

Andrew J. Schaefer
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412-624-5045

Education:

Ph.D. in Industrial and Systems Engineering, 2000.
Georgia Institute of Technology, Atlanta, Georgia.
Dissertation Title: *Airline Crew Scheduling under Uncertainty*
Dissertation Advisor: George Nemhauser.
Minor: Computer Science.

Masters of Computational and Applied Mathematics, 1994.
Rice University, Houston, Texas.
Concentration in Operations Research.

Bachelor of Arts, 1994.
Rice University, Houston, Texas.
Double major in Computational and Applied Mathematics and Mathematical Economic
Analysis with Honors.

Professional Positions Held:

Associate Professor, Department of Industrial Engineering, University of Pittsburgh, 2006-
Present.

Wellington C. Carl Faculty Fellow, University of Pittsburgh, 2003-Present.

Courtesy Appointment, Department of Medicine, University of Pittsburgh, 2003-Present.

Courtesy Appointment, Department of Bioengineering, University of Pittsburgh, 2005-
Present.

Courtesy Appointment, Clinical and Translational Science, University of Pittsburgh, 2008-
Present.

Assistant Professor, Department of Industrial Engineering, University of Pittsburgh, 2000-
2006.

Graduate Research Assistant, School of Industrial and Systems Engineering, Georgia Tech,
1995-2000.

Summer Intern, Research and Development Department, United Airlines, Elk Grove
Village, Illinois. May-September, 1996.

Application Consultant, Chesapeake Decision Sciences, Houston, Texas. June 1994-April
1995.

Graduate Fellow, Statistics and Operations Research Department, Central Intelligence Agency, Langley, Virginia. Summer 1993.

Junior Analyst, *International Research Institute*, Newport News, Virginia. Summer 1992.

Refereed Journal Publications (available from <http://www.ie.pitt.edu/~schaefer>):

- 1) **Schaefer, A. J.**, “Inverse Integer Programming,” 2009. *Optimization Letters* volume 3, number 4, pp. 483-489.
- 2) Taskin, Z. C., J. C. Smith, S. Ahmed, and **A. J. Schaefer**, “Cutting Plane Algorithms for Solving a Robust Edge Partition Problem,” 2009. *Discrete Optimization* volume 6, number 4, pp. 420-435.
- 3) Alagoz, O.[†], H. Hsu, **A. J. Schaefer**, and M. S. Roberts, “Markov Decision Processes: A Tool for Sequential Decision Making under Uncertainty.” To appear in *Medical Decision Making*.
- 4) Rajgopal, J., Z. Wang[†], **A. J. Schaefer**, and O. Prokopyev, “Effective Management Policies for Remnant Inventory Supply Chains,” 2009. *IIE Transactions* volume 41, number 5, pp. 437-447.
- 5) Sandikci, B.[†], L. M. Maillart, **A. J. Schaefer**, O. Alagoz[†], and M. S. Roberts, “Estimating the Patient’s Price of Privacy in Liver Transplantation,” 2008. *Operations Research* volume 56, number 6, pp.1393-1410.
- 6) Braithwaite, R. S., M. S. Roberts, C. C. Chang, M. Goetz, C. Gilbert, M. Rodriguez, S. Shechter[†], **A. J. Schaefer**, K. Nucifora, R. Koppenhaver[†], and A. Justice, “The influence of alternative thresholds for initiating HIV treatment on life expectancy and quality-adjusted life expectancy: a decision model,” 2008. *Annals of Internal Medicine*¹ volume 148, number 3, pp. 178-185.
- 7) Shechter, S. M.[†], M. D. Bailey, **A. J. Schaefer**, and M. S. Roberts, “The Optimal Time to Initiate HIV Therapy under Ordered Health States,” 2008. *Operations Research* volume 56, number 1, pp. 20-33.
- 8) Stahl, J. E., J. E. Kreke[†], F. Abdulmalek, **A. J. Schaefer**, and J. Vacanti “The Effect of Cold-Ischemia Time on Primary Nonfunction, Patient and Graft Survival in Liver Transplantation: A Systematic Review,” 2008. *PLoS ONE* volume 3 number 6: e2468.
- 9) Kreke, J. E.[†], M. D. Bailey, **A. J. Schaefer**, M. S. Roberts, and D. C. Angus, “Modeling Hospital Discharge Policies for Patients with Pneumonia-Related Sepsis,” 2008. *IIE Transactions* volume 40, number 9, pp. 853-860.
- 10) Shechter, S. M.[†], M. D. Bailey, and **A. J. Schaefer**, “A Modeling Framework for Replacing Medical Therapies,” 2008. *IIE Transactions* volume 40, number 9, pp. 861-869.
- 11) Shechter, S. M.[†], M. D. Bailey, and **A. J. Schaefer**, “Replacing Nonidentical Components to Extend System Life,” 2008. *Naval Research Logistics* volume 55, number 7, pp. 700-703.

[†] Denotes one of my current or graduated PhD students.

¹ ISI Impact Factor: 15.5

- 12) Alagoz, O.[†], L. M. Maillart, **A. J. Schaefer**, and M. S. Roberts, “Determining the Acceptance of Cadaveric Livers Using an Implicit Model of the Waiting List,” 2007. *Operations Research* volume 55, number 1, pp. 24-36.
- 13) Braithwaite, R. S., S. M. Shechter[†], C.-C. Chang, **A. J. Schaefer**, and M. S. Roberts, “Estimating the Rate of Accumulating Drug Resistance Mutations in the HIV Genome,” 2007. *Value in Health*² volume 10, number 3, pp 204-213.
- 14) Braithwaite R. S., J. Conigliaro, M. S. Roberts, S. M. Shechter[†], **A. J. Schaefer**, K. McGinnis, M. Rodriguez, L. Rabeneck, K. Bryant, and A. C. Justice, “Estimating the Impact of Alcohol Consumption on Survival for HIV+ Individuals,” 2007. *AIDS Care*³ volume 19, number 4, pp. 459-466.
- 15) Alagoz, O.[†], L. M. Maillart, **A. J. Schaefer**, and M. S. Roberts, “Choosing among Cadaveric and Living-Donor Livers,” 2007. *Management Science* volume 53, number 11, pp. 1702-1715.
- 16) Saka, G.[†], J. E. Kreke[†], **A. J. Schaefer**, C.-C. Chang, M. S. Roberts, and D. C. Angus, “Use of dynamic microsimulation to predict disease progression in patients with pneumonia-related sepsis,” 2007. *Critical Care*⁴ 11:R65.
- 17) Kong, N.[†] and **A. J. Schaefer**, “A Factor $\frac{1}{2}$ Approximation Algorithm for Two-Stage Stochastic Matching Problems,” 2006. *European Journal of Operational Research* volume 172, pp. 740-746.
- 18) Bailey, M. D., S. M. Shechter[†], and **A. J. Schaefer**, “SPAR: Stochastic Programming with Adversarial Recourse,” 2006. *Operations Research Letters* volume 34, number 3 pp. 307-315.
- 19) **Schaefer, A. J.** and G. L. Nemhauser, “Improving Airline Operational Performance through Schedule Perturbation,” 2006. *Annals of Operations Research* volume 144, pp. 3-16.
- 20) Shechter, S. M.[†], **A. J. Schaefer**, R. S. Braithwaite and M. S. Roberts, “Increasing the Efficiency of Monte Carlo Cohort Simulations with Variance Reduction Techniques,” 2006. *Medical Decision Making*² volume 26, number 5, pp. 550-553.
- 21) Kong, N.[†], **A. J. Schaefer**, and B. K. Hunsaker, “Two-Stage Integer Programs with Stochastic Right-Hand Sides – A Superadditive Dual Approach,” 2006. *Mathematical Programming* volume 108, pp. 275-296.
- 22) Braithwaite R. S., S. M. Shechter[†], M. S. Roberts, **A. J. Schaefer**, D. R. Bangsberg, P. R. Harrigan, and A. C. Justice, “Explaining Variability in the Relationship between Antiretroviral Adherence and HIV Accumulation,” 2006. *Journal of Antimicrobial Chemotherapy*⁵ volume 58, pp. 1036-1043.
- 23) Shechter, S. M.[†], C. L. Bryce, O. Alagoz[†], J. E. Kreke[†], J. E. Stahl, **A. J. Schaefer**, D. C. Angus, and M. S. Roberts, “A Clinically Based Discrete Event Simulation of End-Stage

² ISI Impact Factor: 3.387

³ ISI Impact Factor: 1.863

⁴ ISI Impact Factor: 3.83

⁵ ISI Impact Factor: 4.038

Liver Disease and the Organ Allocation Process,” 2005. *Medical Decision Making*⁶ volume 25, number 2, pp. 199-209.

- 24) Stahl J.E., N. Kong[†], S. M. Shechter[†], **A. J. Schaefer**, and M. S. Roberts, “A Methodological Framework for Optimally Reorganizing Liver Transplant Regions,” 2005. *Medical Decision Making*² volume 25, number 1, pp.35-46.
- 25) **Schaefer, A. J.**, E. L. Johnson, A. J. Kleywegt, and G. L. Nemhauser, “Airline Crew Scheduling under Uncertainty,” 2005. *Transportation Science* volume 39, number 3, pp. 340-348.
- 26) Alagoz, O.[†], C. L. Bryce, S. M. Shechter[†], **A. J. Schaefer**, C.-C. H. Chang, D. C. Angus, and M. S. Roberts, “Incorporating Biological Natural History in Simulation Models: Empiric Estimates of the Progression of End-Stage Liver Disease,” 2005. *Medical Decision Making*² volume 25, pp. 620-632.
- 27) Smith, J. C., **A. J. Schaefer**, and J. Yen, “A Stochastic Integer Programming Approach to Solving a Synchronous Optical Network Design Problem,” 2004. *Networks* volume 44, number 1, pp. 12-26.
- 28) Schaefer, L. A. and **A. J. Schaefer**, “Locating Hybrid Fuel Cell-Turbine Power Generation Units Under Uncertainty,” 2004. *Annals of Operations Research* volume 132, pp. 301-332.
- 29) Alagoz, O.[†], L. M. Maillart, **A. J. Schaefer**, and M. S. Roberts, “The Optimal Timing of Living-Donor Liver Transplantation,” 2004. *Management Science* volume 50, number 10, pp. 1420-1430.
- 30) Kreke, J. E.[†], **A. J. Schaefer**, and M. S. Roberts, “Simulation and Critical Care Modeling,” 2004. *Current Opinion in Critical Care*⁷ volume 10, number 5, pp. 395-398.
- 31) Rosenberger, J. M., **A. J. Schaefer**, D. Goldsman, E. L. Johnson, A. J. Kleywegt, and G. L. Nemhauser, “A Stochastic Model of Airline Operations,” 2002. *Transportation Science* volume 36, number 4, pp. 357-377.

Chapters in Edited Books

- 1) **Schaefer, A. J.**, M. D. Bailey, S. M. Shechter[†], and M. S. Roberts, “Modeling Medical Treatment using Markov Decision Processes,” 2004. In *Handbook of Operations Research/Management Science Applications in Health Care*, Kluwer Academic Publishers, M. Brandeau, F. Sainfort, and W. Pierskalla, eds, pp. 597-616.
- 2) Alagoz, O.[†], **Schaefer, A. J.**, and M. S. Roberts, “Optimization in Organ Allocation,” 2009. In *Handbook of Optimization in Medicine*, P. Pardalos and E. Romeijn, Editors. Kluwer Academic Publishers.

Publications under Review/Revision:

- 1) Kong, N.[†], **A. J. Schaefer**, and S. Ahmed, “Totally Unimodular Stochastic Programs.”
- 2) Demirci, M. C.[†], B. K. Hunsaker, **A. J. Schaefer** and J. M. Rosenberger, “Using Column Generation Principle within the L-Shaped Method for Stochastic Linear Programs.”

⁶ ISI Impact Factor: 2.196

⁷ ISI Impact Factor: 3.318

- 3) Kong, N.[†], **A. J. Schaefer**, B. K. Hunsaker, and M. S. Roberts, “Maximizing the Efficiency of the U.S. Liver Allocation System through Region Design.”
- 4) Shechter, S. M.[†], M. D. Bailey, **A. J. Schaefer**, and M. S. Roberts, “Are Threshold Policies Sufficient for the Optimal Timing of HIV Treatment?”
- 5) Kreke, J. E.[†], M. D. Bailey, **A. J. Schaefer**, D. C. Angus, and M. S. Roberts, “Modeling Testing and Discharge Decisions for Pneumonia and Sepsis Patients.”
- 6) Kurt, M.[†], B. Denton, **A. J. Schaefer**, N. Shah, and S. Smith, “At What Lipid Ratios Should a Patient with Type 2 Diabetes Initiate Statins?”
- 7) Trukhanov, S., L. Ntamo, and **A. J. Schaefer**, “On Adaptive Multicut Aggregation for Two-Stage Stochastic Linear Programs with Recourse.”
- 8) Rajgopal, J., Z. Wang[†], **A. J. Schaefer**, and O. Prokopyev, “Integrated Design and Operation of Remnant Inventory Supply Chains under Uncertainty.”
- 9) Özaltın, O.[†], M. P. Johnson, and **A. J. Schaefer**, “Senior Center Redesign under Uncertainty.”
- 10) Batun, S.[†], B. T. Denton, T. R. Huschka, and **A. J. Schaefer**, “The Benefit of Pooling Operating Rooms under Uncertainty.”
- 11) Sandikci, B.[†], N. Kong[†], and **A. J. Schaefer**, “A Hierarchy of Bounds for Stochastic Mixed-Integer Programs.”
- 12) Özaltın, O.[†], B. K. Hunsaker, and **A. J. Schaefer**, “Predicting the Solution Time of Branch-and-Bound Algorithms for Mixed-Integer Programs.”
- 13) Özaltın, O.[†], O. A. Prokopyev, and **A. J. Schaefer**, “Two-stage Quadratic Integer Programs with Stochastic Right-hand Sides.”
- 14) Shah, N. D., B. T. Denton, M. Kurt[†], **A. J. Schaefer**, S. A. Smith, and V. M. Montori, “Efficiency of Guidelines for the Management of Hyperlipidemia and Hypertension for Type 2 Diabetes Patients.”
- 15) Demirci, M. C.[†], **A. J. Schaefer**, H. E. Romeijn, and M. S. Roberts, “An Exact Method for Balancing Efficiency and Equity in the Liver Allocation Hierarchy.”

Graduate Students Supervised (7 PhD students graduated, 10 PhD students in progress):

Oğuzhan Alagoz, August 2001-July 2004. Dissertation Title: *Optimal Policies for the Acceptance of Living- and Cadaveric-Donor Livers*. Recipient of an Honorable Mention for the 2005 *George B. Dantzig Dissertation Award* given by INFORMS for the “best dissertation in any area of operations research.” Current position: Assistant Professor in the Department of Industrial and Systems Engineering, University of Wisconsin-Madison. Recipient of a CAREER Award from the National Science Foundation.

Nan Kong, August 2000-December 2005.

Dissertation Title: *Optimizing the Efficiency of the United States Organ Allocation System through Region Reorganization*. Recipient of an Honorable Mention for the 2006 *George B. Dantzig Dissertation Award* given by INFORMS for the “best dissertation in any area of operations research.” Recipient of the 2007 Pritsker

Doctoral Dissertation Award from IIE. Current Position: Assistant Professor in the School of Biomedical Engineering, Purdue University.

Zhouyan Wang, August 2001-April 2006. (Co-advised with J. Rajgopal.) Dissertation Title: *Integrated Supply Chain Design and Management for Remnant Inventory Systems*. Current position: Senior Manager, American Express.

Steven Shechter, January 2002-July 2006. Dissertation Title: *Optimal Scheduling of Highly Active Antiretroviral Therapies for H.I.V. Patients*. Funded by an AHRQ Doctoral Fellowship. Recipient of 2004 Bonder Prize for Health Care given by INFORMS. Recipient of an Honorable Mention from the INFORMS Decision Analysis Society 2006 student paper competition. Current Position: Assistant Professor, Sauder School of Business, University of British Columbia.

Jennifer Kreke, August 2001-July 2007. (Co-advised with Matthew Bailey.) Dissertation Title: *Optimal Treatment of Sepsis Patients*. Funded by an AT&T graduate fellowship (one of only two given nationally). Current Employer: FedEx Ground.

Mehmet Can Demirci, August 2003-May 2008. Dissertation Title: *Designing the Liver Allocation Hierarchy: Incorporating Equity and Uncertainty*. Current Employer: SmartOps.

Burhaneddin Sandikci, June 2004-June 2008. (Co-advised with Lisa Maillart.) Dissertation Title: *Estimating the Price of Privacy in Liver Transplantation*. Recipient of 2007 Bonder Prize for Health Care given by INFORMS. Received an Honorable Mention from the INFORMS Decision Analysis Society 2007 student paper competition. Received third place in the 2009 Pritsker Doctoral Dissertation Award from IIE. Current Position: Assistant Professor of Operations Management in the Graduate School of Business at the University of Chicago.

Görkem Saka, August 2003-Present. (Co-advised with Lisa Maillart.) Dissertation Title: *Increasing and Assessing the Impact of Patient Choice in Liver Transplantation*. Current Employer: Merck Research Labs.

Murat Kurt, August 2005-Present. Dissertation topic: The optimal timing of paired-kidney exchanges. Finalist in the 2009 INFORMS “Doing good with good OR” competition. Recipient of 2009 Bonder Prize for Health Care given by INFORMS.

Robert Koppenhaver, August 2005-Present. Dissertation topic: Optimal HIV treatment allocation in resource-constrained environments. Recipient of a T32 Predoctoral Training Fellowship from the NIH.

Sakine Batun, August 2006-Present.

Osman Ozaltin, August 2007-Present. (Co-advised with Oleg Prokopyev.) Dissertation topic: Flu shot design under uncertainty.

Sepehr Nemati, January 2008-Present.

Amin Khademi, August 2008-Present.

Amin Dehghanian, January 2009-Present.

Gabriel Zenarosa, August 2009-Present.

Mina Kabiri, August 2009-Present.

Post-Doctoral Fellows Supervised:

R. Aykut Arapoglu, January 2001-July 2001. (Co-advised with J. Rajgopal.) Research Topic: Supply Chain Management and Design for the Steel Industry.

Atul Bhandari, September 2006-April 2008.

David Kaufman, September 2006-May 2008.

Oleg Shylo, September 2009-Present.

Theo Boutourelis, September 2009-Present.

Winston Yang, August 2009-Present.

Research Expenditures (\$2,026,466 total):

Academic Year	Research Expenditures
2000-01	\$10,000.00
2001-02	\$55,155.60
2002-03	\$144,332.03
2003-04	\$220,392.48
2004-05	\$293,937.12
2005-06	\$375,675.17
2006-07	\$405,060.36
2007-08	\$441,915.49

Funded Research Proposals

Peer-reviewed Grants:

Schaefer, A. J. (PI) and M. S. Roberts.
“Collaborative Research: Modeling the Patient’s Perspective on Organ Acceptance.”
National Science Foundation Grant DMI-0223084.
\$126,200 + \$32,000 RET and REU supplements.
September 2002-February 2005.

Schaefer, A. J. (PI) and J. Rajgopal.

“Integrated Supply Chain Design and Management for Remnant Inventory Systems.”
National Science Foundation Grant DMI-0217190.
\$328,307 + \$38,000 RET and REU supplements.
September 2002-August 2006.

Schaefer, A. J. (PI), B. K. Hunsaker and M. S. Roberts.
“Optimizing the Regional Distribution of Organ Procurement Organizations.”
National Science Foundation Grant DMI-0355433.
\$299,999 + \$12,000 REU supplement.
July 2004-June 2008.

Roberts, M. S. (PI), **A. J. Schaefer** (Co-I) and M. D. Bailey.
“Using MDPs to Optimize Living Donor Liver Transplants.”
National Library of Medicine, National Institutes of Health.
\$387,699.
July 2004-December 2007.

Schaefer, A. J. (PI).
“CAREER: Next-Generation Research and Education in Therapeutic Optimization.”
National Science Foundation Grant DMI-0546960.
\$400,000 + \$6,000 REU supplement.
May 2006-April 2011.

Schaefer, A. J. (PI).
“Collaborative Research: Optimization of the Design and Operation of Surgical Delivery Systems.”
National Science Foundation.
\$120,499.
September 2006-August 2009.

Braithwaite, R. S. (PI, Yale University) and **A. J. Schaefer** (Co-I).
“A Computer Simulation of the Sub-Saharan HIV Pandemic that can Estimate Benefit and Value from Alcohol Interventions.”
National Institute on Alcohol Abuse and Alcoholism (one of the National Institutes of Health).
\$76,476 (Schaefer portion).
September 2007-August 2012.

A. J. Schaefer (PI), M. Roberts, O. Prokopyev, B. Lee, and D. Burke.
“Optimizing Flu Shot Design under Uncertainty”
National Science Foundation
\$326,826.
September 2008- August 2011.

M. Roberts (PI, **A. J. Schaefer** (Co-I)
“The Optimal Timing of Transplantation in Pediatric Acute Liver Failure”

National Institute of Diabetes and Digestive and Kidney Diseases (one of the National Institutes of Health).
\$87,369 (Schaefer portion).
July 2009 - June 2011.

A. J. Schaefer (PI)
“Veterans Engineering Resource Center”
Department of Veterans Affairs
\$1,800,000 (Schaefer portion).
July 2009-October 2011.

Non-Peer Reviewed Grants:

Roberts, M. S. (PI) and **A.J. Schaefer** (Co-PI).
“The Application of Management Science and Simulation to Health Care System Operation and Planning.”
Jewish Healthcare Foundation.
Pittsburgh, PA.
\$37,259.
October 2003-December 2004.

Grossmann, I. (Lead PI), **A. J. Schaefer** (PI for Pitt), J. Hooker, L. Biegler, and J. Linderoth.
“Computational Models and Algorithms for Enterprise-wide Optimization of Process Industries.”
Pennsylvania Infrastructure Technology Alliance (PITA).
\$489,247.
July 2005-June 2007.

Schaefer, A.J. (subaccount).
“Modeling the Progression of End-Stage Liver Disease.”
University of Pittsburgh School of Medicine
\$89,656
January 2001- April 2003.

Schaefer, A.J. (subaccount).
“Tailoring HIV Therapy for Alcohol-Using Populations.”
National Institutes of Health.
\$55,078.
September 2003-Present.

Schaefer, A.J. (subaccount).
“Modeling the Progression of Severe Sepsis Patients in the GenIMS Cohort.”
National Institutes of Health and Glaxo-Smith Kline
\$120,260.
September 2002-November 2005.

A. J. Schaefer (PI).

“Stochastic Integer Programming: A Superadditive Dual Approach.”

University of Pittsburgh Central Research Development Fund

\$16,000

July 2002 - June 2004.

A. J. Schaefer (subaccount).

“MIDAS: Models of Infectious Disease Agent Study.”

National Institutes of Health

\$52,315

April 2007-December 2007.

A. J. Schaefer (subaccount).

“Sepsis.”

National Institutes of Health

\$84,932

September 2006-Present.

Invited Seminars or Tutorials:

- 1) Marcus Department of Industrial and Manufacturing Engineering, Penn State University, State College, Pennsylvania, March 2001.
- 2) Department of Systems and Industrial Engineering, University of Arizona, Tucson, Arizona, October 2001.
- 3) Department of Mathematical Sciences, Stevens Institute of Technology, Hoboken, New Jersey, November 2001.
- 4) Department of Mathematics and Computer Science, Duquesne University, Pittsburgh, Pennsylvania, January 2002.
- 5) Department of Operations, Weatherhead School of Management, Case Western Reserve University, Cleveland, Ohio, September 2003.
- 6) Department of Industrial and System Engineering, University of Florida, Gainesville, Florida, February 2005.
- 7) Health Services Research Seminar Series, University of Pittsburgh, Pittsburgh, Pennsylvania, May 2005.
- 8) Department of Operations, Weatherhead School of Management, Case Western Reserve University, Cleveland, Ohio, September 2005.
- 9) “Therapeutic Optimization via Markov Decision Processes,” invited tutorial, INFORMS annual meeting, San Francisco, California, November 2005.
- 10) Department of Industrial Engineering, Arizona State University, Tempe, Arizona, November 2005.
- 11) Department of Engineering Sciences, University of Auckland, New Zealand, December 2005.
- 12) Grado Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, Virginia, January 2006.
- 13) Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, Canada, February 2006.
- 14) Department of Industrial Engineering, Bilkent University, Ankara, Turkey, March 2006.

- 15) Department of Industrial Engineering, Middle East Technical University, Ankara Turkey, March 2006.
- 16) Department of Industrial Engineering, Boğazici University, İstanbul, Turkey, March 2006.
- 17) Department of Industrial Engineering, Texas A&M University, College Station, Texas, April 2006.
- 18) Mayo Clinic, Rochester, Minnesota, May 2006.
- 19) National Institute of Biomedical Imaging and Bioengineering, October 2006.
- 20) Fitts Department of Industrial Engineering, North Carolina State University, November 2006.
- 21) Department of Operations Management, Tepper School of Business, Carnegie-Mellon University, December 2006.
- 22) RAND, July 2007.
- 23) Department of Industrial and Systems Engineering, University of Wisconsin-Madison, September 2007.
- 24) Department of Systems Engineering and Operations Research, George Mason University, April 2008.
- 25) Technology and Operations Management Department, INSEAD, June 2008.
- 26) Industrial Engineering and Management Sciences, Northwestern University, November 2008.
- 27) Operations, Information and Technology, Graduate School of Business, Stanford University, February 2009.
- 28) H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, April 2009.
- 29) Department of Industrial Engineering and Operations Research, University of California-Berkeley, May 2009.
- 30) Sauder School of Business, University of British Columbia, September 2009.
- 31) Department of Industrial and Systems Engineering, Lehigh University, November 2009 (scheduled).
- 32) Department of Industrial Engineering, University of Houston, November 2009 (scheduled).
- 33) Department of Computational and Applied Mathematics, Rice University, November 2009 (scheduled).

Contributions to Teaching (all University of Pittsburgh unless otherwise noted)

- IE 3186, *Approximate Dynamic Programming*, Spring 2009.
- IE 3098, *Advanced Markov Decision Processes*, Spring 2007.
- IE 3051, *Computational Optimization*, Spring 2002, Fall 2003, 2006, 2008.
- IE 3077, *Therapeutic Optimization*, Spring 2006.
- IE 2078, *Mathematical Modeling Techniques for Complex Biological Systems*, Fall 2005, (cross-listed with BioInformatics 2115 and Clinical Research 2421; co-taught with 4 other faculty members in the departments of BioInformatics, Medicine, Critical Care Medicine, and Mathematics).
- IE 3093, *Stochastic Programming*, Spring 2004, Fall 2001, 2005, 2007.
- IE 1084, *Operations Research in the Service Sector*, Fall 2004.
- IE 3088, *Integer Programming*, Fall 2002, 2004, 2009.
- IE 1079/2079, *Logistics and Supply Chain Management*, Spring 2001, 2003.
- IE 1083/2087, *Simulation with ARENA*, Fall 2000, 2001.

ISyE 3231, *Deterministic Operations Research*, Spring 1999, Georgia Tech.

Other Teaching

Markov Decision Processes – Analytic Methods for Sequential Decisions, 2003-08 Society for Medical Decision Making Short Course.

Discrete Event Simulation, 2001-02; 2005 Society for Medical Decision Making Short Course.

Integer Programming, 2007-08 Society for Medical Decision Making Short Course.

Courses Developed

IE 1079/2079, *Logistics and Supply Chain Management*, University of Pittsburgh.

IE 3093, *Stochastic Programming*, University of Pittsburgh.

IE 3053, *Computational Optimization*, University of Pittsburgh.

IE 3088, *Integer Programming*, University of Pittsburgh.

IE 1084, *Service Sector Engineering*, University of Pittsburgh.

IE 2078, *Mathematical Modeling Techniques for Complex Biological Systems* (with four other faculty), University of Pittsburgh.

IE 3077, *Therapeutic Optimization*, University of Pittsburgh.

IE 3098, *Advanced Markov Decision Processes*, University of Pittsburgh.

IE 3186, *Approximate Dynamic Programming*, University of Pittsburgh.

Honors and Awards:

Outstanding Young IE – Education Award, Institute of Industrial Engineers (IIE), 2007.

CAREER Award, National Science Foundation, 2006.

University of Pittsburgh School of Engineering Board of Visitors Faculty Award, 2006.

Wellington C. Carl Faculty Fellowship, University of Pittsburgh, 2003-Present.

Second Prize, University of Pittsburgh School of Engineering Diversity Award, 2003.

Honorable Mention, Best Paper Award, INFORMS Junior Faculty Interest Group, 2003 for Smith, Schaefer and Yen (2004).

Faculty Honor Roll for Teaching Excellence, University of Pittsburgh, 2002.

John H. Morris Graduate Fellowship, School of ISyE, Georgia Tech.

Selected for INFORMS Doctoral Colloquium, 1999.

President's Fellowship, Georgia Institute of Technology, 1995-1999.

President's Honor Roll for five of eight semesters, Rice University, 1990-1994.

Board of Governor's Scholarship, Rice University, 1990.

National Merit Scholar, 1990-1994.

Positions of Leadership in Professional Society Committees:

Program Co-Chair, 2006 INFORMS Annual Meeting, which was then the largest INFORMS conference ever.

Cluster Chair, "Sports, Games and Recreational OR," 2003 INFORMS annual meeting.

Cluster Co-Chair, "Health Care Applications," 2005 INFORMS annual meeting.

Speaker at IIE Doctoral Colloquium, 2002 and 2005.

Secretary, Health Care Applications Section, INFORMS, 2006.

Conferences Organized:

Program Co-Chair, 2006 INFORMS Annual Meeting.
Program Committee, 2004 IERC.
Program Committee, 2007 Society for Medical Decision Making Annual Conference.

Journal Editorships or Journal Editorial Board Service:

Co-Editor of *Annals of Operations Research*, Volume 132, 2004.
Associate Editor, *IIE Transactions*, Special Issue on Homeland Security, 2005.
Topical Editor, *Encyclopedia of Operations Research*.
Associate Editor, *IIE Transactions*, 2009-Present.
Editorial Board, *Medical Decision Making*, 2009-Present.

Editorial Experience:

Referee for *Transportation Science*, *Mathematical Programming*, *Naval Research Logistics*, *INFORMS Journal on Computing*, *European Journal on Operational Research*, *Management Science*, *Operations Research*, *SIAM Journal of Optimization*, *Medical Decision Making*, *Mathematical Methods in Operations Research*, *Journal of Scheduling*, *IIE Transactions* among others.

Other Professional Service:

National:

Panelist for seven National Science Foundation panels.
Member of INFORMS Bonder Prize Committee.
Member of INFORMS Nicholson Prize Committee.
Member of Pierskalla Award (Best OR Paper in Health Care) Committee.
Member of Program Committee for IERC 2004.
Member of IIE Awards Committee, 2008-Present.

University of Pittsburgh:

Member of Department of Industrial Engineering Graduate Committee, 2000-Present.
Member of Department of Industrial Engineering Undergraduate Committee, 2000-2001.
Member of Department of Industrial Engineering Faculty Search Committee, 2000-2003, 2006-08.
Chair of Industrial Engineering Faculty Search Committee, 2005-06, 2008-09.
Sponsor of the University of Pittsburgh IERC Simulation Contest Team, 2001-02.
Co-Organizer of the Carnegie Mellon - University of Pittsburgh Seminar on Applied Decision Making, 2001-2002.

Professional Memberships:

INFORMS
Institute of Industrial Engineers
Society for Medical Decision Making
Mathematical Programming Society

Doctoral Committees:

- Vikas Goel, *Stochastic Optimization for Planning of Oil and Gas Field Developments*, Department of Chemical Engineering, Carnegie Mellon University. Graduated April 2005.
- Gary Hart, *A Ratio Measure Constraint-Stabilized Time-Stepping Approach for Rigid Polyhedral Multibody Dynamics with Joints Contact, and Friction*, Department of Mathematics, University of Pittsburgh. Graduated April 2007.
- Lizhi Wang, *Optimization under Uncertainty in the Electric Power System*, Department of Industrial Engineering, University of Pittsburgh. Graduated July 2007. Current position: Assistant Professor of Industrial Engineering, Iowa State University.
- Ramkumar Karrupiah, *Global Optimization for the Synthesis of Integrated Water Systems in Chemical Processes*, Department of Chemical Engineering, Carnegie Mellon University. Graduated September 2007.
- Florian Zink, *Thermal Issues in Thermoacoustic Devices with Regard to Miniaturization*, Department of Mechanical Engineering and Materials Science, University of Pittsburgh. Defended May 2009.
- Bora Tarhan, *Stochastic Programming Approaches for Decision-Dependent Uncertainty and Gradual Uncertainty Resolution*, Department of Chemical Engineering, Carnegie Mellon University. Graduated April 2009.
- Mariel Lavieri (external examiner), *Nursing Workforce Planning and Radiation Therapy Treatment Decision Making: Two Healthcare Operations Research Applications*, Sauder School of Business, University of British Columbia. Graduated September 2009.

Contributions to Diversity:

- Founder and Co-Director, MORPHS (Mathematics and Operations Research in Pittsburgh High Schools) Program.
- Participant in University of Pittsburgh's Minority Engineering Mentoring Program (MEMP) program, 2002-Present.
- Undergraduate advisor for Ronald Peeler, who won the 2003 "Best Presentation Award" for MEMP.
- University of Pittsburgh Diversity Award, 2nd Prize, 2003.
- Faculty advisor, University of Pittsburgh Society for Women Engineers Chapter, 2005-2007.

Consulting Activities:

- MEDRAD, Indianola, PA, 2001.
- SmartOps, Pittsburgh, PA 2003.