
Research Interests

Mixed integer nonlinear optimization
Optimization under uncertainty
Large scale optimization
Computing in prescriptive analytics
Real-life problem solving in industrial settings

Education

- 2012 – Present **PhD**, *Lehigh University, Industrial and Systems Engineering*, Bethlehem, PA.
2010 – 2012 **M.S.**, *Bilkent University, Industrial Engineering*, Ankara, Turkey.
2005 – 2010 **B.S.**, *Bilkent University, Industrial Engineering*, Ankara, Turkey.

Work Experience

- 2016 (Summer) – **Graduate Intern**, *SAS Institute, Inc.*, Cary, NC.
Present Advisor: Ivan Oliveira
- Mathematical modeling and software application development for projects
 - Optimizing the Boston Public Schools transportation system
 - Optimizing rates for service agreements by shaping loss functions
 - Mixture optimization engine for pooling manufacturing process
- 2015 (Summer) **Givens Associate PhD Intern**, *Argonne National Laboratory*, Darien, IL.
Advisor: Sven Leyffer
- Developed test sets for Mixed Integer Partially Differential Equation Constrained Optimization (MIPDECO) problem library
- 2013 (Summer) – **Research Assistant**, *Lehigh University, College of Engineering and Applied Sciences*, Bethlehem, PA.
2014 (Fall) Advisors: Robert Storer and Luis Zuluaga
- Applied statistical approaches to analyze real-time data
 - Developed mixed integer nonlinear optimization models for real-life problems for a co-op energy project
- 2013 (Summer) – **Co-Op PhD Intern**, *Air Products and Chemicals, Inc.*, Allentown, PA.
2014 (Fall) Advisor: Camillo Mancilla
- Analysis of cost functions using real-time data in gas production
 - Solution methodology for real-time nonlinear optimization problems
 - Implementation of adaptive curve algorithm with multi linear regression on real-time data
- 2009 (Summer) **Quality Management Intern**, *Medicana International Hospital*, Ankara, Turkey.
- Developed a computer simulation model of the internal disease outpatient system

Research Experience

- 2012 (Fall) – **PhD Thesis**, *Lehigh University, College of Engineering and Applied Sciences*, Bethlehem, PA.
Present Advisors: Robert Storer and Luis Zuluaga
Title: Developing solution methodologies for mixed integer nonlinear problems under uncertainty
- Deriving time-efficient approaches to solve nonlinear optimization problems in real time.
 - Second order cone relaxation methods and strengthening strategies
 - Providing lower and upper bounds in short time compared to the original problem formulation
 - Handling uncertainty in mixed integer quadratic equality constrained problems (in progress)
 - Application of aforementioned methods in practical settings, specifically for gas pipeline networks and service agreements in railroad systems
- 2010 – 2012 **Master Thesis**, *Bilkent University*, Ankara, Turkey.
Advisor: Bahar Yetiş Kara
Title: Organ Transplantation Logistics: Turkey Case
- Developed mathematical models to improve intra-regional organ flow of regional coordination centers
 - Modeled discrete-event simulation to compare performances of status quo and proposed systems
- In collaboration with the Organ and Tissue Transplantation Board of Ministry of Health of Turkey*

Teaching Experience

- 2015 (Spring) – **Teaching Assistant**, *Lehigh University, College of Business and Economics*, Bethlehem, PA.
Present IBE 250: Integrated Business and Engineering Honors Program Junior Lab
- Enhanced and managed the online business game for teaching course material
- 2010 – 2012 **Teaching Assistant**, *Bilkent University*, Ankara, Turkey.
Courses: Principles in Engineering Management, Production System Design, Project Scheduling

Professional Activities

- 2014 **Reviewer**, *European Journal of Operational Research*.
2013 **Writer**, *INFORMS Annual Meeting 2013, INFORMS E-News*, Minneapolis, MN.
2011 **Editor**, *Bilkent University Industrial Engineering Senior Projects 2011*, ISBN: 978-975-6090-64-0, Meteksan Matbaacilik, May 2011.

Presentations

- 2017 **Optimizing Fleet Scheduling for Boston Public Schools**, with *Jinxin Yi, Jeremiah Riddle and Ivan Oliveira*.
 - Manufacturing & Service Operations Management Conference, Chapel Hill, NC, June 2017
 - INFORMS Annual Meeting, Houston, TX, October 2017
- 2016 **Fast Solutions with Performance Guarantee for Operational Decisions in Real Time Industrial Gas Network Problems**, with *Camilo Mancilla, Robert Storer and Luis Zuluaga*.
 - INFORMS Annual Meeting, Nashville, TN, November 2016
- 2015 **Obtaining Bound Information in Operation Optimization of Gas Pipeline Networks**, with *Camilo Mancilla, Robert Storer and Luis Zuluaga*.
 - INFORMS Annual Meeting, Philadelphia, PA, November 2015
 - COR@L PhD Seminar, Lehigh University, November 2015
- 2014 **An Iterative Approach to Solve Gas Pipeline Optimization Problems**, with *Camilo Mancilla, Robert Storer and Luis Zuluaga*.
 - INFORMS Annual Meeting, San Francisco, CA, November 2014
 - COR@L PhD Seminar, Lehigh University, 2015 (Spring)
- 2012 (Fall) **Organ Transplantation Logistics: Turkey Case**, with *Bahar Yetiş Kara*.
 - YAEM National Congress on Operations Research and Industrial Engineering, Dogus Uni, 2012 (Spring)
 - COR@L PhD Seminar, Lehigh University, 2012 (Fall)

Honors and Awards

- 2014 – Present **P.C. Rossin Doctoral Fellow**.
2012 – 2013 **Dean's Doctoral Fellowship**, *Lehigh University*.
2010 – 2012 **Graduate Level Education Scholarship**, *Scientific and Technological Research Council of Turkey*.
2010 – 2012 **Full scholarship in M.S. education**, *Bilkent University*.
2006 – 2012 **Honor and High Honor Standing**, *Degrees at every semester during B.S. and M.S. studies*.
Awarded by Faculty of Engineering, Bilkent University.

Skills and Activities

- Languages Turkish (Native), English (Advanced), German (Intermediate), French (Basic), Japanese (Basic)
Programming C++, Javascript, PHP, Python, SQL
Software AMPL, ARENA, CPLEX, CuPPy, GAMS, Gurobi, MATLAB, PuLP, SAS, SYMPHONY
Other Version Control (SVN, Git)
- Leadership Lehigh INFORMS Student Chapter Secretary (2013), ISE Department Council PhD Representative (2014), Department Representative in Lehigh University Graduate Student Senate (2014–2016)
- Membership INFORMS Student Member (2012–), INFORMS Computing Society (2013–), INFORMS Optimization Society (2013–)