Oguz Toragay

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Education

Auburn University **2018–2022**
Ph.D. in Industrial and Systems Engineering *GPA: 4.00/4.00*
- Adviser: Dr. Daniel F. Silva
- Area of study: Operations Research, Additive Manufacturing & Topology Optimization

Auburn University **2016–2018**
M.Eng. in Industrial and Systems Engineering *GPA: 4.00/4.00*
- Adviser: Dr. Daniel F. Silva
- Area of study: Queueing Theory and Markov Decision Processes

Gazi University **2007–2011**
M.Sc. in Industrial Engineering, Turkey/Ankara *GPA: 3.28/4.00*
- Adviser: Dr. Murat Arikan
- Area of study: Multi-Objective Optimization and Multi-Attribute Decision Making

Khayyam University **2000–2004**
B.Sc. in Applied Mathematics, Iran/Mashhad *GPA: 3.07/4.00*
- Adviser: Dr. Alireza Salemkar
- Area of study: Group Theory & Rings Algebra

Research Interests

- Operations Research
- Additive Manufacturing
- Queueing theory
- Markov Decision Processes
- Metaheuristic Optimization
- Topology Optimization

Publications

Journal Papers

- **Toragay, O.**, Pouya, S, "A Monte Carlo simulation approach to the gap-time relationship in solving scheduling problem", *Accepted* by Journal of Turkish Operations Management
- **Toragay, O.**, Silva, D. F., Vinel, A., "A Hybrid Genetic Algorithm Approach for the Topology Optimization of Additively Manufactured Structures", *In preparation* for the Optimization and Engineering Journal
- **Toragay, O.**, Silva, D. F., Vinel, A., "On optimization of lightweight planar frame structures: an evolving ground structure approach", *Under review* with Structural and Multidisciplinary Optimization Journal
- **Toragay, O.**, Silva, D. F., Vinel, A., Shamsaei N., "Exact Global Optimization of Frame Structures for Additive Manufacturing", Struct Multidisc Optim 65, 97 (2022). https://doi.org/10.1007/s00158-022-03178-0
- **Toragay, O.**, Silva, D. F., "Fast Heuristic Approach for Control of Complex Authentication Systems", Applied Stochastic Models in Business and Industry, Vol: 37, Issue: 4, 2021
- **Toragay, O.**, Arikan, M., "Performance Evaluation of Faculty Departments by a Delphi Method Based on 2-Tuple fuzzy Linguistic Representation Model and TOPSIS", International Journal of Basic and Applied Sciences IJBAS-IJENS, Vol: 15, No: 05, 2015.
- **Toragay, O.**, Arikan, M., "Performance Evaluation of the Departments in Engineering College of a University by Utilizing TOPSIS and Fuzzy Delphi", Journal of Economics and Administrative Sciences, Vol: 16, No: 02, 2015.(Language: Turkish)

Conference Proceedings

- **Toragay, O.**, Silva, D. F., Vinel, A., Shamsaei, N., "Exact Size and Shape Optimization of Additively Manufactured Lightweight Planar Frame Structures with Manufacturability Constraints and Modern Global Optimization Methods", 14^{th} World Congress of Structural and Multidisciplinary Optimization 2021, Virtual Conference.
- **Toragay, O.**, Arikan, M., "Academic Performance Evaluation of the Departments in Engineering College by Utilizing TOPSIS and Fuzzy Delphi", International Symposium on the Analytic Hierarchy Process 2014, Washington D.C., USA.

Conference Presentations

- ICAM ASTM International Conference on Additive Manufacturing, Hybrid, 2021: New Mathematical Model for Simultaneous Size and Shape Optimization of Additively Manufactured Lightweight Planar Frame Structures.
- INFORMS Annual Meeting, Hybrid, 2021: Exact Global Optimization of Frame Structures for Additive Manufacturing.
- INFORMS Annual Meeting, Virtual, 2020: Topology Optimization of Frame Structures for Metal Additive Manufacturing.
- INFORMS Annual Meeting, Houston, Texas, 2017: Near-optimal Control of Complex Authentication Systems.
- This is Research: Student Symposium, Auburn, AL, 2018: Near-optimal Control of Complex Authentication Systems (Poster Presentation).
- Middle East Technical University, Ankara, Turkey, 2018: Near-optimal Control of Complex Authentication Systems. (invited talk)

Professional Experience

Lawrence Technological University (LTU) **USA**
Assistant Professor, The A. Leon Linton Department of Mechanical, Robotics, and Industrial Engineering *Fall 2022*

Auburn University (AU) **USA**
Graduate Research Assistant, Funded by FAA *2018–2022*
- **Topic**: Topology Optimization of Lightweight Structures for Additive Manufacturing.
- **Tools**: MATLAB, PYTHON, PYOMO, AMPL & ABAQUS

Auburn University **USA**
Graduate Research Assistant *2017–2018*
- **Topic**: Applications of Queueing models and Markov Decision Processes in Secure Networks.
- **Tools**: Parallel computing in MATLAB & MDP TOOLBOX.

United Nations High Commissioner for Refugees (UNHCR) **Turkey**
RSD Scheduling Assistant *2009–2015*
- **Job Description**: Leading a team of four employees who prepared the weekly schedule for Refugee Status Determination and Protection interviews of the asylum-seekers in Turkey.
- **Supervisor**: Mr. Resit Akif Atli

Teaching Experience

Advanced Optimization Techniques (Graduate level) (evaluations: 4.38/5)	*Spring 2023, LTU*
Simulation in Systems Design (evaluations: 3.70/5)	*Spring 2023, LTU*
Plant Layout (evaluations: 4.30/5)	*Spring 2023, LTU*
Applied Stochastic Optimization (Graduate level) (evaluations: 4.69/5)	*Fall 2022, LTU*
Production Planning and Control (evaluations: 4.72/5)	*Fall 2022, LTU*
*Manufacturing Systems I – **Instructor of record** (evaluations: 5/6)*	*Fall 2020, AU*
Manufacturing Systems I – Teaching Assistant & Lab Instructor	*2018 – 2021, AU*
Manufacturing Systems II – Teaching Assistant	*Fall 2017, AU*
Dynamic Programming – Teaching Assistant (Graduate Level)	*Spring 2017, AU*
Stochastic Optimization – Teaching Assistant (Graduate Level)	*Fall 2016, AU*
Probability and statistics – Teaching Assistant	*Spring 2016, AU*

Honors & Awards

2022-2024: Undergraduate Simulation teaching grant (Simio licenses worth $96000), Simio LLC
2022-2023: SEED research grant ($5000), Lawrence Technological University
2021-2022: Outstanding PhD Student, Industrial and Systems Engineering Department, Auburn University
2016-2021: Full tuition scholarship, Auburn University
2017-2018: INFORMS Student Chapter Award at the level of Summa Cum Laude (*Position: Secretary*)
2016-2017: INFORMS Student Chapter Award at the level of Cum Laude (*Position: Webmaster*)
2007-2010: Full tuition scholarship, Gazi University, Provided by Turkish Education Ministry

Computer Skills

Programming: MATLAB, PYTHON (NUMPY, PANDAS, OOP), LINUX VM

Optimization: AMPL, PYOMO, CPLEX, GUROBI, BARON, KNITRO, IPOPT, NEOS SERVER

Certificates

ASTM: Additive Manufacturing General Personnel Certificate (ASTM E2659-18 compliant certificate)

Selected Graduate Level Courses

- Optimization (Linear, Network, Heuristic)
- Integer and Non-linear Programming
- Multi-Criteria Decision Making
- Advanced Engineering Statistics I
- Sequencing and Scheduling
- Fuzzy Set Theory
- Production Systems Planning
- Data Visualization
- Stochastic Operations Research
- Production Inventory Control
- Manufacturing and Production Economy
- Information Technology for Operations

Professional References

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Dr. Alexander Vinel
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Dr. Babek Erdebilli
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Dr. Richard Garnett
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