

# ILGIN DOGAN

ilgindogan@berkeley.edu • Berkeley, CA • Personal Website • LinkedIn

EDUCATION	<b>University of California, Berkeley</b>	
	Ph.D. in Industrial Engineering and Operations Research	May, 2024 (expected)
	M.Sc. in Industrial Engineering and Operations Research	2019
	<b>Middle East Technical University, Ankara, Turkiye</b>	
RESEARCH INTERESTS	M.Sc. in Industrial Engineering	2018
	B.Sc. in Industrial Engineering	2016
	<b>Methodologies:</b> Sequential and Data-driven Decision Analytics, Statistical Learning, Optimization Theory, Principal-Agent Theory, Multi-Objective Combinatorial Optimization.	
	<b>Applications:</b> Sustainability Analytics, Supply Chain Management, Healthcare Analytics.	
RESEARCH PAPERS	<b>Ilgin Dogan</b> , Zuo-Jun Max Shen, and Anil Aswani. Estimating and Incentivizing Imperfect-Knowledge Agents with Hidden Rewards. <i>Submitted to Operations Research</i> .	
	<b>Ilgin Dogan</b> , Zuo-Jun Max Shen, and Anil Aswani. Repeated Principal-Agent Games with Unobserved Agent Rewards and Perfect-Knowledge Agents. <i>Submitted to Operations Research</i> .	
	Yoon Lee, <b>Ilgin Dogan</b> , Anil Aswani, and Zuo-Jun Max Shen. Incorporating Fairness into Incentive Design in Principal-Agent Models with Adverse Selection and Moral Hazard. <i>Working paper</i> .	
	<b>Ilgin Dogan</b> , Zuo-Jun Max Shen, and Anil Aswani. Regret Analysis of Learning-Based MPC with Partially-Unknown Cost Function. <i>Conditionally accepted to IEEE Transactions on Automatic Control</i> .	
	<b>Ilgin Dogan</b> , Banu Lokman, and Murat Koksalan. (2022). Representing the Nondominated Set in Multi-objective Mixed-integer Programs, <i>European Journal of Operational Research</i> , Vol. 296 (3), pp. 804-818.	
INVITED TALKS	Repeated Principal-Agent Games with Unobserved Agent Rewards and Perfect-Knowledge Agents.	
	<ul style="list-style-type: none"><li>• 2023, Annual POMS Conference, Orlando, FL.</li><li>• 2022, INFORMS Annual Meeting, Indianapolis, IN.</li></ul>	
	Repeated Principal-Agent Games with Unobserved Rewards: Learning Agents with Imperfect Knowledge.	
	<ul style="list-style-type: none"><li>• 2023, INFORMS Annual Meeting, Phoenix, AZ.</li><li>• 2023, Annual POMS Conference, Orlando, FL.</li></ul>	
	Regret Analysis of Learning-Based MPC with Partially-Unknown Cost Function.	
	<ul style="list-style-type: none"><li>• 2021, INFORMS Annual Meeting, Anaheim, CA.</li><li>• 2020, INFORMS Annual Meeting, Virtual.</li></ul>	
	Representing the Nondominated Set in Multi-objective Mixed-integer Programs.	
	<ul style="list-style-type: none"><li>• 2019, INFORMS Annual Meeting, Seattle, WA.</li><li>• 2018, INFORMS Annual Meeting, Phoenix, AZ.</li><li>• 2017, International Conference on MCDM, Ottawa, Canada.</li></ul>	

<b>TEACHING EXPERIENCE</b>	<b>Industrial Engineering &amp; Operations Research, University of California, Berkeley</b>	
	<i>Instructor:</i>	
	<ul style="list-style-type: none"> <li>• INDENG 151 - Service Operations Design and Analysis <span style="float: right;">Fall 2022</span> Teaching effectiveness evaluation: 6.72 / 7.00 (Department average: 6.03)</li> </ul>	
	<i>Graduate Student Instructor:</i>	
	<ul style="list-style-type: none"> <li>• INDENG 151 - Service Operations Design and Analysis <span style="float: right;">Fall 2019, Fall 2020</span> Teaching effectiveness evaluation: 4.60 / 5.00 (Department average: 4.27)</li> <li>• INDENG 165 - Engineering Statistics, Quality Control, and Forecasting <span style="float: right;">Spring 2020</span> Teaching effectiveness evaluation: 4.62 / 5.00 (Department average: 3.95)</li> </ul>	
	<b>Haas School of Business, University of California, Berkeley</b>	
	<i>Reader:</i>	
	<ul style="list-style-type: none"> <li>• UGBA 141 - Production and Operations Management <span style="float: right;">Spring 2021</span></li> </ul>	
	<b>Department of Industrial Engineering, Middle East Technical University</b>	
	<i>Undergraduate and Graduate Teaching Assistant:</i>	2015 - 2018
<b>RESEARCH EXPERIENCE</b>	<ul style="list-style-type: none"> <li>• Courses: Stochastic Optimization with Applications / Management Accounting / Engineering Economy / Engineering Statistics, Quality Planning and Control / Quality in Engineering Management / Special Topics in IE: Multi-objective Combinatorial Optimization.</li> </ul>	
	<b>University of California, Berkeley</b> <span style="float: right;">2019 - present</span>	
	<i>Graduate Student Researcher</i> - Department of Industrial Engineering & Operations Research	
	<b>Turkish Scientific and Technological Research Council (<i>NSF-equivalent</i>)</b> 2016 - 2018	
	<i>Research Scholar</i>	
	<i>Project:</i> Nondominated Points of Multi-objective Integer Programs: Approaches and Applications	
	<ul style="list-style-type: none"> <li>• Developed efficient algorithms that aim at producing a small number of representative non-dominated points (up to 50% less than the existing approaches) while satisfying a prespecified coverage gap value for combinatorial multi-objective mixed-integer programs.</li> <li>• Conducted extensive simulation experiments in C using CPLEX for mixed-integer knapsack and assignment problems with up to 5 objectives.</li> </ul>	
	<b>Middle East Technical University (METU)</b>	2015 - 2016
	<i>System Design Project Analyst</i>	
	<i>Project:</i> Designing a sustainable and data-driven in-campus transportation system (bike-share and shuttle services) for the METU, Ankara campus (11,100 acres).	
<b>INDUSTRIAL EXPERIENCE</b>	<ul style="list-style-type: none"> <li>• Collected and wrangled categorical and numerical data using SQL. Performed root-cause analysis.</li> <li>• Developed a multi-objective optimization model considering the conflicting goals of different stakeholders in a large socio-technical system.</li> <li>• Conducted empirical analyses on real data using a simulation model developed in Arena.</li> <li>• Achieved a 15% decrease in total travel distances of the shuttles (due to the increase in the non-motorized trips) and a 5% decrease in the average travel time per person in the transportation network.</li> </ul>	
	<b>Meta</b>	Summer 2022
	<i>Research Data Scientist Intern</i>	
	Infrastructure Strategy Data Science, Menlo Park, CA	
	<ul style="list-style-type: none"> <li>• Project: Targeting viewers and broadcasters for providing ultra-low end-to-end latency during live streams.</li> </ul>	

- Developed a framework that includes several components from implementing data analysis, building and maintaining data pipelines, developing and productionizing machine learning models.
- Achieved 70% precision and 63% recall with 91% coverage of total latency-sensitive broadcast watch time with the proposed classification model.

#### **Robert BOSCH GmbH**

Summer 2015

*Long-term Project Intern*

Department of Deployment of Business Excellence, Bursa, Turkiye

- Project: Enhancing deployment of continuous improvement techniques in the organization by following the Kaizen and lean manufacturing methodologies.
- Developed statistical quality control models to facilitate process improvement in the organization.
- Experienced the company culture, attended weekly departmental meetings. Presented the project results to the executive management.

#### **BAUER Casings**

Summer 2014

*Service Operations Intern*

Department of Production Planning, Ankara, Turkiye

- Monitored and reported on daily data using company's ERP database system.
- Gained understanding of a complete flow of production and operational processes in the plant.
- Experienced the company culture, attended weekly departmental meetings.

#### **HONORS, FELLOWSHIPS, AND AWARDS**

- IEOR Faculty Fellowship, University of California, Berkeley, 2021.
- Outstanding Graduate Student Instructor Award, University of California, Berkeley, 2021.
- Ph.D. First-year Fellowship, IEOR, University of California, Berkeley, 2018-2019.
- Graduate Research Fellowship, TUBITAK (*NSF-equivalent*), 2017-2018.
- Graduate Courses Performance Award, METU, 2018.
- Dean's High Honor List in B.Sc., Department of Industrial Engineering, METU, 2016.

#### **COMPUTER SKILLS**

- Programming Languages: C, Python, SQL.
- ML Frameworks & Libraries: Scikit-Learn, SciPy, Pandas, NumPy, Matplotlib.
- Tools: LaTeX, Microsoft Office.
- Statistical Softwares: RStudio, Minitab.
- Optimization Softwares: Gurobi, CPLEX, GAMS.
- Simulation Softwares: Arena (Siman).

#### **SERVICES AND SOCIETY ACTIVITIES**

- **Graduate Mentor:** UC Berkeley Engineering Summer Undergraduate Research Program (BESURE), 2023.
- **Session Chair:**
  - "Responding Climate Crisis with Data-Driven OM" and "Stochastic Approaches to Healthcare Analytics" in 2023 INFORMS Annual Meeting.
  - "Incorporating AI into Healthcare Delivery" and "ML for Healthcare Applications" in 2022 INFORMS Annual Meeting.
- **Reviewer:** INFORMS Journal on Data Science.
- **Participant:** POMS Doctoral Consortium, 2023.
- **Participant:** INFORMS Doctoral Student Colloquium, 2020.
- **Participant:** Theory of Reinforcement Learning Boot Camp, Deep Reinforcement Learning Workshop, by The Simons Institute for the Theory of Computing, 2020.
- **Member:** INFORMS, POMS, MCDM.