S. Ayça Erdogan, PhD

Contact Information:

San Jose State University, Industrial and Systems Engineering
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Research Interests

Decision making under uncertainty
- Stochastic Programming
- Simulation Modeling

Applications of operations research to healthcare delivery & medical decision making
- Simulation modeling of disease progression and optimal intervention planning
- Scheduling optimization and healthcare operations management

Professional Background

8/2014 -	**Assistant Professor, San Jose State University,** Industrial and Systems Engineering, San Jose , CA, USA
1/2014 -7/2014	**Visiting Assistant Professor, University of Southern California,** Daniel E. Epstein Department of Industrial and Systems Engineering, Los Angeles, CA, USA
4/2011 – 1/2014	**Postdoctoral Research Fellow, Stanford University**, School of Medicine, Stanford, CA, USA Health Policy Simulation Modeling Advisor: Sylvia K. Plevritis

Educational Background

1/2006 – 12/2010	**Ph.D. in Operations Research** **North Carolina State University**, Raleigh, NC, USA Dissertation Title: Optimization of Appointment Based Scheduling Systems Dissertation Advisor: Brian T. Denton
9/2001 - 1/2004	**M.S. in Industrial Engineering** **Istanbul Technical University**, Istanbul, TURKEY Dissertation Title: The Impact of Supply Risk Management in Supply Chain Management
9/1997 - 6/2001	**B.S. in Industrial Engineering** **Istanbul Technical University**, Istanbul, TURKEY

Publications and Working Papers

Journal Papers & Book Chapters & Conference Proceedings

- Berg, B. P., Denton, B., **Erdogan, S.A.**, Rohleder, T., Huschka, T., "Optimal over-booking strategies for Outpatient Procedure Centers". *Computers and Operations Research*, Vol. 50, 2014.

- Meza, R., Haaf K., Kong, C.Y., **Erdogan, S.A.**, et.al.**,** "Comparative analysis of 5 lung cancer natural history and screening models that reproduce outcomes of the NLST and PLCO trials". *Cancer*, Vol. 120 (11), pp. 1713-1724, 2014.
- McMahon P., Meza, R., Plevritis, S.K., Black, W., Tammemagi, M., **Erdogan, S.A**., et. al., "Comparing Benefits from Many Possible Computed Tomography Lung Cancer Screening Programs: Extrapolating from the National Lung Screening Trial Using Comparative Modeling". PlosOne, 2014.(DOI: 10.1371/journal.pone.0099978)
- De Koenig, H, Plevritis, S.K, Meza R., Haaf, K., Munshi, V., Jeon, J., **Erdogan, S.A.**, et. al., "Benefits and Harms of CT Screening for Lung Cancer in the US Population". *Annals of Internal Medicine,* Vol. 160 (5) , pp 311-320, 2014.
- **Erdogan, S.A.**, Denton, B., "Dynamic Appointment Scheduling of a Stochastic Server with Uncertain Demand". *INFORMS Journal on Computing*, vol. 25, no. 1, pp. 116-132, 2013.
- **Erdogan, A.**, Denton, B., "Surgery Planning and Scheduling". *Wiley Encyclopedia of Operations Research and Management Science*, 2010.
- **Erdogan, S.A.,** Gose, A. H. and Denton, B., "Online Appointment Sequencing and Scheduling". Submitted to IIE Transactions (3rd round revision), 2012.
- **Erdogan, S.A.**, Plevritis, S.K., "A Model Based Estimate of Mortality Reduction with CT Screening for Lung Cancer". *Proceedings of the 7thINFORMS Workshop on Data Mining and Health Informatics*, 2012.
- Kahraman, C., Ates, N, Cevik, S., Gulbay, M., **Erdogan, S.A.**, "Hierarchical fuzzy TOPSIS model for selection among logistics information technologies". *Journal of Enterprise Information Management*, Vol. 20, Issue 2, pp. 143-168.
- **Sahin*, A.**, Gumussoy, C. A., Kabak, O., "Supplier Selection for Different Product Categories". *National YA/EM 2004 Conference Proceedings*, Adana, Turkey, June 15-18, 2004 (in Turkish).

Working Papers

- Shen, S., **Erdogan, S.A.,** "Distributionally Robust Appointment Scheduling and Server Allocation Problems with Ambiguous Service Time and Customer No-shows". 2014.
- **Erdogan, S.A.,** Han, S., Lin, R., Wan, W., Sigal, S., Plevritis, S.K., "Model Based Estimates of Mortality Reduction and Overdiagnosis for Mayo CT Lung Cancer Screening Study", 2014.
- Han, S**., **Erdogan, S.A.**,** Plevritis, S.K., "Evaluating the Impact of Varied Compliance to Lung Cancer Screening Recommendations using a Microsimulation Model", 2014.
- Tsai, E.**, **Erdogan, S.A.****, Plevritis, S.K., "Health and Economic Outcomes of Lung Cancer CT Screening", 2014**.**

Presentations

- **Erdogan, A.**, Plevritis, S.K., Estimating Long term Benefits and Harms of CT Screening for Lung Cancer, University of Michigan Center for Healthcare Engineering and Patient Safety Seminar Series, November 2013 (Invited talk).
- **Erdogan, A.**, Plevritis, S.K., Evaluating Outcomes of Screening for Lung Cancer with Computerized Tomography and Biomarkers. INFORMS Annual Conference, Minneapolis, October 8th, 2013.
- **Erdogan, A.**, Plevritis, S.K., A Microsimulation Model for Lung Cancer Natural History and Screening for Early Detection. INFORMS Healthcare Conference, Chicago, June 2013.
- **Erdogan, A.**, Plevritis, S.K., "A Model Based Estimate of Mortality Reduction with CT Screening for Lung Cancer". 7th INFORMS Workshop on Data Mining and Health Informatics*,* INFORMS Annual Conference, Phoenix, October 2012.

* Maiden Name, ** Co-first author

- Berg, B., **Erdogan, A.**, Denton, B., Rohleder, T., Huschka, T., "Optimal Booking and Scheduling in Outpatient Procedure Centers", Poster Presentation, INFORMS Annual Conference, Charlotte, October 2011.
- Denton, B.T., **Erdogan, A.,** "Optimization of Online Appointment Scheduling", INFORMS Healthcare Conference, Montreal, Canada, June 2011.
- **Erdogan, A.**, Gose, A., Denton, B., "Dynamic Sequencing and Scheduling of Appointment Based Service Systems", INFORMS Annual Conference, Charlotte, NC, October 2010 (Invited talk).
- **Erdogan, A.**, Denton, B., "A Multi-Stage Stochastic Programming Model for Appointment Scheduling Under Uncertainty",
  - INFORMS Annual Conference, San Diego, CA, October 2009.
  - Health Care Engineering Seminar Series, North Carolina State University, Raleigh, NC, September 2009.
  - INFORMS Computing Society Conference, Charleston, SC, January 2009.
- **Erdogan, A.**, Denton, B., "Stochastic Optimization of Outpatient Appointment Scheduling Systems with Uncertainty in Patient Demand",
  - INFORMS 2008 Annual Meeting, Washington DC, October 2008.
  - Poster Presentation, Mayo Clinic Conference on Systems Engineering & Operations Research in Health Care, Rochester MN, September 2008
  - Poster Presentation, Health Care Engineering Symposium, Raleigh NC, April 2008.

Academic Experience (Research & Teaching)

8/2014 – present **Assistant Professor**
San Jose State Unievrsity

- Instructor of ISE 135 - Design of Experiments (undergraduate level)
- Instructor of ISE 230 - Advance Operatiosn Research (graduate level)

1/2014 – 7/2014 **Visiting Assistant Professor**
University of California, Daniel J. Epstein Department of Industrial and Systems Engineering

- Designer and Instructor of ISE 599 Advance Topics in Healthcare Modeling (PhD level course)
- Instructor of ISE 530 Introduction to Operations Research (Graduate level course)

4/2011 – 1/2014 **Postdoctoral Research Fellow**
Stanford University, School of Medicine

- Research on simulation modeling of cancer progression using large scale cancer registry and clinical trial data sets, and simulation based optimization approaches for estimating natural history parameters to find the best screening policies and to analyze effects of CT screening on lung cancer incidence and mortality.

1/2006 – 12/2010 **Research Assistant**
North Carolina State University, Graduate Program in Operations Research

- Research for PhD thesis on stochastic optimization of scheduling problems in health care systems.

1/2008 – 1/2009 **Teaching and advising experience**
North Carolina State University, Graduate Program in Operations Research

- Co-advisor of a team of undergraduate students that designed a surgery scheduling decision support system (sponsored by Mayo Clinic) for ISE 498 Undergraduate Senior Design Project. (1st place, IIE Society for Health Systems Student Paper Award, Chicago, IL, 2009)
- Co-Instructor of ISE 361 Deterministic Models in Industrial Engineering and Co-Instructor of OR791-D Stochastic Programming

1/2006 – 1/2008 **Teaching Assistant**
North Carolina State University, Graduate Program in Operations Research

- Grading and tutoring for OR505- Introduction to Operations Research and OR791D- Heuristic Methods in Discrete Optimization

9/2001 - 8/2004 **Teaching and Research Assistant**
Istanbul Technical University, Department of Industrial Engineering

- Research for MS thesis on management of inventory supply risks and multi-criteria decision making methods
  Lecturing and grading for several courses including Selected Topics in IE, Quality Control, Facility Planning

Professional Activities

- President of NCSU INFORMS Student Chapter for 2008-2009 academic year (winner of INFORMS Student Chapter Annual Award- Magna Cum Laude)
- Secretary of NCSU INFORMS Student Chapter for 2007-2008 academic year (winner of INFORMS Student Chapter Annual Award- Magna Cum Laude)
- Representative of the Operations Research Program at University Graduate Student Association for 2008-2009 academic year
- Referee
  - European Journal of Operations Research (2011-2012)
  - International Journal of Production Research (2014)
  - Health Care Management Science (2008-2014)
  - Production and Operations Management (2008-2011)
  - Omega (2009-2013)
  - IIE Transactions on Health Systems Engineering (2013)
  - Health Systems (2013)
- Session Chair
  - INFORMS 2013 Health Care Conference, Chicago, IL
  - INFORMS 2009 Annual Conference, San Diego, CA
  - INFORMS 2008 Annual Conference, Washington, DC

Honors and Awards

- OMEGA RHO International Honor Society
- Selected by the NCSU OR Program to attend INFORMS Doctoral Colloquium, San Diego, 2009.

Computer Skills

- Programming Language: C++, MATLAB, VBA
- Software Tools: CPLEX, OPL, AMPL, LINDO, LINGO
- Statistical Software Package: R, SAS, Minitab
- Simulation Package: ARENA