

Oguz Toragay

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Education

Ph.D., Industrial and Systems Engineering

2018–2022

Auburn University, Auburn, AL

GPA: 4.00/4.00

- Adviser: Dr. Daniel F. Silva
- Area of study: Operations Research, Additive Manufacturing and Topology Optimization

M.Eng., Industrial and Systems Engineering

2016–2018

Auburn University, Auburn, AL

GPA: 4.00/4.00

- Adviser: Dr. Daniel F. Silva
- Area of study: Queueing Theory and Markov Decision Processes

M.Sc., Industrial Engineering

2007–2011

Gazi University, Ankara, Türkiye

GPA: 3.28/4.00

- Adviser: Dr. Murat Arikan
- Area of study: Multi-Objective Optimization and Multi-Attribute Decision Making

B.Sc., Applied Mathematics

2000–2004

Khayyam University, Mashhad, Iran

GPA: 3.07/4.00

- Adviser: Dr. Alireza Salemkar
- Area of study: Group Theory & Rings Algebra

Professional Experience

Assistant Professor

2022–Present

Lawrence Technological University, Mechanical, Robotics, and Industrial Engineering

Graduate Research Assistant

2016–2022

Auburn University, Industrial and Systems Engineering

RSD Scheduling Assistant

2009–2015

United Nations High Commissioner for Refugees (UNHCR)

Teaching Experience

Advanced Optimization Techniques (Graduate level) (evaluations: 4.38/5, 4.58/5)

S23, S24

Applied Stochastic Optimization (Graduate level) (evaluations: 4.69/5, 4.57/5)

F22, F23, F24

Simulation in Systems Design (evaluations: 3.70/5, 4.83/5)

S23, S24, F24

Plant Layout (evaluations: 4.30/5, 4.63/5)

S23, S24

Operations Research Techniques (evaluations: TBA)

F24

Statistical Methods for Process Improvement (evaluations: 4.72/5)

F23

Production Planning and Control (evaluations: 4.72/5)

F22

Journal Papers

- **Toragay, O.**, Silva, D. F., Vinel, A., “On optimization of lightweight planar frame structures: an evolving ground structure approach”, *Struct and Multidisc Optim* 67, 5 (2024). <https://doi.org/10.1007/s00158-024-03796-w>
- Pouya, S., **Toragay, O.**, and Mohammadi, M., “Predicting the Solution Time for Optimization Problems Using Machine Learning.” In *International Conference on Optimization, Learning Algorithms and Applications*, pp. 450-465. Springer, Cham, (2024). https://doi.org/10.1007/978-3-031-53025-8_31
- Mohanta, K. K., **Toragay, O.**, “Enhanced performance evaluation through neutrosophic data envelopment analysis leveraging pentagonal neutrosophic numbers.” *J. Oper. Strateg Anal* 1, no. 2 (2023): 70-80.
- **Toragay, O.**, Pouya, S, “A Monte Carlo simulation approach to the gap-time relationship in solving scheduling problem.” *Journal of Turkish Operations Management* 7, no. 1 (2023): 1579-1590.
- **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

- Pouya, S., **Toragay, O.**, A Study on the Gap-Time Relationship in Solving Scheduling Problem, *INFORMS Annual Meeting 2023*, Phoenix, Arizona
- **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”, *14th 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.

Honors, Awards, Grants

2024-2025: Material and Processes for Additive Manufacturing (DoD DURIP Grant \$386,678 - Pending)

2022-2024: Undergraduate Simulation teaching grant (Simio LLCs, Simio software license \$96000)

2022-2023: SEED research grant (LTU \$5000)

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

Research Interests

- Operations Research
- Data Analytics
- Stochastic Processes
- Optimization under Uncertainty
- Additive Manufacturing
- Supply chain and Logistics

Computer Skills

Programming: Python, Matlab, R **Packages:** NumPy, Pandas, SciPy, NetworkX, Scikit-Learn, PyTorch

Optimization: AMPL, Pyomo, OR-tools, Gurobipy, Hexaly, Gurobi, Cplex, Baron, Ipopt, NEOS Server

Simulation: Simio

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
- Production Systems Planning
- Data Visualization
- Stochastic Operations Research
- Production Inventory Control
- Information Technology for Operations

Professional References

Dr. Daniel F. Silva

Associate Professor, Industrial and Systems Engineering, Auburn University

E-mail: dfs0008@auburn.edu

Phone: 334-844-8273

Graduate Advisor

Dr. Alexander Vinel

Associate Professor, Industrial and Systems Engineering, Auburn University

E-mail: azv0019@auburn.edu

Phone: 334-844-1425

Graduate Co-Advisor

Dr. Nasrin Mohabbati

Assistant Professor, Information Systems, San Francisco State University

E-mail: mohabbati@sfsu.edu

Phone: 334-740-0570

Dr. Babek Erdebilli

Professor, Industrial Engineering, Ankara Yildirim Beyazit University

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