

Osman Yalın Özaltın

CONTACT INFORMATION

University of Pittsburgh
Department of Industrial Engineering
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EDUCATION

Doctor of Philosophy, Expected August 2011

University of Pittsburgh
Department of Industrial Engineering

- Concentration in Operations Research
- Thesis title: *Optimal Design of the Annual Influenza Vaccine*
- Ph.D. Advisors: Andrew J. Schaefer and Oleg A. Prokopyev

Master of Science, April 2007

University of Pittsburgh
Department of Industrial Engineering
GPA: 3.99/4.00

Bachelor of Science, June 2005

Boğaziçi University
Department of Industrial Engineering
GPA: 3.53/4.00 (Ranked 10th in the graduating class)

RESEARCH INTERESTS

Applications of Operations Research to Service Systems, Particularly Health Care: Influenza Vaccine Design and Supply Chain, Public Health Service Delivery, Screening and Intervention Strategies, Disease Management and Treatment Scheduling, Applications of Mathematical Programming and Data Mining to Bioinformatics

Methodology: Linear/Nonlinear Mixed-Integer Programming, Stochastic Programming, Bilevel Programming, (Approximate) Dynamic Programming

REFEREED PUBLICATIONS

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J., Roberts, M. S., *Optimizing the Societal Benefits of the Annual Influenza Vaccine: A Stochastic Programming Approach*, to appear in *Operations Research*, 2010

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J., “Two-stage quadratic integer programs with stochastic right-hand-sides”, to appear in *Mathematical Programming*, 2010
Student Paper Award Finalist, International Conference on Stochastic Programming, 2010 Halifax, NS, Canada

Özaltın, O. Y., Hunsaker B., Schaefer, A. J., “Predicting the solution time of branch-and-bound algorithms for mixed-integer programs”, to appear in *INFORMS Journal on Computing*, 2010

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J., “The bilevel knapsack problem with stochastic right-hand sides”, *Operations Research Letters*, 38(4):328-333, 2010

UNDER REVIEW/REVISION **Özaltın, O. Y.**, Hunsaker, B., Ralphs, T. K., Prokopyev, O. A., *Visualizing the Progress of Branch-and-Bound Algorithms*, revise and resubmit to *INFORMS Journal on Computing*

Özaltın, O. Y., Johnson, M. P., Schaefer, A. J., *Senior Center Network Redesign Under Demand Uncertainty*, revise and resubmit to *IIE Transactions*

WORK IN PROGRESS **Özaltın, O. Y.**, Prokopyev, O. A., Schaefer, A. J., Roberts, M. S., *Using MPECs to Model Bilevel Games in the Design and Manufacturing of the Annual Influenza Vaccine*, work in progress

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J., Roberts, M. S., *Bilevel Cross-validation Models: An Application to Influenza A/H3N2 Virus*, work in progress

HONORS AND AWARDS Seth Bonder Scholarship for Applied Operations Research in Health Services Honorable Mention, 2010

INFORMS Doctoral Colloquium participant, Austin, TX, 2010

IIE Doctoral Colloquium participant, Miami, FL, 2009

University of Pittsburgh, Department of Industrial Engineering Outstanding Research Assistant Prize, 2009

University of Pittsburgh, Department of Industrial Engineering Outstanding Teaching Fellow Prize, 2007

PEER REVIEWED PUBLISHED ABSTRACTS **Özaltın, O. Y.**, , Prokopyev, O. A., Schaefer, A. J., Roberts, M. S. *Optimal Strain Selection for the Annual Influenza Vaccine under the Closest Antigenic Distance Immunity Model*. Annual Meeting of the Society for Medical Decision Making, 2010, Toronto, ON, Canada (Ranked in top 1.5% of all abstracts and presented in a plenary session)

Özaltın, O. Y., , Prokopyev, O. A., Schaefer, A. J., Roberts, M. S. *Optimal Strain Selection for the Annual Influenza Vaccine*. International Conference on Stochastic Programming, 2010, Halifax, NS, Canada

CONFERENCE PRESENTATIONS **Özaltın, O. Y.**, Schaefer, A. J., Prokopyev, O. A., Roberts, M. S. *Optimal Design of the Annual Influenza Vaccine*. INFORMS Annual Meeting, 2010, Austin, TX, USA

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J. *Two-Stage Quadratic Integer Programs with Stochastic Right-Hand Sides*. INFORMS Annual Meeting, 2010, Austin, TX, USA

Özaltın, O. Y., Prokopyev, O. A., Schaefer, A. J. *The Bilevel Knapsack Problem with Stochastic Right-Hand Sides*. INFORMS Annual Meeting, 2010, Austin, TX, USA

Özaltın, O. Y., Schaefer, A. J., Prokopyev, O. A., Roberts, M. S. *Optimizing Annual Influenza Vaccine Strain Selection*. IIE Annual Conference, 2009, Miami, FL, USA

Özaltın, O. Y., Hunsaker, B., Ralphs, T. K. *Estimating Solution Time of Branch-and-Bound Algorithms for Mixed-Integer Programs*. INFORMS Annual Meeting, 2007, Seattle, WA, USA

Özaltın, O. Y., Johnson, M. P. *Redesign of Elderly Service Network*. INFORMS Annual Meeting, 2007, Seattle, WA, USA

Özaltın, O. Y., Hunsaker, B., Ralphs, T. K. *Evaluating Progress and Predicting Solution Time of Branch-and-Bound Algorithms*. Workshop on Mixed Integer Programming (Poster), 2007, Montréal, Canada

Özaltın, O. Y., Hunsaker, B., Ralphs, T. K. *Monitoring Progress of Branch-and-Bound Algorithms*. INFORMS Annual Meeting, 2006, Pittsburgh, PA, USA

RESEARCH
EXPERIENCE

Research Assistant, Dr. Brady Hunsaker, Fall 2005 - Spring 2008
University of Pittsburgh, Department of Industrial Engineering

- Worked on integer programming theory and computation
- Developed an open-source branch-and-bound analysis toolkit for measuring the progress of branch-and-bound algorithms for mixed-integer programs, which is available from <http://www.rosemaryroad.org/projects/BAK>.

Research Assistant, Dr. Michael P. Johnson, Summer 2008
Carnegie Mellon University, H. John Heinz III School of Public Policy and Management

- Worked on a project to redesign senior center network in Allegheny County, PA
- Held regular meetings with Area Agency on Aging officers

Research Assistant, Drs. Andrew J. Schaefer and Oleg A. Prokopyev, Fall 2008 - present
University of Pittsburgh, Department of Industrial Engineering

- Worked on dissertation research about the optimal design of the annual influenza vaccine
- Held regular meetings with MDs
- Studied multi-stage stochastic integer programming and bilevel programming theory and computation

TEACHING
EXPERIENCE

Co-Instructor, Integer Programming, Fall 2009 (with Andrew J. Schaefer)
University of Pittsburgh, Department of Industrial Engineering

- Taught multiple lectures including a series of four lectures on integer programming duality
- Prepared and graded weekly assignments, one midterm exam and one final exam

Instructor, Introduction to Operations Research, Fall 2007
University of Pittsburgh, Department of Industrial Engineering

- 56 registered students
- Linear programming theory, modeling and computation

Teaching Assistant
University of Pittsburgh, Department of Industrial Engineering

- IE 3093: Stochastic Programming, Fall 2010
- IE 2005: Probability and Statistics for Engineers-I (Master Level), Fall 2006
- IE 1090: Senior Projects, Fall 2006
- IE 1081: Operations Research, Fall 2005

SERVICE TO
PROFESSION

Session chair

- *Stochastic Programming in Health Care*, INFORMS 2008, Washington, DC
- *Stochastic Optimization in Medicine*, IERC 2009, Miami, FL

- *Stochastic Integer Programming Applications in Health Care*, ISMP 2009, Chicago, IL

Membership to professional societies

- INFORMS, INFORMS Healthcare Applications Section, INFORMS Computing Society
- Institute of Industrial Engineers

GRADUATE COURSE WORK **University of Pittsburgh**, Department of Industrial Engineering
Linear Optimization, Integer Programming, Computational Optimization, Algorithms for Engineers, Stochastic Programming, Network-Based Optimization, Nonlinear Optimization, Probability for Engineers, Statistics and Data Analysis, Digital Systems Simulation, Introduction to Manufacturing Systems, Engineering Management, Stochastic Processes, Markov Decision Processes, Approximate Dynamic Programming

University of Pittsburgh, School of Public Health
Introduction to Epidemiology

University of Pittsburgh, Institute for Clinical Research Education
Cost Effectiveness Analysis, Clinical Decision Analysis

Carnegie Mellon University, Tepper School of Business
Graph Theory, Integer Programming

COMPUTER SKILLS Programming Languages: C/C++, Visual Basic, Perl, some use of Unix shell scripts
Parallel Computing: MPI, OpenMP
Optimization Software: CPLEX, SYMPHONY, GLPK, COIN/BCP, GAMS
Simulation Packages/Languages: Arena, Siman
GIS Software: ArcGIS

REFERENCES **Andrew J. Schaefer**, Associate Professor and Wellington C. Carl Faculty Fellow
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Mark S. Roberts, MD, MPP
Department Chair of Health Policy and Management, University of Pittsburgh
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Brady Hunsaker, PhD, Software Engineer
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6425 Penn Avenue, Suite 700, Pittsburgh, PA 15206
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