

Mustafa Akan

5000 Forbes Ave. Posner Hall 381C • Pittsburgh PA 15213
Email: akan@cmu.edu • Phone: (412) 2688403

EDUCATION

- 2004 – 2008 Ph.D in Managerial Economics and Strategy
Kellogg School of Management, Northwestern University, Evanston, IL.
GPA: 4.00/4.00.

Minor Fields: Operations Management, Industrial Organization, Economics of Information.

Thesis Title: “Essays on Revenue Management” (Thesis Committee: Baris Ata, Chair, James Dana, Martin Lariviere, Tito Homem-de-Mello, Rakesh Vohra)
- 2000 – 2004 B.Sc., Industrial Engineering, Bilkent University, Ankara, Turkey.
Graduated with Highest Honors, GPA: 4.00/4.00.

POSITIONS HELD

- 2016 – present Associate Professor (with indefinite tenure), Tepper School of Business, CMU
- 2014 – 2016 Associate Professor (without indefinite tenure), Tepper School of Business, CMU
- 2008 – 2014 Assistant Professor, Tepper School of Business, CMU

OTHER POSITIONS

- 2015 – 2018 Courtesy Appointment, Heinz School of Public Policy, CMU
- 2009 – 2010 Courtesy Appointment, Cardiovascular Institute (CVI), Allegheny General Hospital

CONSULTING ASSIGNMENTS

- 2015 – present Supply Chain Wizard, Princeton, New Jersey
(Consulted for Pharmaceutical industry serialization (Track & Trace) programs.)

RESEARCH INTERESTS

Revenue Management: Both traditional OR models of revenue management and the modern models which incorporate strategic consumer behavior

Health Care Management: Improvement of the operational efficiency in health care delivery system with a particular focus on liver allocation, mitigating risks/costs of anti-coagulation treatment, diagnostic test ordering by physicians, child adoption

Manufacturing and Service Operations Management: Assemble-to-order inventory systems, leadtime quotation, service contracts, strategic queueing, two-sided markets

HONORS AND AWARDS

- 2014 NSF CAREER Award
- 2014 Gerald L. Thompson Teaching Award – Business Administration Program
- 2013 Lave-Weil Prize
- 2012 Best Paper Award, College of Healthcare Operations Management, POMS
- 2010 Berkman Faculty Development Grant
- 2009 Best Paper Award of the INFORMS Service Science Section
- 2009 Xerox Faculty Chair
- 2008 Best Dissertation Award of the INFORMS Aviation Applications Section
- 2008 Honorable Mention in the MSOM Student Paper Competition
- 2006 Represented Northwestern University at the 2nd Nobel Laureates Meeting in Economic Sciences, Lindau, Germany
- 2006 Honorable Mention in the George E. Nicholson Student Paper Competition
- 2005 Ranked 1st in the Microeconomics Ph.D. qualifying exams in Northwestern Uni.
- 2004 Ranked 1st in the Engineering School of Bilkent University
- 2009-2012 Supervised research of Emre Nadar
- Winner, 2012 The William W. Cooper Doctoral Dissertation Award
 - Winner, 2012 POMS Best Student Paper Competition
 - Finalist, 2012 George E. Nicholson Best Student Paper Competition
 - Finalist, 2012 MSOM Student Paper Competition
- 2009-2013 Supervised research of Tinglong Dai
- 2012 Best Paper Award, College of Healthcare Operations Management, POMS
- 2009-2013 Supervised research of Vince Slaugh
- Finalist, 2013 Doing Good with Good OR Competition, INFORMS
- 2012-2016 Supervised research of Sherwin Doroudi
- Winner, 2016 The William W. Cooper Doctoral Dissertation Award

RESEARCH GRANTS AND CONTRACTS

Awarded to Date

"CAREER: Design of Two-sided Markets In Dynamic and Uncertain Environments: Theoretical and Operational Issues"

National Science Foundation (NSF)

February 2014 - January 2019 (\$400,000)

Role: Principal Investigator

"Priority Pricing for Profit Maximization Given Strategic, Delay-Sensitive Customers with a Continuum of Types"

National Science Foundation (NSF)

September 2013 - August 2016 (\$289,987)

Role: Principal Investigator

(with Professor Mor Harchol-Balter, SCS, Carnegie Mellon)

"A Market Design Approach to the Adoption of Children in State Custody"

Berkman Faculty Development Fund, CMU

January 2011 - December 2011 (\$10,000)

Role: Principal Investigator

"Influence of Genetic Variants in the Therapeutic Dosing of Warfarin in the Geriatric Population: A Randomized Clinical Trial"

Allegheny General Hospital

September 2009 - February 2012 (\$20,000)

Role: Co-Principal Investigator

(with Professors Sridhar Tayur, Tepper School, Carnegie Mellon; and Srinivas Murali, Temple University School of Medicine; Anita Radhakrishnan, Allegheny General Hospital)

PUBLICATIONS

1. E. Nadar, Akcay, A., M. Akan, and A. Scheller-Wolf (2017) “The Benefits of State Aggregation with Extreme-Point Weighting for Assemble-to-Order Systems” *Operations Research*. Forthcoming.
2. M. Akan (2017) “Strategic Queueing Models” in *Handbook of Healthcare Analytics* edited by Tinglong Dai and Sridhar Tayur. John Wiley & Sons, Inc. NJ.
3. Slaugh, S., U. Unver, M. Akan, O Kesten (2017) “Improving Child Welfare Outcomes via Market Design” in *More Fair by Design: Economic Design Responses too Inequality* edited by Scott Duke Kominers and Alexander Teytelboym. Oxford University Press.
4. T. Dai, M. Akan, and S. Tayur (2016) “Imaging Room and Beyond: The Underlying Economics Behind Physicians’ Test Ordering Behavior in Outpatient Services.” *Manufacturing & Service Operations Management*. **19** (1) pp. 99-113.
5. Slaugh, S., M. Akan O Kesten, U. Unver (2016). “The Pennsylvania Adoption Exchange Improves Its Matching Process”. *Interfaces*. Vol. 46 Issue 2, March-April 2016, pp. 133-153.
6. Nadar, E., M. Akan, and A. Scheller-Wolf. (2015) “Experimental Results Indicating Lattice-Dependent Policies May Be Optimal for Assemble-to-Order Systems”. *Production and Operations Management*. published online: 7 OCT 2015.
7. Akan, M., B. Ata and J. Dana. (2015) “Revenue Management by Sequential Screening.” *Journal of Economic Theory*. Vol. 159 (B), p. 728–774.
8. Akan, M. and B. Ata. (2015). “On Bid-Price Controls for Network Revenue Management.” *Stochastic Systems*. Vol. 5, No. 2, 268–323.
9. Nadar, E., M. Akan, and A. Scheller-Wolf. (2014) “Optimal Structural Results for Assemble-to-Order *M*-Systems” *Operations Research*. **62** (3) pp. 571-579.
10. Akan, M., B. Ata and R.C. Savaskan-Ebert. (2013) "Dynamic Pricing of Remanufacturable Products Under Demand Substitution: A Product Life Cycle Model" *Annals of Operations Research*. Vol. **211**, Issue 1, pp 1-25.
11. Akan, M., B. Ata and T. Olsen. (2012) “Congestion-Based Leadtime Quotation for Heterogenous Customers with Convex-Concave Delay Costs: Optimality of a Cost-Balancing Policy Based on Convex Hull Functions”. *Operations Research*. Vol. **60** No. 6. pp. 1505-1519.
12. Akan, M., O. Alagoz, B. Ata., F.S. Erenay, and A. Said. (2012) “A Broader View of Designing the Liver Allocation System”. *Operations Research*. Vol. **60**, No. 4. pp. 757-770.
13. Radhakrishnan, A., D. Vido, S. Tayur, M. Akan, and S. Murali, (2012) "Genotype Guided Therapeutic Dosing Of Warfarin In Geriatric Patients", *Journal of the American College of Cardiology*¹, Vol. **59**, No. 13. pp. E1696-E1696.
14. Akan, M., B. Ata., and M. Lariviere. (2011) “Asymmetric Information and Economies of Scale in Service Contracting”. *Manufacturing & Service Operations Management*. Vol. **13**, No. 1, pp. 58-72.

¹ SCI Impact Factor: 14.156, #2 among 114 in Cardiac & Cardiovascular Systems

15. Said, A., S. Erenay, M. Akan, O. Alagoz, B. Ata. (2009) "Optimizing Liver Allocation Policy" *Hepatology*², Volume **50**, No. 4 (Suppl), 732. pp. 647A-648A.
16. Akan, M. and B. Ata. (2009) "Bid-Price Controls for Continuous Time Network Revenue Management: Martingale Characterization of Optimal Bid Prices" *Mathematics of Operations Research*. Vol. **34**, No. 4, pp. 912-936.
17. Akan, M., O. Alagoz, B. Ata., F.S. Erenay, and A. Said. (2009) "Design of an Optimal Liver Allocation System" *Proceedings of the 60th Annual Meeting of the American Association for the Study of Liver Diseases (AASLD)*.

Media Story: "Researchers from the US propose a new liver allocation policy" *PharmacoEconomics & Outcomes News*: 12 December 2009 - Volume - Issue 593 - pp 10.
18. Alagoz, O., M. Akan, B. Ata., F.S. Erenay, (2008) "A Fluid Dynamic Model to Optimize the Liver Allocation System" *Proceedings of 2008 NSF Engineering Research and Innovation Conference*, Knoxville, TN.

UNDER REVIEW

19. M. Akan and S. Boranbay (2016). "Budget Procedures for NPO Funding". Under 3rd review at *Production and Operations Management*.

WORKING PAPERS

20. M. Sarkar MD, MAS, M. Kohi MD, J. Dodge MPH, J. Roberts MD, N. Terrault MD, and N. Mehta MD, M. Akan, Z. Leung, and S. Tayur (2017) "Addition of MELD Exception Points for Short HCC Patients Improves Disparity in Organ Access"
21. M. Akan, Leung, N.Z., Tayur (2017) "DOME: Model for End-Stage Liver Disease Score for Patients With Hepatocellular Carcinoma"
22. M. Akan, Leung, N.Z., Tayur, S., Markmann, J. MD, and Yeh, H. MD (2016) "MY-ATLAS: Mapping HCC Tumor Biology to Compute Equitable Exception Points"
23. P. Afeche and M. Akan (2017) "Pricing in a Two-sided Market with Time-sensitive Customers and Suppliers"
24. M. Akan, M. Delasay, I. Gurvich. (2016) "Design of Information Acquisition Points in Queueing Networks"
25. E. Nadar, M. Akan, L. Debo, and A. Scheller-Wolf (2015) "Optimal Portfolio Strategies For New Product Development"
26. S. Doroudi, M. Akan, M. Harchol-Balter, J. Karp, C. Borgs, and J. T. Chayes. (2015) "Priority Pricing in Queues with a Continuous Distribution of Customer Valuations"
27. M. Akan and J. Poblete (2014) "When Are Agents Partners?"

² SCI Impact Factor: 12.003, #2 among 74 in Gastroenterology & Hepatology

IN PROGRESS

28. M. Akan. (2016) “Better Intermediation in Two-Sided Markets”

29. S. Doroudi, P. Afeche, M. Akan, and M. Harchol-Balter (2016) “Designing, Scheduling, and Pricing Differentiated Services under Quality-Speed Tradeoffs”

TEACHING: COURSES TAUGHT

Undergraduate Business Administration

Operations Management (70 371)

Quality Management and Productivity (70 474)

Service Operations Management (70 476)

MBA

Demand Management And Price Optimization (45 860)

PHD

Seminar in Manufacturing Mngt III (47 761)

Seminar in Revenue Management (47 763)

Strategic Queueing Models (47 770)

STUDENT SUPERVISION

Post-Doctoral Student Supervision (at Carnegie Mellon)

- 2014-15 Zachary Leung (OM, Tepper School)
Currently: Assistant Professor, College of Business at City University of Hong Kong
- 2014-17 Mohammad Delasay (OM, Tepper School)
Currently: Assistant Professor, College of Business, Stony Brook University

Doctoral Student Supervision (at Carnegie Mellon)

- 2016 Sherwin Doroudi, Co-Adviser (OM, Tepper School)
Title: Stochastic Analysis of Maintenance and Routing Policies in Queueing Systems
Currently: Assistant Professor, Department of Industrial & Systems Eng. (ISYE), University of Minnesota
- 2013 Tinglong Dai, Committee Member (Tepper School/Robotics)
Title: Incentives in U.S. Healthcare Operations
Currently: Assistant Professor, Carey Business School, Johns Hopkins University
- 2012 Emre Nadar, Committee Member (OM, Tepper School)
Title: New Markov Decision Process Formulations and Optimal Policy Structure for Assemble-to-Order and New Product Development Problems
Currently: Assistant Professor, Bilkent University
- 2010 Canan Gunes, Committee Member (OM, Tepper School)
Title: Essays on Operations Management
Currently: Assistant Professor, Boston University MET
- 2010 Ismail Civelek, Committee Member (OM, Tepper School)
Title: Essays on Operations Management
Currently: Associate Professor, College of Business, Western Kentucky University
- 2010 John Turner, Committee Member (OR, Tepper School)
Title: Ad Slotting and Pricing: New Media Planning Models for New Media
Currently: Associate Professor, Merage Business School, UC Irvine
- 2016 Mehmet Berat Aydemir, Summer Paper Reader (OM, Tepper School)
- 2012 Sherwin Doroudi, Summer Paper Reader (OM, Tepper School)
- 2011 Vince Slaugh, Summer Paper Reader (OM, Tepper School)
- 2010 Ersin Korpeoglu, Summer Paper Reader (OM, Tepper School)
- 2010 Gizem Pala, Summer Paper Reader (Economics, Tepper School)
- 2010 Vince Slaugh, Summer Paper Reader (OM, Tepper School)
- 2009 Tinglong Dai, Summer Paper Reader (Tepper School/Robotics)
- 2009 Emre Nadar, Summer Paper Reader (OM, Tepper School)
- 2009 Michele Dufalla, Summer Paper Reader (OM, Tepper School)

Doctoral Student Supervision (at other universities)

- 2015 Amin Dehghanian, Committee Member (Industrial Engineering, University of Pittsburgh)
Title: Optimal Incentive Alignments in Paired Kidney Exchange
Currently: Post-Doctoral Fellow, Catholic University of Leuven
- 2014 Nabita Penmetsa, Committee Member (Katz School of Business, University of Pittsburgh)
Title: Essays on Dynamic Pricing in Software Subscription Markets
Currently: Assistant Professor, University of Utah
- 2012 Murat Kurt, Committee Member (Industrial Engineering, University of Pittsburgh)
Title: Stochastic Games on Operations Management of Transplantation
Currently: Assistant Professor, SUNY, Buffalo

Master's Student Supervision (at Carnegie Mellon)

- 2009 Faculty Adviser, MBA project at **Kaiser Permanente**
Ankur Goyal (MBA'10), Martin Proskin (MBA'10), Sanin Rahman (MBA'10),
Oladapo Fakunle (MBA'10), Parag Gupta (MBA'10), Vidya Rao (MBA'10),
Zhenyue Wang (Heinz'10)
- 2009 Faculty Adviser, MBA Summer Internship Project at **TestAmerica Co.**
Sereana Williams (MBA'09), Jennifer Garrels (MBA'10)
- 2009 Independent Study (Impact of Uncertainty on Pricing Strategy of **Banana Republic**)
Showchien Hsieh (MBA'09)

Undergraduate Student Supervision (at Carnegie Mellon)

- 2009 Faculty Adviser, Center for Business Solutions Project at **Pittsburgh Post Gazette**
Julia Costa (BSBA'10), Cara Fatigati (BSBA'10), Nicole Tseng (BSBA'10)

OTHER EDUCATIONAL CONTRIBUTIONS (at Carnegie Mellon)

New Courses

PhD:

- 47-770 Strategic Queueing Models (Spring '16)
(Designed, developed and taught)
- 47-763 POM Seminar in Revenue Management (Spring '13)
(Designed, developed and taught)

Undergraduate Business Administration:

- 70-476 Service Operations Management (Spring '14)
(Designed, developed and taught)
- 70-476 Quality Management & Productivity (Spring '14)
(Substantial Revision)
- 70-371 Production/Operations Management (Fall '08)
(Substantial Revision)

PROFESSIONAL ACTIVITIES

Invited talks at Conference/Symposium (after critical review)

“The Pennsylvania Adoption Exchange Improves Its Matching Process”

American Economic Association (AEA) Annual Meeting, Chicago. January 2017.

Market Design Approaches to Inequality Conference, U. of Chicago, Becker Friedman Institute, August 2016.

Conference talks after critical review prior to presentation

"Pricing in a Two-sided Market with Time-sensitive Customers and Suppliers”

Manufacturing & Service Operations Management Conference, UNC. June 2017

"The Impact of Optimization on The Allocation of Livers For Organ Transplantation."

ISMP 2015 Symposium on Mathematical Programming, Pittsburgh. July 2015.

"Hepatocellular Carcinoma and MELD Exception Scores for Liver Transplantation."

INFORMS Healthcare Conference, Nashville. July 2015.

“Imaging Room and Beyond: The Underlying Economics Behind Physicians' Test-Ordering Behavior in Outpatient Services”

Healthcare Special Interest Group, MSOM Annual Conference, Ann Arbor. June 2011.

“Family Interviews, Algorithms, and Matchings”

Adoption Exchange Association Conference. Orlando, May 2011.

“Revenue Management by Sequential Screening”

INFORMS Revenue Management Conference, Cornell University, Ithaca, June 2010

Econometric Society North American Summer Meeting, Boston, June, 2009

2nd International Industrial Organization Conference, Washington D.C., May 2008

“A Broader View of Designing the Liver Allocation System”

The Annual Liver Meeting. Am. Assoc for the Study of Liver Diseases (AASLD) Boston, November 2009

“On Bid-Price Controls for Network Revenue Management”

INFORMS Revenue Management Conference, Columbia University, June 2006

Manufacturing & Service Operations Management Conference, Georgia Tech. June 2006

Conference talks (invited, not reviewed)

"Pricing in a Two-sided Market with Time-sensitive Customers and Suppliers”

Applied Probability Conference, Northwestern University, July 2017.

INFORMS Annual Meeting, Nashville. November 2016.

“Towards an Equitable Allocation of Livers Among HCC and Non-HCC Patients”

INFORMS Annual Meeting, Nashville. November 2016.

INFORMS Annual Meeting, Philadelphia. November 2015.

"Better Intermediation in Two-Sided Markets"

POMS 26th Annual Meeting, Washington, D.C., May 2015.

INFORMS Annual Meeting, San Francisco. November 2014.

"Designing, Scheduling, and Pricing Differentiated Services under Quality-Speed Tradeoffs"

INFORMS Annual Meeting, San Francisco. November 2014.

"Imaging Room and Beyond: The Underlying Economics Behind Physicians' Test-Ordering Behavior in Outpatient Services"

INFORMS Annual Meeting, Charlotte. November 2012.

"Congestion-Based Leadtime Quotation with Heterogeneous Customers: Optimality and Incentive Compatibility of the Hcμ-rule"

INFORMS Annual Meeting, Austin. October 2010.

"Revenue Management by Sequential Screening"

INFORMS Annual Meeting, Seattle, November 2007.

INFORMS Annual Meeting, San Diego, October 2009.

"On Bid-Price Controls for Network Revenue Management"

INFORMS Annual Meeting, Seattle, November 2007.

INFORMS Annual Meeting, Pittsburgh, November 2006.

INFORMS Annual Meeting, San Francisco, November 2005.

"Bid-Price Controls for Continuous Time Network Revenue Management: Martingale Characterization of Optimal Bid Prices"

INFORMS Annual Meeting, Pittsburgh, November 2006.

Seminars at other academic institutions

"Towards an Equitable Allocation of Organs Among End-Stage Liver Disease Patients"

Yale SOM, May 2016

CMU Qatar, March 2016

"Lattice-Dependent Base-Stock and Rationing Policies for Assemble-to-Order Systems"

Georgia Tech. ISyE, January 2015

"Lattice Dependent Policies for Assemble-to-Order Inventory Systems"

Stanford GSB, May 2013

"A Broader View of Designing the Liver Allocation System"

University of British Columbia, March 2013

SUNY, Buffalo, February 2013

"On Bid-Price Controls for Network Revenue Management"

Stern School of Business, NYU, January 2008

Cornell University, February 2008

"Bid-Price Controls for Continuous Time Network Revenue Management: Martingale Characterization of Optimal Bid Prices"

Georgia institute of Technology, March 2008

“Revenue Management by Sequential Screening”
University of Rochester, January 2008
Washington University, St. Louis, January 2008
University of Texas, Austin, February 2008
Stanford GSB, February 2008
Columbia University, February 2008
University of Pennsylvania, February 2008
University of Southern California, February 2008
University of Maryland, February 2008
INSEAD, February 2008
Duke University, February 2008

“Asymmetric Information and Economies of Scale in Call Center Outsourcing.”
Managerial Economics and Decision Sciences, Northwestern University, November 2006

Talks at other venues

“Improving Customized Matching for the Pennsylvania Adoption Exchange”
Office of Children, Youth and Families. Pennsylvania Department of Public Welfare, September 2011

Membership in Professional Societies, Honorary Fraternities

INFORMS (Institute for Operations Research and the Management Sciences), including the AAS (Aviation Applications Section) and MSOM (Manufacturing & Service Operations Mngt. Society)

POMS (Production and Operations Management Society)

AGIFORS (The Airline Group of the International Federation of Operational Research Societies)

IIE (Institute of Industrial Engineers)

ACC (American College of Cardiology)

AASLD (American Association for the Study of Liver Diseases)

SERVICE

Tepper School of Business

Member, UG Educational Affairs Committee (BA-EAC) (2014 – present)

Member, UG Academic Actions Committee (Fall 2015 – present)

Member, UG Curriculum Review Committee (2013–14)

Track Advisor, Manufacturing Management and Consulting (MMC) (2013 – present)

Faculty Adviser, UG Consulting Club (2014 – present)

Coordinator, OM Seminar Series (2012–14 through 2015–17)

PhD Coordinator, Operations Management Area (2009–11)

Thompson Dissertation Award Committee (2009)

Other Carnegie Mellon

The University Non-Tenure Committee (Fall 2016 – present)

William W. Cooper Doctoral Dissertation Award Committee (2013 – present)

Faculty Adviser, CMU Solutions (Carnegie Mellon Student Club) (2013 – present)

Professional Societies

Panelist, NSF (2013 – 2015)

Expert Reviewer, Service Special Interest Meeting, MSOM (2009 – 2014)

Reviewer, MSOM Conference (2009 – 2012)

Judge, POMS College of Supply Chain Best Student Paper Competition (2011–12)

Judge, MSOM Student Paper Competition, INFORMS (2009 – 2011)

Discussant, 2nd International Industrial Organization Conference, Washington D.C. (2008)

Conference Cluster

Chair, Aviation Applications Track, INFORMS Annual Meeting, San Diego (2009)

Conference Session Chair

INFORMS Annual Meeting (2007 – 2016)

2nd International Industrial Organization Conference, Washington D.C. (2008)

EDITORIAL ROLES

Professional Meetings (Conference/Symposium)

The International IIE (Institute of Industrial Engineers) Conference (2013)

Scientific/Professional Journals

Ad Hoc Referee for *Management Science*, *Operations Research*, *Mathematics of Operations Research*, *Manufacturing and Service Operations Management*, *Production and Operations Management*, *B.E. Journal of Theoretical Economics*, *Health Care Management Science*, *IIE Transactions*, *Transportation Science*, *Naval Research Logistics*, *Journal of Cleaner Production*, *Theoretical Economics*, *Econometrica*.