science of Crisis Management." A Chapter in *Innovation Policy and the Economy*, Volume 7, NBER Publisher.
- B2. Iravani, S.M.R. "Design and Control Principles of Flexible Workforce in Manufacturing Systems." To appear after minor revision in *Encyclopedia of Operations Research and Management Science*. Wiley, 2011.
- B3. Balcik, B., Iravani, S.M.R., and K. Smilowitz. "A Review of Equity in Nonprofit and Public Sector: A Vehicle Routing Perspective." To appear in *Encyclopedia of Operations Research and Management Science*. Wiley, 2011.
- B4. Hopp, W.J., Iravani, S.M.R., and Z. Liu. "Mitigating the Impact of Disruptions in Supply Chains." To appear in *Supply Chain Disruptions: Theory and Practice of Managing Risk*. Springer, 2011.
- B5. Iravani, S.M.R., *Queueing Systems, Vol. I: Poisson Process and Markov Chains*. IUST Press, Tehran, 1992 (in Persian).
- B6. Iravani, S.M.R., *Queueing Systems, Vol. II: Queueing Models*. IUST Press, Tehran, 1993 (in Persian).

HONORS AND AWARDS

2016, Graduate Teaching Award, department of IEMS, Northwestern University.

2012, Graduate Teaching Award, Department of IEMS, Northwestern University.

2008, Graduate Teaching Award, Department of IEMS, Northwestern University.

2007, ASG Faculty Honor Roll Award, Northwestern University.

2006, IIE Operations Research Division Award for Excellence in the Teaching of Operations Research.

2003–2006, Pentair-Nugent Chair Professorship in Manufacturing, Northwestern University.

2002 Graduate Teaching Award, Department of IEMS, Northwestern University.

RESEARCH FUNDING AWARDS

1. *National Science Foundation*, (2018–2021) “Decision Flow Networks for Effective Classification in Service Systems.” Total amount: \$439,918. Position: Principal Investigator. Co-PI: Chaithanya Bandi.
2. *Provost Office, Northwestern University* (2015–2016) “Fostering Effective Online Discussions in Higher Education with Nebula, a Graphical Interface for Discussion Boards.” Total \$36,980. Position: Principle Investigator. Co-PI: Noshir Contractor.
3. *National Science Foundation*, (2013–2016) “Managing Downstream Patient Flow process Using Improved Coordination and Staffing” Total amount: \$351,471. Position: Co-Principal Investigator with Sanjay Mehrotra.
4. *National Science Foundation*, (2013–2016) “Collaborative Research: The Positive Role of Queues on Consumer Value Perception and Firm’s profit – Mathematical Models and Laboratory Experiments.” Total amount: \$286,269. Position: Principal Investigator
5. *National Science Foundation*, (2011–2014) “Design and Control Principles for Mobile Health Care Operations Management—The Case of Asthma Control” Total amount: \$350,000. Position: Principal Investigator, Co-PIs: Paul Detjen, Sarang Deo, and Karen Smilowitz.
6. *National Science Foundation*, (2007–2010) “Design and Control Principles for Non-Profit Supply Chains.” Total amount: \$284,446. Position: Principal Investigator, Co-PI: Karen Smilowitz.
7. *National Science Foundation*, (2005–2008) “Collaborative Research: Design Methodology for Operational Flexibility.” Total amount: \$181,526. Position: Principal Investigator.
8. *National Science Foundation* (2004–2007), “GOALI: Principles of White Collar Workforce Management.” Total amount: \$350,000. Position: Co-PI. Other PI’s: Wallace J. Hopp, and Brian Uzzi (from Kellogg School of Management, Northwestern University), and William Jordan and Susan Owen (from General Motors).
9. *National Science Foundation* (2001–2004), “GOALI: Principle-Based Knowledge Management System for Cellular Manufacturing.” Total amount: \$469,025. Position: Co-PI. Other PI’s: Wallace J. Hopp, Lawrence Birnbaum (from Department of Computer Science, Northwestern University), and Tom Tirpak (from Motorola).
10. *National Science Foundation* (2000–2003), “Collaborative Research: Robust Strategies for Cross-Training Call Center Agents – Taxonomy, Models and Analysis.” Total amount: \$189,433. Position: Principal Investigator.
11. *National Science Foundation* (1999–2002), “Collaborative Research: Repair, Maintenance, and Setup Capacity: Optimal Size and Operation.” Total amount: \$202,807. Position: Principal Investigator.
12. OSI-Soft (2008), “Developing Software for RTMS System.” Total amount: \$15,000. Position: Principle Investigator.
13. *Murphy Society* (2003), “Real Time Machine Simulation.” Total amount: \$32,800, Position: Principal Investigator.

PATENT

United State Patent Number: 7,949,501, May 24, 2011. *Real Time Machine Simulation (RTMS) System*: RTMS is a new approach to computer simulation of manufacturing systems. It includes human (i.e., students or operators) as part of the computer simulation.

TEACHING

IEMS 383 Service Operations Management to Undergraduate Industrial Engineering Students
IEMS 382 Production Planning and Scheduling to Undergraduate Industrial Engineering Students
IEMS 480-2 Production and Logistics II to Graduate Industrial Engineering Students
IEMS 483 Reliability and Maintenance in Production Systems to Graduate Industrial Engineering Students

IEMS 464 *Advanced Queueing Theory* to Graduate Industrial Engineering Students
 OPNS 430 *Operations Management* to MBA Students at Kellogg School of Management
 IEMS 471-1 *Factory Physics I* to Dual-Degree MBA Students at Kellogg School of Management
 IEMS 471-2 *Factory Physics II* to Dual-Degree MBA Students at Kellogg School of Management
 IEMS 490 *Operations* to Dual-Degree MBA Students at Kellogg School of Management
 IEMS 407 *Quantitative Methods of Decision Making* to Professional Master of Engineering Management students

STUDENT ADVISING

Ph.D Advisees

1. Boray Huang, Graduated Spring 2004. Dissertation Topic: "Optimal Production-Inventory Policies in Supply Chains with Information Sharing."
Position after graduation: Assistant Professor, School of Business Administration, The University of Mississippi.
2. Louis Luangkerson, Graduated Summer 2004. Co-advised with David Simchi-Levi. Dissertation Topic: "Hybrid Produce-To-Order/Produce-To-Stock Systems."
Position after graduation: Associate Operations Research Analyst, Rand Corporation.
Current Position: Visiting Assistant Professor in the Department of Industrial Engineering at the University of Pittsburgh.
3. Biyang Shou, Graduated Summer 2004. Co-advised with Wally Hopp. Dissertation Topic: "Modeling and Knowledge Management of Agile Production Systems with Automation."
Position after graduation: Supply Chain Analysts, 4R Systems.
Current Position: Assistant Professor, Department of Management Science, City University of Hong Kong.
4. Viji Krishnamurthy, Graduated January 2005. Dissertation Topic: "Design and Control of Production Systems with Agile Repair Crew and Advance Order Information."
Position after graduation: Supply Chain Integration, Lumileds Lighting.
5. Bora Kolfal, Graduated Summer 2006. Dissertation Topic: "Flexibility in Production and Service Operations Systems."
Position after graduation: Assistant Professor, School of Business, University of Alberta.
6. Gigi Yuen, Graduated Summer 2006, Co-advised with Wally Hopp. Research Topic: "Principles of White-Collar Workforce Management."
Position after graduation: IBM Global Services.
7. Gary Chao, Graduated Summer 2007, Co-advised with Canan Savaskan (from Kellogg School of Management). Research Topic: "Warranty Contracts in Supply Chains."
Position after graduation: Assistant Professor, Department of Management, College of Business at Kutztown University.
8. Fang Liu, Graduated Summer 2007. Co-advised with Wally Hopp. Research Topic: "Knowledge Flow Networks and Productivity of Work Systems."
Position after graduation: Modeling Analyst, Merrill Lynch. *Current Position:* Vice President, Decision Support Modeling, Bank of America.
9. Taylan Ilhan, Graduated Summer 2007, Co-advised with Mark Daskin. Research Topic: "Stochastic Orienteering Problem."
Position after graduation: Quantitative Research Analyst. Quantlab Financial, Houston.

10. Robert Lien, Graduated Spring 2008, Co-advised with Karen Smilowitz. Research Topic: "Design Principles for Effective Transshipment Networks."
Position after graduation: Senior Analyst, Beghou Consulting.
11. Bilal Gokpinar, Graduated Spring 2008. Co-advised with Wally Hopp. Research Topic: "Structure of Knowledge-Based Organizations."
Position after graduation: Assistant Professor, Department of Management Science and Innovation, University College London, London, England.
12. Zigeng Yin, Graduated Spring 2009. Co-advised with Wally Hopp. Research Topic: "Robustness of Supply Chains Subject to Random Interruption."
Position after graduation: Assistant Professor, School of Business, University of Wisconsin, Madison.
13. Neda Ebrahim Khanjari, Graduated Summer 2012. Research Topic: "Impact of Salesforce on Supply Chain Coordination."
Position after graduation: Visiting Assistant Professor, College of Business, University of Illinois, Urbana-Champaign.
Current Position: Assistant Professor, School of Business, Rutgers University.
14. Kenan Arifoglu, Graduated Summer 2012. Co-advised with Sarang Deo. Research Topic: "Managing Supply Chains of Vaccines."
Position after graduation: Assistant Professor, Department of Management Science and Innovation, University College London, London, England.
15. Linlin Li, Expected graduation Summer 2012. Co-advised with Izak Duenyas. Research Topic: "Efficient Capacity Reservation Contract in Supply Chains with Transshipment."
Position after graduation: Supply Chain Research, Google.
16. Qifeng Shao, Expected graduation January 2013. Research Topic: "Knowledge Crisis Management Modeling and Analysis."
17. Joseph Warfel, Expected graduation Summer 2013. Co-advised with Karen Smilowitz. Research Topic: "Design of Operations for Retail Donations in Nonprofit Supply Chains."
18. Tingting Jiang, Expected graduation Summer 2013. Co-advised with Karen Smilowitz and Sarang Deo. Research Topic: "Effective Management of Mobile Health Services."
19. Qiuping Yu, Expected graduation Summer 2014. Co-advised with Gad Allon and Achal Bassamboo. Research Topic: "Call Center and Service Operations Management."
Position after graduation: Assistant Professor, Kelley School of Business, Indiana University
20. Chen Jin, Expected graduation Summer 2016. Co-advised with Laurens Debo. Research Topic: "Behavioral Queueing Theory in Service Operations and Health Care."
Position after graduation: Postdoctoral Researcher, Wharton School, University of Pennsylvania.
Current Position: Assistant Professor, National university of Singapore.
21. Sina Ansari, Expected graduation Summer 2018. Co-advised with Laurens Debo. Research Topic: "Impact of Delay Announcement on Patient satisfaction in Emergency Departments"
Position after graduation: Postdoctoral Research Fellow, Tuck School of Business, Dartmouth College.
22. Jackie Ng, Expected graduation Summer 2018. Co-advised with Nosh Contractor. Research Topic: "Improving Learning through Complex Systems in Educational Service Systems"
Position after graduation: Postdoctoral Fellow, Harvard University.
23. Nastaran Shojaei, Expected graduation Summer 2019. Co-advised with Omid Nohedani. Research Topic: "Design of effective Radio Therapy Using Robust Optimization"
24. Lun Yu, Expected graduation Summer 2019. Co-advised with Ohad Perry. Research Topic: "Managing Triage Capacity in Emergency Department"

25. Esmat Sangari, Expected graduation Summer 2021. Research Topic: "Pricing and Inventory Management in Omni Channels of Supply Chains."
26. Zhanghao Liu, Expected graduation Summer 2022. Research Topic: Decision Flow Networks and their applications in Customer Classifications in Service Systems and Social Media."

Undergraduate Advisees

- Independent studies IEMS 399 with Anjanil Gupta, Caroline Walton and Jacqueline Bearman;
- The development of an RTMS prototype, with Charlie Parker, Mehul Patel, and Bianca Rosenbaum co-advising with Larry Henschen;
- On-line advising for freshmen, with Steve Knapp, Marisa Lattanzi, and Evan Rigterink, working co-advising with Joseph Holtgreive.
- Senior Design Project, with Hadi Akberali, Erik Langeteig, Milagros Navarrele, Andres Otero, Carl Scheider, Hector Mendoza, John Moore, Arthur Ospina, Kathy Saldivar, Laura Vargas, Anurag Jain, Delius Mak, and John Dunbar. *The team of Anurag Jain, Delius Mak and John Dunbar won the best Senior Design Project in IEMS in 2008.*

SERVICE

Professional Service

- MSOM Cluster Chair for Informs Miami 2001. The cluster included 27 sessions, 2 tutorials and 1 panel discussion.
- Conference organizer member for MSOM Conference 2005
- Conference organizer member for Multi-Echelon Inventory Conference in 2005
- National Science Foundation (NSF) Grant Proposal Review Panel, 2001.
- National Science Foundation (NSF) Grant Proposal Review Panel, 2009.
- M&SOM Student Paper Competition Review Panel, 2004.
- M&SOM Best Paper Award Review Panel, 2011.

Editorial Service

- Department Editor, Service Operations Management, *Informs Journal of Service Science*, 2015 to present
- Associate Editor, *Operations Research*, 2006 to present
- Department Editor, Service Operations Engineering, *IIE Transactions*, 2009 to 2016
- Associate Editor, *Management Science*, 2002 to 2009
- Associate Editor, *IIE Transactions*, 2001 to 2009
- Associate Editor, *Naval Research Logistics*, June 2004 to 2009
- Co-Editor of the special issue of *IIE Transactions* on Workforce Agility, October 2004.
- Served as Referee for:

Management Science, Operations Research, Manufacturing and Service Operations Management, IIE Transactions, Queueing Systems, Naval Research Logistics, Production and Operations Management, International Journal of Production Economics, European Journal of Operational Research, IEEE Transactions on Automation Science and Engineering

Department and University Service

- Director of IEMS Graduate Studies, 2017 to present
- McCormick Promotion and Tenure Committee, 2015 to present

- Northwestern Institute on Complex Systems (NICO) Executive Board, 2006 to present
- Organizing NICO Complexity Conference (with Noshir Contractor and Uri Wilensky), 2009
- IEMS Graduate Program Committee, 2000 to present
- Nemhauser Best Dissertation and Best Student Paper Committee. IEMS Department, 2014 to present
- Manufacturing and Design Engineering (MaDE) Advisory Committee, 2000 to present
- Chair of Faculty Search Committee, Department of IEMS 2008
- Chair of Faculty Search Committee, Department of IEMS 2009
- Faculty Search Committee, MEDS Department, Kellogg School of Management, 2008
- Faculty Search Committee, MEDS Department, Kellogg School of Management, 2009
- Organizing IEMS Seminars, 2003

Professional Society Membership

- American Society for Engineering Education (ASEE)
- The Institute for Operations Research and Management Sciences (INFORMS)
- The Institute of Industrial Engineers (IIE)
- Manufacturing and Service Operations Management Society (M&SOM)

TALKS AND PRESENTATIONS

- *Invited talk:* Kenan-Flagler Business School, University of North Carolina, 2016. "Observational Learning in Environments with Large Choice Options."
- *Invited talk:* School of Computing, Informatics, and Decision Systems Engineering, Arizona State University. 2015. "Making Choices: Observational Learning and Wisdom of Minority."
- *Invited talk:* Krannert School of Management, Purdue University. 2012. "Modeling Knowledge and Coordination in Professional service Systems."
- *Invited Talk:* Samsung Supply Chain Headquarter, 2011. "Applications of Social Networks in Product Development."
- *Invited Talk:* University of Southern California, Marshall School of Business. November 2009. "Modeling Discretion, Knowledge and Coordination in Professional Service Systems."
- *Invited Talk:* University of Illinois, Chicago, Department of Mechanical and Industrial Engineering, February 2008. "Applications of Social Networks in Operations Management."
- *Invited Talk:* University of Houston, Department of Industrial Engineering, March 2007. "Workforce Agility in production and Service Operations Systems."
- *Invited Talk:* Complexity in Action Network (CANet), October 2007. "The Impact of Product Architecture and Organization Structure on Efficiency and Quality of Complex Product Development."
- *Invited Talk:* Massachusetts Institute of Technology, Operations Research Center, December 2006. "Workforce Agility in production and Service Operations Systems."
- *Invited Talk:* Olin School of Business, Washington University in St. Louis, November 2004. "Structural Flexibility: A New Perspective on the Design of Manufacturing and Service Operations."
- *Invited Talk:* Department of Management Science, University of Washington, May, 2004. "Structural Flexibility: A New Perspective on the Design of Manufacturing and Service Operations."
- *Invited Talk:* Department of Mechanical Engineering, University of Minnesota, March 2004, "Workforce Agility in production and Service Operations Systems."

- *Invited Talk:* Department of Industrial Engineering and Operations Research, University of California, Berkeley, November 2001. "Scheduling of Agile Workers in Serial Production Systems."
- *Invited Talk:* School of Management, University of California, Irvine, February, 2001. "Scheduling of Agile Workers in Serial Production Systems".
- *Invited Talk:* Department of IOE, University of Michigan, January 10, 2001. "Scheduling of Agile Workers in Serial Production Systems".
- *Invited Talk:* Department of Information System and Operations Management, Loyola University, December, 2000. "Scheduling of Agile Workers in Serial Production Systems."
- *Invited Talk:* Department of Management Science, University of Washington, October, 2000. "Scheduling of Agile Workers in Serial Production Systems".
- *Invited Talk:* Department of Industrial Engineering, University of Nebraska, 1998. "Cross-Trained Workers in Serial Production Systems."
- *Invited Talk:* Department of ISyE, Georgia Institute of Technology, 1998. "Tandem Queues Attended by Moving Servers."
- *Invited talk:* Ford Scientific Research Laboratory, February, 2002, "Assemble-to-Order Systems with Flexible Customers."
- *Invited Talk:* Informs Atlanta, November 2003, "*Tutorial:* Workforce Agility in Production and Service Operations Systems."
- *Invited Talk:* Informs Atlanta, November 2003, "Structural Flexibility and its Application to Manufacturing and Service Operations."
- *Invited Talk:* Applied Probability Conference, July 2001, "Robustness of Limited Policies in Agile Production Systems."
- Informs Washington D.C., October 2008, "Coordination and Performance of Engineers in New Product Development."
- Informs Washington D.C., October 2008, "Crisis Management Operations for Workload Crisis."
- Informs Washington D.C., October 2008, "Strategic Risk from Supply Chain Disruption."
- Informs Washington D.C., October 2008, "The Impact of Misalignment of Organization Structure and Product Architecture on Quality."
- Informs Seattle, November 2007, "Inventory Allocation in a Nonprofit Distribution System."
- Informs Seattle, November 2007, "Inventory and Process Flexibility in a Make-to-Stock System with Product Substitution."
- Informs Seattle, November 2007, "Statistic Risk Mitigation of Supply Chain Disruption."
- Informs Pittsburgh, November 2006, "Managing Collaboration in Knowledge-Incentive Environment."
- Informs Pittsburgh, November 2006, "Optimal Production and Admission Policies in Make-to-Order/Make-to-Stock Manufacturing Systems."
- Informs Pittsburgh, November 2006, "Optimal Production and Rationing Decisions in Supply Chains with Information Sharing."
- Informs Pittsburgh, November 2006, "Quality Cost-Sharing Contract and pricing Strategies."
- Informs San Francisco, November 2005, "Agile Automated Production Systems: To Push or to Pull?"

- Informs San Francisco, November 2005, "Discretionary Task Completion: A Key Difference between White-Collar and Blue-Collar Work Systems."
- Informs San Francisco, November 2005, "Impact of Salesforce and Effective Incentive Structure on Supply Chain Performance."
- Informs San Francisco, November 2005, "Optimal Server Scheduling in Nonpreemptive Repair Environment."
- Informs Denver, November 2004, "A Deterministic Production and Operational Flexibility in Cross-Trained Service/Queueing Systems."
- Informs Denver, November 2004, "Call Center Labor Cross-Training: It Is a Small World After All."
- Informs Denver, November 2004, "Push and Pull Strategies in Automated Workforce Environments."
- Informs Denver, November 2004, "Stock Rationing in Production-Inventory Systems with Batch Orders."
- Informs Atlanta, November 2003, "Workforce Agility in Repair and Maintenance Environments."
- Informs Atlanta, November 2003, "Design and Control of Cellular Production Systems with Automation."
- Informs Atlanta, November 2003, "Value of Information in A Multi-Client Production-Inventory System."
- Informs San Jose, November 2002, "Serial Agile Production Systems with Automation."
- Informs Miami, November 2001, "A Heuristic Approach for Assemble-to-Order Systems with Flexible Customers."
- Informs San Antonio, November 2000, "On Assemble-to-Order Systems with Flexible Customers."
- Informs, Philadelphia, November 1999. "A Multiple-State Inventory System Subject to failure."