

SEMRA AĞRALI

PROFESSOR

FACULTY OF ENGINEERING, DEPARTMENT OF INDUSTRIAL ENGINEERING

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EDUCATION

DEGREE	DEPARTMENT	UNIVERSITY	YEAR
PhD	Industrial and Systems Engineering	University of Florida	2009
MASTERS	Industrial Engineering	Koç University	2005
UNDERGRADUATE	Industrial Engineering	Istanbul Technical University	2003

ACADEMIC APPOINTMENTS

TITLE	DEPARTMENT	UNIVERSITY	YEAR
ASST. PROF.	Industrial Engineering	Bahçeşehir University	2009-2013
ASSOC. PROF.	Industrial Engineering	Bahçeşehir University	2013-2016
ASSOC. PROF.	Industrial Engineering	MEF University	2016-2018
PROFESSOR	Industrial Engineering	MEF University	2018-...
VISITING PROF.	Econometrics/Operations Research	Erasmus University Rotterdam	2019-2020

RESEARCH AREAS

- Optimization Problems in Energy Investment Planning
- Lot Sizing Problems with Co-Production
- Scheduling Problems in Service Operations
- Mixed-Integer Nonlinear Programming Problems in Supply Chain Management
- Nonlinear Knapsack Problems

PUBLICATIONS (SCIE, SSCI, AHCI)

- van den Heuvel, W., S. Ağralı, Z.C. Taşkın, "A Decomposition Algorithm for Single and Multi-Objective Integrated Market Selection and Production Planning Problem," INFORMS Journal on Computing, 35(6), 1439-1453, 2023.
- Pamuk, B. *, S. Ağralı, Z.C. Taşkın, B. Kabakulak, "A Lot-Sizing Problem in Deliberated and Controlled Co-Production Systems," ISE Transactions, 54(10), 950-962, 2022.
- Unal, A.T., S. Ağralı, Z.C. Taşkın, "Strong Integer Programming Formulations for Hybrid Flowshop Scheduling," Journal of Operational Research Society, 71(12), 2042-2052, 2020.

- Adıyeke, E.* , E. Canakoğlu, S. Ağralı, “Risk Averse Investment Strategies in a Carbon Constrained Environment,” *Journal of Operational Research Society*, 70(12), 2056-2068, 2019.
- Yahşi, M.* , E. Canakoğlu, S. Ağralı, “Carbon Price Forecasting Models Based on Big Data Analytics,” *Carbon Management*, 10(2), 175-187, 2019
- Adıyeke, E.* E. Canakoğlu, S. Ağralı, “Modeling of Carbon Credit Prices using Regime Switching Approach,” *Journal of Renewable and Sustainable Energy*, 10(3), 035901, 2018.
- Ağralı, S., F.G. Üçtuğ, B. Atılgan, “An Optimization Model for Carbon Capture & Storage/Utilization vs. Carbon Trading: A Case Study of Fossil-Fired Power Plants in Turkey,” *Journal of Environmental Management*, 215, 305-315, 2018.
- Üçtuğ, F.G., S. Ağralı, “Nonlinear Benefit-Cost Optimization-Based Selection of Insulation Material and Window Type: A Case Study in Turkey,” *Journal of Renewable and Sustainable Energy*, 9(3), 065102, 2017.
- Ağralı, S., F. Terzi*, E. Canakoğlu, E. Adıyeke*, Y. Arıkan, “Energy Investment Planning at a Private Company: A Mathematical Programming-Based Model and Its Application in Turkey,” *IEEE Transactions on Power Systems*, 32(6), 4180-4187, 2017.
- Üçtuğ, F.G., S. Ağralı, “Simple Nonlinear Benefit-Cost Optimization-Based Selection of Insulation Material and Window Type: Effect of Heating and Cooling Base Temperatures,” *Journal of Green Building*, 12(2), 79-94, 2017.
- Ağralı, S., Z.C. Taşkın, A.T. Unal, “Employee Scheduling in Service Industries with Flexible Employee Availability and Demand,” *Omega*, 66,, 159-169, 2017.
- Taşkın, Z.C., S. Ağralı, A.T. Unal, V. Belada, F.G. Yılmaz, “Mathematical Programming-Based Sales and Operations Planning at Vestel Electronics,” *Interfaces*, 45(4), 325-340, 2015.
- Üçtuğ, F.G., S. Ağralı, Y. Arıkan, E. Avcıoğlu*, “Deciding between carbon trading and carbon capture and sequestration: An optimisation-based case study for methanol synthesis from syngas,” *Journal of Environmental Management*, 132, 1-8, 2014.
- Selcuk, B., S. Ağralı, “Joint Spare Parts Inventory and Reliability Decisions under a Service Constraint,” *Journal of Operational Research Society*, 64, 446-458, 2013.
- Ağralı, S., J. Geunes, Z.C. Taşkın, “A Facility Location Model with Safety Stock Costs: Analysis of the Cost of Single-Sourcing Requirements,” *Journal of Global Optimization*, 54(3), 551-581, 2012.
- Ağralı, S., “A Dynamic Economic Lot-Sizing Problem with Co-Production,” *Optimization Letters*, 6(6), 1051-1061, 2012.
- Ağralı, S., J. Geunes, “A Single-Resource Allocation Problem with Poisson Resource Requirements,” *Optimization Letters*, 3(4), 559-571, 2009.
- Ağralı, S., J. Geunes, “Solving Knapsack Problems with S-Curve Return Functions,” *European Journal of Operational Research*, 193, 605-615, 2009.
- Ağralı, S., B. Tan, F. Karaesmen, “Modeling and Analysis of an Auction-Based Logistics Market,” *European Journal of Operational Research*, 191(1), 272-294, 2008.

*Students that are either advised or funded with TUBITAK (Turkish National Science Foundation) projects.

PROCEEDINGS

- Arıkan, Y., S. Ağralı, E. Canakoglu and F. Terzi, “Mathematical Modeling of Generation Expansion Planning Problem in a Partially Regulated Market: Private Company Perspective,” In *Energy: Expectations and Uncertainty*, 39th IAEE International Conference, Jun 19-22, 2016, International Association for Energy Economics, 2016.

- Ağralı, S., J. Geunes, C. Rainwater, “Component Procurement Planning and Product Portfolio Design Problem,” Proceedings of the Annual Industrial Engineering Research Conference, Cancun, Mexico, 2010.
- Tan, B., F. Karaesmen, S. Ağralı, “Modeling and Analysis of a Logistics Auction Market,” Proceedings of The Fifth International Conference on Analysis of Manufacturing Systems- Production Management, Zakynthos, Greece, 2005.

AWARDS AND HONORS

- **Goodeve Medal 2020**, The Operational Research Society, 2020
- **EURO Excellence in Practice Award (EEPA) finalist**, Glasgow, July 2015
- **Graduate Research and Teaching Assistantship** (during Ph.D. study), August 2005 – August 2009 University of Florida, Gainesville, FL, USA
- **Graduate Scholarship** (during M.S. study), September 2003 – June 2005 Koç University, Istanbul, Turkey
- **Vehbi Koç Foundation Scholarship** (during B.S. study), September 1998 – June 2003

ADVISED THESES OR DISSERTATIONS

- *Co-Advisor*, Eyüp Ensar Işık (PhD Expected, 2026, Boğaziçi University), Thesis title: TBA
- *Co-Advisor*, Stephan Kroon (MSc 2021, Erasmus University Rotterdam), Thesis title: Optimising the dynamic uncapacitated lot-sizing problem with inventory bounds and co-production units
- *Co-Advisor*, Bahadır Pamuk (MSc 2018, Boğaziçi University), Thesis title: Lot Sizing Problems in a Deliberated and Controlled Co-Production System
- *Co-Advisor*, Fulya Terzi (MSc 2016, Boğaziçi University), Thesis title: Mathematical Programming Approaches for a Generation Expansion Planning Problem in a Carbon-Constrained Environment
- *Advisor*, Zeynep Sezer (MSc 2013, Bahçeşehir University), Thesis title: An Exact Solution Algorithm for the Coordinated Capacitated Lot-Sizing Problem

PROJECTS

FUNDING ORGANIZATION	TÜBİTAK 1001
ROLE	Researcher
PROJECT TITLE	Simultaneous Lot-sizing and Scheduling Problems in Co-production Systems and Efficient Solution Algorithms
START-END DATES	March 2024 – October 2026
BUDGET	

FUNDING ORGANIZATION	TÜBİTAK 2219
ROLE	Principal Investigator
PROJECT TITLE	Production Planning Problems for Co-Production Systems Under Inventory Bounds
START-END DATES	September 2019 – August 2020
BUDGET	€18,900

FUNDING ORGANIZATION	TÜBİTAK 1001
ROLE	Principal Investigator

PROJECT TITLE	Lot-Sizing Models for Co-Production Systems and Their Solution Algorithms
START-END DATES	April 2017 – October 2019
BUDGET	₺236,575 (~\$64,300)
FUNDING ORGANIZATION	TÜBİTAK 1001
ROLE	Principal Investigator
PROJECT TITLE	Optimization models for energy investment planning in a carbon constrained environment and the analysis of these models from the economic and strategic planning point of view
START-END DATES	October 2014 – October 2016
BUDGET	₺199,700 (~\$90,800)

INSTITUTIONAL EXPERIENCES / COLLABORATIONS / CONSULTANCIES

- *Academic Consultant*, TURKCELL, “Improving the Customer's Experience on Onedesk Ticketing Systems Through Process Mining,” October 2021 – April 2022
- *Academic Consultant*, TAM Finance, “People Analytics,” March 2020 – February 2021
- Graduate Researcher, MERCK & Co. Inc., PA, USA, “Distribution planning of sample bottles,” May 2007 – December 2007
- Graduate Researcher, MERCK & Co. Inc., PA, USA, “Solving Multi-Channel Resource Allocation Problems under Uncertainty,” September 2006 – September 2007

ACADEMIC SERVICE

- *Vice President for Research*, MEF University, March 2023 - ...
- *Executive Board Member*, MEFTEK AŞ, April 2023 - ...
- *Faculty Executive Board Member*, Faculty of Engineering, MEF University, September 2023 - ...
- *Department Chair*, Department of Industrial Engineering, MEF University, September 2016 – September 2019
- *Faculty Board Member*, Faculty of Engineering, MEF University, September 2016 –September 2019
- *Acting Director of School of Engineering and Natural Sciences*, Bahçeşehir University, February 2015 - June 2016

TEACHING EXPERIENCE

MEF University

- IE332 Exploratory Data Analytics (Fall 2021, 2022, 2023)
- IE306 Supply Chain Management (Spring 2017, 2018, 2019, 2021, 2022, 2023, 2024)
- IE 401 Information Systems (Fall 2018, 2020, 2021, 2022)
- IE 208 Operations and Facilities Planning (Spring 2021)
- IE301 Operations Research II (Fall 2016, 2017)

Bahcesehir University

- INE6101 Linear Optimization (Fall 2012, 2013, 2014, 2015)
- INE6204 Network Optimization (Spring 2013)
- INE5144 Advanced Optimization Techniques (Spring 2010, 2011)
- INE5111 Mathematical Programming and Modeling (Fall 2010)
- SE 5418 Operations Research for IT and Service Management (Spring 2011)
- INE4301 Scheduling and Sequencing (Spring 2012)

- INE2008 (formerly IE3001) Operations Research I (Fall 2009, 2010, 2012; Spring 2015, 2016)
- INE3009 (formerly IE 3002) Operations Research II (Spring 2010, 2011, 2012, 2013; Fall 2013, 2014, 2015)

Instructor at University of Florida

- EIN4365 Facilities Planning and Materials Handling (Spring, 2009)
- EIN4365 Facilities Planning and Materials Handling (Fall, 2008)