

Oguz Toragay | Curriculum Vitae

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Education

Auburn University

2016–2022(expected)

Ph.D. in Industrial and Systems Engineering, USA/AL

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, USA/AL

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
- Markov Decision Processes
- Metaheuristic Optimization
- Nonlinear Optimization
- Topology Optimization

Publications

Journal Papers

- **Toragay, O.**, Silva, D. F., Vinel, A., Shamsaei N., “A Novel Heuristic Approach for the Design Optimization of Additively Manufactured Lightweight Frame Structures”, *In prepration* for the INFORMS journal on Computing
- **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”, 14th World Congress of Structural and Multidisciplinary Optimization 2021, Virtual Conference.(Abstract)
- **Toragay, O.**, Arikan, M., “Academic Performance Evaluation of the Departments in Engineering Faculty of a University by Utilizing TOPSIS and Fuzzy Delphi”, *International Symposium on the Analytic Hierarchy Process 2014*, Washington D.C., USA.(Abstract)
- Rouyendegh BD, **Toragay, O.**, “Selecting the High-Performing Departments within Universities Applying the Fuzzy ELECTRE Method”, 11th International Conference on Applied Mathematics and Informatics 2010, Bratislava, Slovakia.

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

Auburn University

Graduate Research Assistant, Funded by FAA

- **Topic:** Topology Optimization of Lightweight Structures for Additive Manufacturing.
- **Tools:** MATLAB, PYTHON, PYOMO, AMPL & ABAQUS

USA

2019–2021

Auburn University

Graduate Research Assistant

- **Topic:** Applications of Queueing models and Markov Decision Processes in Secure Networks.
- **Tools:** Parallel computing in MATLAB & MDP TOOLBOX.

USA

2017–2018

United Nations High Commissioner for Refugees

RSD Scheduling Assistant

- **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

Turkey

2009–2015

Teaching Experience

*Manufacturing Systems I – **Instructor of record** (evaluations: 5/6)*

Fall 2020

Manufacturing Systems I – Teaching Assistant & Lab Instructor

2018 – 2021

Manufacturing Systems II – Teaching Assistant

Fall 2017

Dynamic Programming – Teaching Assistant (Graduate Level)

Spring 2017

Stochastic Optimization – Teaching Assistant (Graduate Level)

Fall 2016

Probability and statistics – Teaching Assistant

Spring 2016

Honors & Awards

2016-2021: Full tuition scholarship, Auburn University, Auburn, AL

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, NEOS SERVER

Certificates

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

Languages

- Azerbaijani (Native)
- Turkish (Native)
- Farsi (Native)
- English (Fluent)

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

Personal Interests

- Playing Music Instrument (Tar)
- Classical Music
- Meditation
- Chess
- Soccer

Professional References

Assistant Professor

Dr. Daniel F. Silva, Auburn University

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Phone: +1-334-844-8273

Associate Professor

Dr. Alexander Vinel, Auburn University

E-mail: azv0019@auburn.edu

Phone: +1-334-844-1425

Professor

Dr. Nima Shamsaei, Auburn University

E-mail: nzs0058@auburn.edu

Phone: +1-334-844-4839

Ph.D. Lecturer

Dr. Richard Garnett, Auburn University

E-mail: rfg0004@auburn.edu

Phone: +1-334-844-1477

Department of Industrial and Systems Engineering

Graduate Advisor

Department of Industrial and Systems Engineering

Graduate Co-Advisor

Department of Mechanical Engineering

Graduate Co-Advisor

Department of Industrial and Systems Engineering

Teaching Mentor