

# ÖZGÜN ELÇİ

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## RESEARCH INTERESTS

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- Methodology: Decomposition-based hybrid methods; logic-based Benders decomposition; Data-driven optimization; Stochastic, robust, and distributionally robust optimization; Risk-averse optimization.
- Application Interests: Transportation and logistics; Scheduling and routing; Humanitarian logistics; Fairness in resource allocation; Portfolio optimization.

## EDUCATION

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**Carnegie Mellon University, Pittsburgh, PA** 2017 - 2022

Ph.D. in Operations Research

Minor in Machine Learning and Statistics

Dissertation: Essays on Logic-Based Benders Decomposition, Portfolio Optimization, and Fair Allocation of Resources

Advisors: Gérard Cornuéjols, John Hooker

**Carnegie Mellon University, Pittsburgh PA** 2019

M.Sc. in Operations Research

**Sabancı University, İstanbul, Turkey** 2016

M.Sc. in Industrial Engineering

Thesis: Chance-Constrained Stochastic Programming Models for Humanitarian Relief Network Design

Advisors: Kerem Bülbül, Nilay Noyan

**Bahçeşehir University, İstanbul, Turkey** 2014

B.Sc. in Industrial Engineering

Graduation Project: A MIP Formulation for Self Financing Energy Investment Planning

Advisors: Semra Ağralı, Ethem Çanakoglu, Yıldız Arıkan

## PROFESSIONAL EXPERIENCE

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**Starbucks** Seattle, WA

Data Scientist

April 2023 - Present

**Amazon** Seattle, WA

Research Scientist

October 2022 - January 2023

## **PUBLICATIONS**

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### **PUBLISHED/FORTHCOMING**

1. Elçi, Ö., Noyan, N., Bülbül, K., 2018. Chance-Constrained Stochastic Programming under Variable Reliability Levels with an Application to Humanitarian Relief Network Design, *Computers and Operations Research*, 96, 91-107.
2. Elçi, Ö., Noyan, N., 2018. A Chance-Constrained Two-Stage Stochastic Programming Model for Humanitarian Relief Network Design, *Transportation Research Part B: Methodological*, 108, 55-83.
3. Elçi, Ö., Hooker, J.N., 2022. Stochastic Planning and Scheduling with Logic-Based Benders Decomposition, *INFORMS Journal on Computing*, 34(5):2428-2442.

### **SUBMITTED**

- Portfolio Optimization in the Presence of Estimation Errors, joint work with Gérard Cornuéjols and Matthias Köppe, submitted.

### **WORK-IN-PROGRESS**

- Structural Characteristics of Equitable and Efficient Distributions, joint work with John Hooker and Peter Zhang.
- On Logic-Based Benders Decomposition and Sequence-Dependent Scheduling, joint work with John Hooker.

## **PRESENTATIONS**

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- Portfolio Optimization in the Presence of Estimation Errors on the Expected Asset Returns
  - Cornell Young Researchers Workshop (Poster Presentation), Ithaca, 2021.
- Structural Characteristics of Equitable and Efficient Distributions, joint work with John Hooker and Peter Zhang.
  - IFORS, 2021, presented by J. Hooker.
  - INFORMS Annual Meeting, Anaheim, 2021.
- Equitable Allocation of Scarce Medical Resources, joint work with John Hooker and Peter Zhang.
  - INFORMS Annual Meeting, 2020, presented by J. Hooker.

- A Logic-Based Benders Decomposition Algorithm for Two-Stage Stochastic Planning and Scheduling Problem, joint work with John Hooker.
  - International Conference on Stochastic Programming, Trondheim, 2019.
  - INFORMS Annual Meeting, Seattle, 2019.
- Chance-Constrained Stochastic Programming under Variable Reliability Levels with an Application to Humanitarian Relief Network Design, joint work with Nilay Noyan and Kerem Bülbül.
  - INFORMS Annual Meeting, Seattle, 2016.
- A Chance-Constrained Two-Stage Stochastic Programming Model for Humanitarian Relief Network Design, joint work with Nilay Noyan.
  - 37th National Congress on Operations Research and Industrial Engineering (YAEM 2017), İstanbul, 2017.
  - Third Place in YinzOR 2018 Poster Competition, Pittsburgh, 2018.

## HONORS AND AWARDS

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- PNC Presidential Fellowship, Tepper School of Business, Carnegie Mellon University, 2022.
- William Larimer Mellon Fellowship, Tepper School of Business, Carnegie Mellon University, 2017 - 2022.
- Excellence in Teaching Award (an annually granted award for teaching assistants), Sabancı University, for the academic year 2015 - 2016.
- TÜBİTAK (Scientific and Technological Research Council of Turkey) Graduate Fellowship (Stipend for 2 years), 2014.
- Graduate Scholarship (Full tuition fee waiver + Stipend for 2 years), Sabancı University, 2014.
- B.S. with High Honor Degree, Bahçeşehir University, 2014.
- Academic Achievement Scholarship (Stipend for 3 years), Bahçeşehir University, 2011.
- Undergraduate Scholarship (Full tuition fee waiver), Bahçeşehir University, 2010.
- High School Scholarship (Full tuition fee waiver), American Collegiate Institute, 2005.

## TEACHING EXPERIENCE

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### CARNEGIE MELLON UNIVERSITY

- **Instructor, Optimization for Business** Summer 2022  
(undergraduate)
- **TA, Optimization Methods in Finance** Spring 2022  
(MBA, Instructor: G. Cornuéjols)
- **TA and recitation leader, Optimization for Business** Spring 2019, 2020, 2022  
(undergraduate, Instructor: B. Moseley)
- **TA and recitation leader, Optimization for Business** Fall 2019, 2020, 2021  
(undergraduate, Instructor: A. Li)
- **TA, Financial Optimization** Fall 2021  
(Master of Science in Computational Finance, Instructor: J. Peña)
- **TA and recitation leader, Probability and Statistics** Fall 2019, 2020  
(MBA, Instructor: J. Peña)
- **TA, Risk Analytics** Fall 2019  
(MBA, Instructor: N. Secomandi)

### SABANCI UNIVERSITY

- **TA and recitation leader, Deterministic Models in Operations Research** Fall 2015, Spring 2017  
(undergraduate, Instructor: T. Ünlüyurt)
- **TA and recitation leader, Deterministic Models in Operations Research** Spring 2015, 2016, Fall 2016  
(undergraduate, Instructor: K. Bülbül)
- **TA, Supply Chain Practice** Fall 2015  
(undergraduate, Instructor: M. Kaya)

## GRADUATE COURSEWORK

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CARNEGIE MELLON UNIVERSITY: Graph Theory, Advanced Graph Theory, Linear Programming, Analytical Performance Modeling & Design of Computer Systems, Integer Programming, Advanced Integer Programming, Modern Convex Optimization, Convex Analysis, Machine Learning, Real Analysis, Lebesgue Integration, Dynamic Programming, Probability and Mathematical Statistics, Stochastic Calculus for Finance.

SABANCI UNIVERSITY: Linear Programming & Extensions, Stochastic Processes, Graph Theory & Network Flows, Nonlinear Programming, Stochastic Optimization, Introduction to Mathematical Analysis, Large Scale Optimization, Simulation Methods for Statistical Inference.

## SERVICE

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- Reviewer
  - INFORMS Journal of Computing
  - Transportation Research Part B.
  - Annals of Operations Research.
  - Transportation Research Part E.
  - Computers & Industrial Engineering.
  - CP 2021 (subreviewer)
  - IISE Transactions
- CMU INFORMS Student Chapter
  - Treasurer, 2018.
  - Co-chair, YinzOR 2018 Conference.
  - Co-chair, YinzOR 2019 Conference.

## MISCELLANEOUS

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- Programming languages: C++, Python, Visual Studio.
- Software: Excel, MATLAB, Arena.
- Optimization solvers: CPLEX & Concert Technology, ILOG OPL, AMPL, GAMS, Pyomo, Xpress Solver.
- Languages: English, Turkish.
- Professional affiliations: Institute for Operations Research and Management Science (INFORMS), Stochastic Programming Society (SPS).