

SECIL SOZUER

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EDUCATION

Lehigh University, *Bethlehem, PA*

- **Ph.D.** Industrial and System Engineering, GPA 3.72 (Expected 2022)
- **Research Interests:** Healthcare Optimization, Supervised Machine Learning, Nonlinear Optimization, Scheduling and Heuristic Algorithm Development

Bilkent University, *Ankara, Turkey*

- **M.S.** Industrial Engineering 2012 - 2015
- **B.S.** Industrial Engineering 2008 - 2012

ICHEC Brussels Management Schools, *Brussels, Belgium*

- Exchange Student in Business and Management Spring 2014

LANGUAGE AND TECHNICAL SKILLS

Language Turkish (Native), English (Fluent), French (Conversational)
Software Skills C++, Python, PySpark, R, AMPL, Matlab, AIMMS, SAS 9.4, SAS Enterprise Miner, Tableau, ARENA, FlexSim HC

RESEARCH AND WORK EXPERIENCE

PhD Intern and Co-opt Student, *Sanofi Pasteur* June 2018- November 2019

- Conducted research within Regional Epidemiology and Health Economics team
- Worked on epidemiology, biostatistics, optimization and data science

PhD Intern, *Geisinger Medical Center* Summer 2017

- Developed an optimization model on AIMMS for the Provider Optimization Project
- Conducted large-scale data analysis within the Department of Healthcare Analytics

Researcher, *Lehigh University* 2016 - Present

- Worked on Simulation Based Optimization Algorithms in Healthcare Systems
- Published a book chapter on Robust Optimization

Teaching Assistant, 2012- Present

- Lehigh University: Business Simulation Game, Simulation, Optimization Models & Applications
- Bilkent University: Stochastic Processes, Intro. to Optimization, Modeling & Methods in Optimization

Researcher for Master's Thesis, *Bilkent University* 2014- 2015

- Worked on the survivable fiber optical network design problem of Turk Telekom
- Designed a cost effective network that provides high speed and high quality Internet access

Senior Design Project Member, *Turk Telekom* 2011- 2012

- Established a Monitoring System by Business Intelligence Reporting Technique
- Developed a process based KPI / control mechanism on the SAP applications

TECHNICAL PROJECTS

Advanced Topics in Business Analytics, *Lehigh University* Fall 2017

- Worked on Credit Rating Assessment problem (Binary Classification Model)
- Implemented Machine Learning Algorithms (Stepwise Logistic Regression, Random Forest, Boosted Tree, SVM) using R

- Special Topics: SAS Programming, *Lehigh University*** Fall 2017
- Worked on the big data about hospital readmission rates dataset and conducted logistic regression
 - Implemented Iteratively Reweighted Least Squares Algorithm using SAS IML
- Mining of Massive Dataset, *Lehigh University*** Fall 2016
- Developed a predictive model for Twitter User Gender Classification
 - Conducted Support Vector Machine analysis using Machine Learning Libraries of Python
- Computational Methods In Optimization, *Lehigh University*** Fall 2016
- Coded several sorting algorithms and profiled their performance on large data sets
 - Constructed a multi-thread parallelized LBFGS optimization algorithm
- Nonlinear Programming, *Lehigh University*** Spring 2015
- Developed a MATLAB implementation of line search and trust region methods
 - Tested the results on unconstrained nonlinear problems

INDUSTRY PROJECTS

- **Secil Sozuer**, Edward Thommes, Robert H. Storer, “The role of pneumonia/influenza in hospital readmissions: Burden and predictive factors via machine learning”, Sanofi Pasteur (Swiftwater PA), 2019.
- **Secil Sozuer**, Edward Thommes, “Relative Vaccine Effectiveness of Cell-based Versus Standard Influenza Vaccines”, Sanofi Pasteur (Swiftwater PA), 2018.
- **Secil Sozuer**, Poorani Selvaraj, “Demand Based Provider FTE Optimization Model to Minimize Physician Access Time”, Geisinger Medical Center (Danville, PA), 2017.
- **Secil Sozuer**, Nil Karacaoglu, Sevgin Sevginler, Baris Yildiz, Burak Yildirim, “Business Intelligence Reporting Technique Implementation on Purchasing Process”, Turk Telekom (Ankara, Turkey), 2011-2012.

PUBLICATIONS

- **Secil Sozuer**, Miao Bai, Robert H. Storer, “A Sample Gradient Algorithm for the Dynamic Appointment Scheduling Problem”, *In preparation*.
- **Secil Sozuer**, Aurelie C. Thiele, “The State of Robust Optimization”, *Robustness Analysis in Decision Aiding, Optimization, and Analytics*, Springer International Series in Operations Research & Management Science, Volume 241, 2016.
- **Secil Sozuer**, Oya Ekin Karasan, “Survivable Fiber Optical Networks”, *Master’s thesis*, Bilkent University, Turkey 2015.

AWARDS & HONORS

INFORMS Winter Simulation Conference - Travel Grant, <i>National Science Foundation (NSF)</i>	2019
Teaching Assistant - College of Business and Economics, <i>Lehigh University</i>	2016-2021
Rossin Doctoral Fellowship, <i>Lehigh University</i>	2016-2017
Deans Doctoral Assistantship, <i>Lehigh University</i>	2015-2016
Full grant from Erasmus Program, <i>Ministry for EU Affairs, Republic of Turkey</i>	Spring 2014
Graduate School Funding, <i>The Scientific and Technological Research Council of Turkey (TUBITAK)</i>	2012-2014
Full Scholarship including housing and monthly stipend, <i>Bilkent University</i>	2008-2012
High Honor / Honor List, <i>Bilkent University</i>	2008-2015

PROFESSIONAL AFFILIATIONS

United Nations Youth Representative (Health focus), Lehigh University
 Industrial & Systems Engineering Department, PhD Representative, Lehigh University
 INFORMS, Lehigh University Student Chapter
 ESTIEM (European Students of IE and Management), Bilkent University
 Student Societies Supreme Board, Representative, Bilkent University