

SERHAN ZIYA

Assistant Professor
Department of Statistics and Operations Research
University of North Carolina
356 Hanes Hall, CB# 3260, Chapel Hill, NC 27599

Phone: (919) 843 6022
E-mail: ziya@unc.edu
URL: www.unc.edu/~ziya

EDUCATION

Georgia Institute of Technology, Atlanta, GA

Ph.D., Industrial and Systems Engineering, August 2003

Georgia Institute of Technology, Atlanta, GA

M.S., Industrial Engineering, August 1999

Bogazici University, Istanbul, TURKEY

B.S., Industrial Engineering, July 1997

ACADEMIC POSITION

Department of Statistics and Operations Research

University of North Carolina, Chapel Hill, NC

Assistant Professor, July 2003 – present

RESEARCH INTERESTS

- Emergency response and health care operations
- Service operations, optimal design and control of queueing systems
- Revenue management, dynamic pricing under inventory considerations

HONORS AND AWARDS

- Finalist for the INFORMS JFIG Paper Competition, 2009.
- First recipient of the Emerging Scholar Award given by the Production and Operations Management Society College of Service Operations, 2009.
- Manufacturing and Service Operations Management Society Meritorious Service Award, 2008.
- Young Researcher Roundtable Appointee, INFORMS, 2005.
- Junior Faculty Development Award, University of North Carolina, Chapel Hill, NC, U.S.A., 2005.
- Selected by the School of Industrial and Systems Engineering at Georgia Institute of Technology to participate in the Doctoral Colloquium, INFORMS Annual Meeting, San Jose, CA, U.S.A., November 2002.
- Doctoral fellowship given by the Scientific and Technical Research Council of Turkey (TUBITAK) within the scope of NATO Science Fellowships Program, July 1998.

PUBLICATIONS AND WORKING PAPERS

Published or Accepted Refereed Journal Articles (in reverse chronological order)

1. Liu, N., S. Ziya, and V. G. Kulkarni, "Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations," forthcoming in *Manufacturing and Service Operations Management*.
2. Aydin, G. and S. Ziya, "Personalized Dynamic Pricing of Limited Inventories," forthcoming in *Operations Research*.
3. Argon, N. T. and S. Ziya, "Priority Assignment under Imperfect Information on Customer Type Identities," forthcoming in *Manufacturing and Service Operations Management*.
4. Argon, N. T., L. Ding, K. Glazebrook, and S. Ziya, "Dynamic Routing of Customers with General Delay Costs," *Probability in the Engineering Informational Sciences* 23 (2009) 175-203.
5. Ziya, S., "On the Relationships Among Traffic load, Capacity, and Throughput for the M/M/1/m, M/G/1/m-PS, and M/G/c/c Queues," *IEEE Transactions on Automatic Control* 53 (2008) 2696-2701.
6. Ziya, S., H. Ayhan, and R. D. Foley, "A Note on Optimal Pricing for Finite Capacity Queueing Systems with Multiple Customer Classes," *Naval Research Logistics* 55 (2008) 412-418.
7. Aydin, G. and S. Ziya, "Pricing Promotional Products under Upselling," *Manufacturing and Service Operations Management* 10 (2008) 360-376.
8. Argon, N. T., S. Ziya, and R. Righter, "Scheduling Impatient Jobs in a Clearing System with Insights on Patient Triage in Mass-Casualty Incidents," *Probability in the Engineering and Informational Sciences* 22 (2008) 301-332.
9. Ziya, S., H. Ayhan, R. D. Foley, and E. Pekoz, "A Monotonicity Result for G/GI/c Queue with Balking or Reneging," *Journal of Applied Probability* 43 (2006) 1201-1205.
10. Ziya, S., H. Ayhan, and R. D. Foley, "Optimal Prices for Finite Capacity Queueing Systems," *Operations Research Letters* 34 (2006) 214-218.
11. Ziya, S., H. Ayhan, and R. D. Foley, "Relationships Among Three Assumptions in Revenue Management," *Operations Research* 52 (2004) 804-809.

Articles Published in Refereed Conference Proceedings

12. Argon, N. T. and S. Ziya, "Setting Priorities under Imperfect Information on Customer Type Identities," Proceedings of the 2008 MSOM Service Management SIG Conference, Adelphi, MD, U.S.A., June 2008. (Partial overlap with article 3.)

Extended Abstracts Published in Refereed Conference Proceedings (in reverse chronological order)

13. Liu, N., S. Ziya, and V. G. Kulkarni, "Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations," Proceedings of the 2008 M&SOM Conference, Adelphi, Maryland, U.S.A., June 2008 and Proceedings of the 2009 M&SOM Conference, Boston, MA, U.S.A., June 2009.
14. Argon, N. T. and S. Ziya, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage," Proceedings of the 2007 M&SOM Conference, Beijing, China, June 2007.
15. Aydin, G. and S. Ziya, "Upselling Promotional Products Using Customer Purchase Information," Proceedings of the 2005 M&SOM Conference, Chicago, IL, U.S.A., June 2005.

Journal Articles under Review

16. Ziya, S., "Choosing the Customer Signal in Personalized Dynamic Pricing of Limited Inventories," under review at *Management Science*.
17. Hosking, M., E. M. Foster, and S. Ziya, "A Spoonful of Math Helps the Medicine Go Down: An Illustration of How Healthcare Can Benefit from Mathematical Modeling and Analysis," under review at *BMC Medical Research Methodology*.
18. Foster, E. M., N. Bolia, and S. Ziya, "Rehabilitation and Juvenile Justice Policy: A Mathematical Modeling Approach," under review at *Journal of Policy Analysis and Management*.

Invited Book Chapters under Review or Revision

19. Argon, N. T., J. Winslow, and S. Ziya, "Triage in the Aftermath of Mass-Casualty Incidents," under revision for publication in the *Wiley Encyclopedia of Operations Research*.
20. Ziya, S., "Markov Renewal Processes," under review for publication in the *Wiley Encyclopedia of Operations Research*.
21. Ziya, S., "Markov Renewal Function and Markov Renewal-Type Equations," under review for publication in the *Wiley Encyclopedia of Operations Research*.
22. Ziya, S., "Limit Theorems for Markov Renewal Processes," under review for publication in the *Wiley Encyclopedia of Operations Research*.

Articles under Preparation for Submission to Refereed Journals

23. Liu, N. and S. Ziya, "Optimal Design of an Appointment Scheduling System under Customer No-shows."
24. Uzun, E., N. T. Argon, and S. Ziya, "Priority Decisions in the Aftermath of Mass-Casualty Incidents."

25. Argon, N. T. and S. Ziya, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage in Mass-Casualty Incidents."
26. Ratcliffe, A. and S. Ziya, "Simulation Study of Same-Day Scheduling and Other Phase-Booking Policies in Outpatient Appointment Scheduling Systems."

Articles Published in Non-Refereed Conference Proceedings

27. Argon, N. T., J. Winslow, S. Ziya, and E. Uzun, "Scheduling in Clearing Systems with Abandonments and Implications for Patient Triage," Proceedings of the NSF CMMI Engineering Research and Innovation Conference, Honolulu, HI, U.S.A., June 2009.
28. Argon, N. T., J. Winslow, and S. Ziya, "A Dynamic Programming Approach for Patient Triage in the Aftermath of Mass-Casualty Incidents," Proceedings of the NSF CMMI Engineering Research and Innovation Conference, Knoxville, TN, U.S.A., January 2008.
29. Kaylan, A. R., S. Ziya, and E. Kemahlioglu, "Web Based Process Management and Simulation Tool," Proceedings of the 10th European Simulation Symposium, Simulation Technology: Science and Art, A. Bargiela and E. Kerckhoffs (Eds.), November 1998, 433-438.
30. Kaylan, A. R., S. Ziya, and O. Yilmaz, "Web Based Architecture for Simulation Modeling and Analysis," Proceedings of the 11th European Simulation Multiconference, A. Lehmann and A. R. Kaylan (Eds.), June 1997, 115-118.

INVITED COLLOQUIUM TALKS

1. Serhan Ziya (presenter) and N. T. Argon, "Priority Assignment under Imperfect Information on Customer Type Identities," Kellogg School of Management, Northwestern University, Evanston, IL, U.S.A., October 2009.
2. Serhan Ziya (presenter) and N. T. Argon, "Priority Assignment under Imperfect Information on Customer Type Identities," DeGroote School of Business, McMaster University, ON, Canada, May 2009.
3. Serhan Ziya (presenter) and N. T. Argon, "Priority Assignment under Imperfect Information on Customer Type Identities," Industrial and Systems Engineering Program, University of Minnesota, MN, U.S.A., April 2009.
4. Serhan Ziya (presenter) and N. T. Argon, "Setting Priorities under Imperfect Information on Customer Type Identities," Department of Industrial and Systems Engineering, North Carolina State University, Raleigh, NC, U.S.A., April 2008.
5. Serhan Ziya (presenter) and N. T. Argon, "Setting Priorities under Imperfect Information on Customer Type Identities," Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, U.S.A., November 2007.
6. Serhan Ziya (presenter) and N. T. Argon, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage," Duke-UNC Workshop, Durham, NC, U.S.A., April 2007.

7. Serhan Ziya (presenter) and G. Aydin, "Upselling Seasonal Products Using Customer Purchase Information," Fuqua School of Business, Duke University, Durham, NC, U.S.A., April 2005.
8. Serhan Ziya (presenter), H. Ayhan, and R. D. Foley, "Uniform and Precision Pricing for a Single Server Service Facility," Department of Industrial Engineering, Texas A&M University, College Station, TX, U.S.A., February 2003.
9. Serhan Ziya (presenter), H. Ayhan, and R. D. Foley, "Uniform and Precision Pricing for a Single Server Service Facility," Department of Operations Research, University of North Carolina, Chapel Hill, NC, U.S.A., February 2003.
10. Serhan Ziya (presenter), H. Ayhan, and R. D. Foley, "Uniform and Precision Pricing for a Single Server Service Facility," Seminar Series in Applied Probability, Georgia Institute of Technology, Atlanta, GA, U.S.A., April 2002.

INVITED OR REFEREED CONFERENCE PRESENTATIONS

1. Goker Aydin and Serhan Ziya, "Personalized Dynamic Pricing of Limited Inventories," JFIG Paper Competition Finalists special session, INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009 (presenter not determined yet).
2. Serhan Ziya (presenter and session chair), "Choosing the Customer Signal in Personalized Dynamic Pricing of Limited Inventories," INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009.
3. Serhan Ziya (presenter and session chair), "On the Relationships Among Traffic Load, Capacity, and Throughput for Finite Capacity Queues," INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009.
4. Nan Liu (presenter) and S. Ziya, "Optimal Design of Appointment Systems under Customer No-shows," INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009.
5. Evin Uzun (presenter), N. T. Argon, and S. Ziya, "Scheduling Impatient Jobs in a Clearing System with Multiple Servers," INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009.
6. Vidyadhar G. Kulkarni (presenter), N. Liu, and S. Ziya, "Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations," Applied Probability Conference, Ithaca, NY, U.S.A., July 2009.
7. Nilay T. Argon (presenter), and S. Ziya, "Priority Scheduling in a Queueing System with Hidden Customer Type Identities," Applied Probability Conference, Ithaca, NY, U.S.A., July 2009.
8. Evin Uzun (presenter), N. T. Argon, and S. Ziya, "Dynamic Scheduling of Impatient Jobs in a Clearing System with Multiple Servers," Applied Probability Conference, Ithaca, NY, U.S.A., July 2009.
9. Nan Liu (presenter), S. Ziya, and V. G. Kulkarni, "Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations," M&SOM Conference, Boston, MA, U.S.A., June 2009.

10. Serhan Ziya (presenter), "Choosing the Customer Signal in Personalized Dynamic Pricing of Limited Inventories," Revenue Management and Pricing Conference, Chicago, IL, U.S.A., June 2009.
11. Goker Aydin (presenter) and S. Ziya, "Personalized Dynamic Pricing of Limited Inventories," Revenue Management and Pricing Conference, Chicago, IL, U.S.A., June 2009.
12. Serhan Ziya (presenter and session chair) and N. T. Argon, "Priority Assignment under Imperfect Information on Customer Type Identities," INFORMS Annual Meeting, Washington, D.C., U.S.A., October 2008.
13. Goker Aydin (presenter) and S. Ziya (session chair), "Personalized Dynamic Pricing of Limited Inventories," INFORMS Annual Meeting, Washington, D.C., U.S.A., October 2008.
14. Evin Uzun (presenter), N. T. Argon, and S. Ziya, "A Mathematical Approach to Triage in the Context of Emergency Response Planning," INFORMS Annual Meeting, Washington, D.C., U.S.A., October 2008.
15. Nan Liu (presenter), S. Ziya, and V. G. Kulkarni, "Dynamic scheduling of outpatient appointments under patient no-shows and cancellations," INFORMS Annual Meeting, Washington, D.C., U.S.A., October 2008.
16. Serhan Ziya (presenter) and N. T. Argon, "Priority Assignment under Imperfect Information on Customer Type Identities," Service Operations Management Conference, Adelphi, MD, U.S.A., June 2008.
17. Nan Liu (presenter), S. Ziya, and V. G. Kulkarni, "Dynamic Scheduling of Outpatient Appointments under Patient No-shows and Cancellations," M&SOM Conference, Adelphi, MD, U.S.A., June 2008.
18. Serhan Ziya (presenter), N. T. Argon, L. Ding, and K. Glazebrook, "Dynamic Routing of Customers with General Delay Costs," INFORMS Annual Meeting, Seattle, WA, U.S.A., November 2007.
19. Serhan Ziya (presenter) and N. T. Argon, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage," INFORMS Annual Meeting, Seattle, WA, U.S.A., November 2007.
20. Serhan Ziya (presenter and session chair) and N. T. Argon, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage," Applied Probability Conference, Eindhoven, The Netherlands, July 2007.
21. Serhan Ziya (presenter) and N. T. Argon, "Identifying the Critical Patient: Finding the Balance between Undertriage and Overtriage," M&SOM Conference, Beijing, China, June 2007.
22. Serhan Ziya (presenter) and N. T. Argon, "Patient Triage in the Aftermath of a Mass Casualty Event – A Dynamic Programming Approach," INFORMS Annual Meeting, Pittsburgh, PA, U.S.A., November 2006.

23. Serhan Ziya (presenter) and G. Aydin, "Upselling a Promotional Product Using Customer Purchase Information," Revenue Management and Pricing Conference, New York, NY, U.S.A., June 2006.
24. Serhan Ziya (presenter) and G. Aydin, "Upselling a Promotional Product Using Customer Purchase Information," POMS Conference, Boston, MA, U.S.A., April 2006.
25. Serhan Ziya (presenter), N. T. Argon, L. Ding, and K. Glazebrook, "Dynamic Routing of Generic Customers to Parallel Queues with Dedicated Traffic," INFORMS Annual Meeting, San Francisco, CA, U.S.A., November 2005.
26. Nilay T. Argon (presenter) and S. Ziya, "A Dynamic Programming Approach for Triage in the Aftermath of a Major Emergency," INFORMS Annual Meeting, San Francisco, CA, U.S.A., November 2005.
27. Goker Aydin (presenter) and S. Ziya, "Upselling a Promotional Product Using Customer Purchase Information," INFORMS Annual Meeting, San Francisco, CA, U.S.A., November 2005.
28. Serhan Ziya (presenter and session chair) and N. T. Argon, "Scheduling Impatient Customers with Random Due Dates," Applied Probability Conference, Ottawa, ON, Canada, July 2005.
29. Serhan Ziya (presenter) and G. Aydin, "Upselling a Promotional Product Using Customer Purchase Information," M&SOM Conference, Chicago, IL, U.S.A., June 2005.
30. Serhan Ziya (presenter and session chair), H. Ayhan, and R. D. Foley, "Precision Pricing for a Service Facility," INFORMS Annual Meeting, Atlanta, GA, U.S.A., October 2003.
31. Serhan Ziya (presenter), H. Ayhan, and R. D. Foley, "Uniform Pricing in a Single Server Service Facility," INFORMS Annual Meeting, San Jose, CA, U.S.A., November 2002.

TEACHING EXPERIENCE

1. STOR 151 (former STAT 11): Statistics and Data Analysis, Spring 2004 (98 students), Fall 2009 (93 students).
2. STOR 113 (former OR 23): Decision Models for Economics, Spring 2005 (10 students), Spring 2009 (79 students).
3. STOR 445 (former OR 183): Stochastic Models in Operations Research, Spring 2006 (15 students), Spring 2007 (24 students), Fall 2007 (17 students).
4. STOR 641 (former OR 220): Stochastic Models in Operations Research I, Fall 2003 (15 students), Fall 2004 (13 students), Fall 2005 (13 students).
5. STOR 642 (former OR 221): Stochastic Models in Operations Research II, Spring 2007 (13 students), Spring 2008 (13 students), Spring 2009 (17 students).

6. STOR 743 (former OR 222): Stochastic Models in Operations Research III, Fall 2005 (17 students), Fall 2007 (8 students), Fall 2009 (13 students).
7. STOR 892 (former OR 351): Stochastic Models for Optimization of Service Systems, Fall 2004 (13 students), Fall 2008 (10 students).

Ph.D. STUDENTS SUPERVISED

- Nan Liu, *Appointment Scheduling in Healthcare*, jointly advised with Vidyadhar G. Kulkarni, graduated August 2009, joined the Mailman School of Public Health at Columbia University as a tenure-track assistant professor in September 2009.
- Jianzhe Luo, started jointly advising with Vidyadhar G. Kulkarni in Fall 2008.

MASTERS STUDENTS SUPERVISED

- Michael Hosking, *Optimal Control of Midblock Intersections: Modeling and Analysis*, Spring 2009.
- Naveen Goel, *Dynamic Pricing of Perishable Products*, Spring 2009.
- Aaron Ratcliffe, *A Simulation Study for Outpatient Appointment Scheduling*, Spring 2008.
- Serkan Alacam, *A Review of Recent Work in Call Center Operations*, Spring 2007.
- Pranav Gupta, *A Computational Study for Patient Triage in the Aftermath of Mass-Casualty Incidents*, Spring 2007.
- Berkant Camdereli, *Markov Decision Models in Medical Decision Making*, Fall 2006.
- Yanmei Fu, *Dynamic Pricing Strategies for Fashion and Seasonal Products*, Spring 2006.
- Ke Wang, *Dynamic Pricing for Queueing Systems*, Spring 2006.
- Allison Barnes, *Vehicle Replacement Policies for the North Carolina Department of Administration*, Spring 2005.

RESEARCH GRANTS AWARDED

1. "Collaborative Research: Priority Dispatching of Patients in the Aftermath of a Mass-Casualty Event," funded by *National Science Foundation*, in collaboration with Nilay Tanik Argon (University of North Carolina) and James Winslow (Wake Forest University), Budget: \$180K, University of North Carolina Budget: \$360K, Total Budget: \$396K (September 1, 2009 – August 31, 2012).
2. "Collaborative Research: Patient Triage in the Aftermath of Mass Casualty Events," funded by *National Science Foundation*, in collaboration with Nilay Tanik Argon (University of North Carolina) and James Winslow (Wake Forest University), Budget: \$156K, University of North Carolina Budget: \$312K, Total Budget: 349K (September 15, 2006 – August 31, 2009).
3. "Operations Research in Emergency Response," funded by *University of North Carolina Junior Faculty Development Program*, Budget: \$5K (January 1, 2005 – December 31, 2005).
4. "Pricing for Optimal Resource Allocation," funded by *University of North Carolina University Research Council*, Budget: \$4K (May 1, 2005 – April 30, 2007).

THESIS COMMITTEES SERVED

- Ph.D. thesis: Wei Huang, Tao Huang, Keqi Yan, Liqiang Liu, Feng Chen, Nomesh Bolia, Canan Ulu (Duke University, Fuqua School of Business), Yimin Wang (University of North Carolina, Kenan-Flagler Business School), Zhengliang Xue (Duke University, Fuqua School of Business)
- Masters paper: Edward McGuire, Nilesh Bagani, Ye He, Jonathan Dreyfus, Ram Parimi, Mustafa Onur Kabul, Vladov Uzunangelov, Elizabeth Nielsen, Roshan Kumar, Remya Chandran, Anushree Goyal
- Undergraduate Honor's thesis: Michael Hosking

PROFESSIONAL SERVICE

- Associate Editor:
Mathematical Methods of Operations Research (2008 – present).
- Reviewer:
Operations Research, Management Science, Manufacturing and Service Operations Management, Operations Research Letters, Naval Research Logistics, Queueing Systems, IIE Transactions, IEEE Transactions on Automatic Control, European Journal of Operational Research, INFORMS Journal on Computing, Manufacturing and Service Operations Management Society Multi-Echelon/Public Applications of Supply Chain Management Conference (Atlanta GA U.S.A., June 2006), Manufacturing and Service Operations Management Society Service Management SIG Conference (Boston MA U.S.A., June 2009).
- Reviewer and panelist for National Science Foundation, December 2008.
- Session Organizer and Chair:
INFORMS Annual Meeting, San Diego, CA, U.S.A., October 2009 (2 sessions)
INFORMS Annual Meeting, Washington, D.C., U.S.A., October 2008 (2 sessions)
INFORMS Annual Meeting, Seattle, WA, U.S.A., November 2007 (2 sessions)
Applied Probability Conference, Eindhoven, The Netherlands, July 2007
Applied Probability Conference, Ottawa, ON, Canada, July 2005
INFORMS Annual Meeting, Atlanta, GA, U.S.A., October 2003 (2 sessions)

DEPARTMENTAL SERVICE

- Course Scheduling Committee (since Fall 2004)
- Comprehensive Exam Committee (since Fall 2003)
- Summer School Coordinator (Summer 2005)

PROFESSIONAL MEMBERSHIPS

- Member, Institute for Operations Research and the Management Sciences (INFORMS)
- Member, Applied Probability Society of INFORMS
- Member, Manufacturing and Service Operations Management Society of INFORMS
- Member, Revenue Management and Pricing Section of INFORMS
- Member, Health Applications Section of INFORMS
- Member, Junior Faculty Interest Group of INFORMS

OTHER RELEVANT PROFESSIONAL EXPERIENCE

Graduate Research Assistant

Georgia Institute of Technology, Atlanta, GA (January 2000 – June 2003)

Worked with Dr. Hayriye Ayhan and Dr. Robert D. Foley on the problem of optimal pricing for service systems under two different pricing strategies: uniform pricing and precision pricing. Developed optimal pricing policies and investigated their relationships with customers' willingness-to-pay and system parameters.

Graduate Research Assistant

Georgia Institute of Technology, Atlanta, GA (January 1999 – January 2000)

Worked with Dr. David M. Goldsman and Dr. Amy R. Pritchett on the development of a simulator for the simulation of the National Airspace System for safety analysis. Designed and coded the discrete event scheduling and data collection modules.

Graduate Teaching and Research Assistant

Bogazici University, Istanbul, TURKEY (September 1997 – September 1998)

Designed and developed a Web based process management and simulation environment, PROMAST. Developed a management simulation game on the Web as part of a preliminary work on adapting beer game to a multi-user interactive game environment. Conducted weekly problem sessions and office hours, prepared and graded weekly assignments and quizzes for junior and senior level courses: Planning for Engineers, Stochastic Models in Operations Research and Total Quality Management.

Research Assistant

Bogazici University, Istanbul, TURKEY (June 1996 – October 1996)

Designed and developed a prototype for Web based simulation with a client/server architecture using Java.

Research Assistant

Bogazici University, Istanbul, TURKEY (October 1995 – January 1996)

Developed Web based software with a client/server architecture using Applescript.