Personal Information

Name	Serhat Gul
Birth date	11 Oct 1983
Address	TED Universitesi, Endustri Muhendisligi Bolumu, Ziya Gokalp Caddesi No: 48, 06420, Cankaya, Ankara, Turkey
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Education

2010   **Arizona State University** *Tempe, AZ, USA*
Ph.D. in Industrial Engineering
Chairpersons: Dr. John W. Fowler and Dr. Brian T. Denton (University of Michigan)
Thesis: Optimization of Surgery Delivery Systems

2007   **Arizona State University** *Tempe, AZ, USA*
M.S. in Industrial Engineering

2006   **Sabanci University** *Istanbul, Turkey*
B.S. in Industrial Engineering

Work Experience

Academic Appointments

Sep 2014 – Present   **TED University** *Ankara, Turkey*
Department of Industrial Engineering
Assistant Professor

Feb 2013 – Aug 2014   **Sabanci University** *Istanbul, Turkey*
Industrial Engineering Program
Visiting Faculty

Aug 2011 – Feb 2013   **Georgia Institute of Technology** *Atlanta, GA, USA*
Center for Operations Research in Medicine and Healthcare
H. Milton Stewart School of Industrial & Systems Engineering
NIH Postdoctoral Fellow

May 2011 – Aug 2011   **Arizona State University** *Tempe, AZ, USA*
Industrial Engineering Program
Visiting Researcher
Spent two months at North Carolina State University (June 2011-August 2011)

Oct 2010 – Apr 2011   **Northeastern University** *Boston, MA, USA*
Healthcare Systems Engineering Institute
Post-doctoral Research Associate

Aug 2006 – Aug 2010   **Arizona State University** *Tempe, AZ, USA*
Industrial Engineering Program
Graduate Research Associate
Conducted stochastic optimization research under the project funded by the National Science Foundation: "Optimization of the Design and Operation of Surgery Delivery Systems"

Aug 2009 – May 2010   **Arizona State University** *Tempe, AZ, USA*
Industrial Engineering Program
Graduate Teaching Associate
Assisted Courses: Operations Research in Health Care (IEE 498/598), Supply Chain Modeling & Analysis (IEE 534), Stochastic Operations Research (IEE 470)

Industrial Positions

Jun 2008 – Aug 2008 **Intel** *Chandler, AZ, USA*
Automation Department
Systems Engineering Intern
Developed an integration module linking the optimization with the simulation model used for assembly and test factory capacity planning problem

May 2007 – Aug 2007 **Mayo Clinic** *Rochester, MN, USA*
Department of Health Sciences Research
Operations Research Intern
Developed a simulation model of an Outpatient Procedure Center and implemented efficient algorithms to find near optimal surgery schedules

Research Interests

Applied operations research: stochastic optimization with applications in health care delivery systems and public health planning

Published Journal Articles (underlined are the students I co-supervised)

- Batuhan Çelik, Serhat Gul, Melih Çelik. "A Stochastic Programming Approach to Surgery Scheduling under Parallel Processing Principle", to appear in *Omega*.

- Sırma Karakaya, Serhat Gul, Melih Çelik. "Stochastic Scheduling of Chemotherapy Appointments Considering Patient Acuity Levels", *European Journal of Operational Research*, 305 (2), 2023, pp. 902-916.

- Nur Banu Demir, Serhat Gul, Melih Çelik. "A Stochastic Programming Approach for Chemotherapy Appointment Scheduling", *Naval Research Logistics*, 68 (1), 2021, pp. 112-133.

- Serhat Gul. "Chemotherapy appointment scheduling under uncertainty by considering workload balance among nurses", *Pamukkale University Journal of Engineering Sciences*, 27 (4), 2021, pp. 570-578.

- Serhat Gul. "A Stochastic Programming Approach for Appointment Scheduling under Limited Availability of Surgery Turnover Teams", *Service Science*, 10 (3), 2018, pp. 277-288.

- Serhat Gul, Brian T. Denton, and John W. Fowler. "A Progressive Hedging Approach for Surgery Planning under Uncertainty", *INFORMS Journal on Computing*, 27 (4), 2015, pp. 755-772.

- Serhat Gul, Brian T. Denton, John W. Fowler, and Todd Huschka. "Bi-Criteria Scheduling of Surgical Services for an Outpatient Procedure Center", *Production and Operations Management*, 20 (3), 2011, pp. 406-417.

Articles under Review

Serhat Gul. "Scheduling chemotherapy appointments under uncertainty by considering different nursing care delivery schemes", under review.

Articles in Preparation

- <u>Batuhan Çelik</u>, Serhat Gul, Ozlem Karsu. "Maintaining Fairness in Chemotherapy Schedules under Uncertainty", in preparation.
- <u>Günsu Dağıstanlı</u>, Serhat Gul, Melih Celik. "Stochastic Chemotherapy Planning Under Uncertainty in Infusion Durations", in preparation.
- <u>Arsham Atashi Khoei</u>, Serhat Gul, Melih Celik. "A Stochastic Programming Approach for Operating Room Capacity Allocation among Indoctors and Outdoctors", in preparation.
- <u>Ege Dilan Özyüksel</u>, Serhat Gul, Tonguç Ünlüyurt. "Coordinating Oncologist Appointments with Chemotherapy Treatments Under Uncertainty", in preparation.

Graduate Student Thesis Advising

- **Thesis advisor of an Industrial Engineering (IE) student at Bilkent University:**

  Batuhan Çelik, MS student, "Fairness in Stochastic Chemotherapy Scheduling", started in January 2022 (co-advisor with Özlem Karsu)
- **Thesis advisor of an IE student at Sabancı University:**

  Ege Dilan Özyüksel, MS student, "Coordinating Oncologist Appointments with Chemotherapy Treatments Under Uncertainty", started in July 2022 (co-advisor with Tonguç Ünlüyurt)
- **Thesis advisor of an IE student at Middle East Technical University:**

  Nur Banu Demir, MS student, "Stochastic Patient Appointment Scheduling for Chemotherapy", completed in February 2019 (co-advisor with Melih Çelik)

Funded Research Projects

Mar 2019 – Jun 2021	A Stochastic Programming Approach to Surgery Appointment Scheduling Under Parallel Processing Principle, TED University Institutional Research Fund, Principal Investigator, 18,500 TL.
Jan 2020 – Dec 2020	Stochastic Project Scheduling under Cash Flow Uncertainty, TED University Undergraduate Research Fund, Supervisor, 5,978 TL.
Feb 2017 – Feb 2018	Surgery Scheduling Under Limited Availability of Turnover Teams, TED University Institutional Research Fund, Principal Investigator, 6,520 TL.
Jul 2013 – Jul 2015	Optimization of Healthcare Delivery Systems, The Scientific and Technological Research Council of Turkey (TUBITAK), Principal Investigator, 85,000 TL.

Conference Proceedings

- B. Kutlag, N. Kalkan, S. Gul, O. Hazir. "A Stochastic Programming Model to Schedule Projects under Cash Flow Uncertainty", In Proceedings of the 2021 EURO International Conference on Project Management and Scheduling, pp. 203-206.
- S. Gul, J.W. Fowler, and B.T. Denton."Modeling and Analysis of the Trade-offs in Surgical Suite Performance Measures", In Proceedings of the 2009 INFORMS Simulation Society Research Workshop, pp. 80-84.
- B.T. Denton, J.W. Fowler, A. Schaefer, S. Batun, S.A. Erdogan, and S. Gul. "Optimization of the Design and Operation of Surgery Delivery Systems", In Proceedings of the 2009 NSF CMMI Grantees and Research Conference.
- B.T. Denton, J.W. Fowler, A. Schaefer, S. Batun, and S. Gul. "Optimization of the Design and Operation of Surgery Delivery Systems", In Proceedings of the 2008 NSF CMMI Grantees and Research Conference.
- T. Huschka, B.T. Denton, S. Gul, and J.W. Fowler. "Bi-Criteria Evaluation of an Outpatient Procedure Center via Simulation", In Proceedings of the 2007 Winter Simulation Conference, pp. 1510-1518.

Courses Taught

TED University

IE 482, Decision Making in Health Care, Spring (2016, 2020 - 2022)

IE 341, Simulation, Fall (2014 – 2015, 2017 – 2022)

IE 547, Modeling and Analysis of Uncertainty, Fall (2017 – 2019)

IE 222, Engineering Economy and Cost Analysis, Spring (2015 – 2022)

IE 451, Decision and Risk Analysis, Fall (2016, 2020–2022), Spring 2018

IE 331, Mathematical Modeling and Optimization II, Fall (2014 – 2016)

IE 491, Senior Project I, Fall (2015 – 2016)

IE 492, Senior Project II, Spring (2016 – 2017)

IE 548, Decision Analysis, Spring 2015, Fall 2021

Georgia Institute of Technology

ISyE 3133, Engineering Optimization, Spring 2012, Fall 2012

Northeastern University

IE 5374, Healthcare Systems Engineering, Spring 2011

Sabanci University

MS 481, Decision Making in Health Care, Summer 2013, 2014

MS 480, Scheduling Applications in Health Care, Spring 2013

Yeditepe University

ISE 432, Decision Analysis, Spring 2014

ISE 492, Graduation Project, Spring 2014

Other Academic Experiences

Research Experiences

Aug 2016 **University of Hagen**, *Germany*
Visiting Scholar at the Department of Mathematics and Computer Science

Teaching Experiences

Aug 2015 **University of Hagen**, *Germany*
Taught a mini-course on Stochastic Programming at the Department of Mathematics and Computer Science under Erasmus+ Teaching Mobility Program

Conference Presentations

Oct 2022 B. Celik, S. Gul, M. Celik. "A Stochastic Programming Approach to Surgery Scheduling under Parallel Processing Principle", National Congress on Operations Research and Industrial Engineering, Denizli, Turkey

Apr 2022 S. Karakaya, S. Gul, M. Celik. "Stochastic Scheduling of Chemotherapy Appointments Considering Patient Acuity Levels", 32nd Annual POMS Conference, USA

Jul 2021 S. Karakaya, S. Gul, M. Celik. "Stochastic Outpatient Chemotherapy Scheduling Approach Considering the Workloads of Nurses", INFORMS Healthcare Conference, USA

Jul 2021 S. Karakaya, S. Gul, M. Celik. "Stochastic Scheduling of Chemotherapy Appointments under the Consideration of Patient Acuity Levels", European Conference on Operational Research (EURO 2021), Athens, Greece

Jul 2021 B. Celik, S. Gul, M. Celik. "Scheduling Surgeries For Operating Rooms Working Based On Parallel Processing Principle", National Congress on Operations Research and Industrial Engineering, Istanbul, Turkey

Oct 2019 N.B. Demir, S. Gul, M. Celik. "A Stochastic Programming Approach for Chemotherapy Appointment Scheduling", INFORMS Annual Meeting, Seattle, USA

Jun 2019	N.B. Demir, S. Gul, M. Celik. "Stochastic Patient Appointment Scheduling for Chemotherapy", National Congress on Operations Research and Industrial Engineering, Ankara, Turkey
Nov 2018	N.B. Demir, S. Gul, M. Celik. "A Progressive Hedging Approach for Chemotherapy Appointment Scheduling", INFORMS Annual Meeting, Phoenix,USA
Nov 2018	T. Yavuz, S. Gul, E. Kundakcioglu. "Operating Room Capacity Allocation among Indoctors and Outdoctors under Uncertainty", INFORMS Annual Meeting, Phoenix, USA
Jun 2018	S. Gul. "A Stochastic Programming Approach for Appointment Scheduling under Limited Availability of Surgery Turnover Teams", National Congress on Operations Research and Industrial Engineering, Eskisehir, Turkey
Jun 2018	N.B. Demir, S. Gul, M. Celik. "A Progressive Hedging Approach for Chemotherapy Appointment Scheduling", National Congress on Operations Research and Industrial Engineering, Eskisehir, Turkey
Nov 2016	S. Gul. "A Stochastic Programming Approach For Surgery Scheduling under Limited Availability Of Turnover Teams", INFORMS Annual Meeting, Nashville TN, USA
Sep 2015	N. Aydin, S. Gul, S.I. Birbil. "Optimal Capacity Allocation for Operating Rooms under Uncertainty", National Congress on Operations Research and Industrial Engineering, Ankara, Turkey
Jul 2013	S. Gul, B.T. Denton, J.W. Fowler. "Dynamic Scheduling of Surgeries Under Uncertainty", EURO Working Group on Operational Research Applied to Health Services Conference, Istanbul, Turkey
Jun 2013	S. Gul, B.T. Denton, J.W. Fowler. "Dynamic Scheduling of Surgeries Under Uncertainty", International Institute of Industrial Engineers (IIE) Conference, Istanbul, Turkey
Sep 2012	S. Gul, E.K. Lee. "Management of Multiple Diseases", Center for Health Organization Transformation Workshop, Hershey PA, USA
May 2011	S. Gul, B.T. Denton, J.W. Fowler. "A Multi-stage Stochastic Programming Model for Dynamic Scheduling of Surgeries", Industrial Engineering Research Conference (IERC), Reno NV, USA
May 2011	S. Gul, B.T. Denton, J.W. Fowler. "A Multi-stage Stochastic Programming Model for Dynamic Surgery Scheduling", INFORMS Northeastern Regional Conference, Amherst MA, USA
Nov 2010	S. Gul, B.T. Denton, J.W. Fowler. "A Multi-stage Stochastic Programming Model for Surgery Planning", INFORMS Annual Meeting, Austin TX, USA
Jun 2010	S. Gul, B.T. Denton, J.W. Fowler. "Bi-Criteria Scheduling for Surgery Delivery Systems", National Congress on Operations Research and Industrial Engineering, Istanbul, Turkey
Oct 2009	S. Gul, B.T. Denton, J.W. Fowler. "Optimal Daily Assignment of Surgeries to Operating Rooms", INFORMS Annual Meeting, San Diego CA, USA
Oct 2008	S. Gul, J.W. Fowler, B.T. Denton, T. Huschka. "Bi-criteria Surgery Scheduling for an Outpatient Procedure Center", INFORMS Annual Meeting, Washington DC, USA
May 2008	S. Gul, J.W. Fowler, T. Huschka, B.T. Denton. "Bi-criteria Surgery Scheduling for an Outpatient Procedure Center", IERC, Vancouver BC, Canada
Apr 2008	S. Gul, J.W. Fowler, T. Huschka, B.T. Denton. "Simulation Based Evaluation of Surgery Schedules for an Outpatient Procedure Center", INFORMS Southwest Regional Conference, College Station TX, USA
Apr 2008	S. Gul, J.W. Fowler, T. Huschka, B.T. Denton. "Simulation Based Surgery Scheduling for an Outpatient Procedure Center", Annual Health Care Engineering Symposium, Raleigh NC, USA, (poster session)
Nov 2007	S. Gul, J.W. Fowler, T. Huschka, B.T. Denton. "Bi-Criteria Scheduling of Surgery Delivery Systems", INFORMS Annual Meeting, Seattle WA, USA

Invited Seminars

Dec 2015	Middle East Technical University, Industrial Engineering, "A Progressive Hedging Approach for Surgery Planning under Uncertainty", Ankara, Turkey
Aug 2015	University of Hagen, Department of Mathematics and Computer Science, "A Progressive Hedging Approach for Surgery Planning under Uncertainty", Hagen, Germany
May 2014	TED University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Ankara, Turkey
May 2014	Kemerburgaz University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
May 2014	Yasar University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Izmir, Turkey
Mar 2014	Yeditepe University, Industrial and Systems Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Jun 2013	Kadir Has University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Apr 2013	Ozyegin University, Graduate School of Business, Operations Management, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Mar 2013	Istanbul Sehir University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Mar 2013	Koc University, ORCIBS Seminar Series, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Feb 2013	Ozyegin University, Industrial Engineering, "Dynamic Scheduling of Surgeries Under Uncertainty", Istanbul, Turkey
Feb 2011	Missouri University of Science and Technology, Engineering Management and Systems Engineering, "Optimization of Surgery Delivery Systems", Rolla MO, USA
Nov 2009	University of Maryland, Robert H. Smith School of Business, "Modeling and Optimization of Surgery Delivery Systems", College Park MD, USA
Jul 2007	Mayo Clinic, Division of Health Care Policy & Research, "Bi-Criteria Evaluation of an Outpatient Procedure Center via Simulation", Rochester MN, USA

Awards & Honors

Aug 2011 – Feb 2013	National Institute of Health (NIH) Postdoctoral Fellowship
Spring 2012	Appreciation certificate, Center for the Enhancement of Teaching and Learning, Georgia Institute of Technology
Dec 2007	Recipient of the first prize for the statewide project contest in Arizona "Algorithm for Small Businesses to Maximize Shade" managed by Phoenix Mayor Office
Aug 2006 – Aug 2010	Full tuition waiver and merit-based monthly stipend throughout graduate studies at ASU
Sep 2001 – Jun 2006	Merit based full scholarship from Sabanci University throughout undergraduate study

Service Activities

Services to the Field

Jun 2019	Discussant, Koc University Healthcare Operations Workshop, Istanbul, Turkey
Jun 2018	Invited Session Chair, National Congress on Operations Research and Industrial Engineering (YAEM), Health Care Systems II Session, Eskisehir, Turkey
Sep 2015	Invited Session Chair, YAEM, OR Applications in Health Care Systems I Session, Ankara, Turkey
Jun 2011	Invited Session Chair, INFORMS Healthcare Conference, Surgery Planning and Scheduling Session, Montreal, QC, Canada

May 2011	Invited Session Chair, Industrial Engineering Research Conference (IERC), Surgery Planning and Scheduling Session, Reno, NV, USA
Apr 2009	Invited Session Chair, INFORMS Western Regional Conference, OR Applications in Health Care Session, Tempe, AZ, USA
May 2007	Invited Session Chair, IERC, Health Care Planning and Scheduling Session, Vancouver, BC, Canada

Reviewer for the following journals:

Production and Operations Management, INFORMS Journal on Computing, Naval Research Logistics, IISE Transactions, European Journal of Operational Research, Omega, Annals of Operations Research, Journal of the Operational Research Society, IISE Transactions on Healthcare Systems Engineering, Health Care Management Science, Operations Research for Health Care, Health Systems, Flexible Services and Manufacturing Journal, IEEE Transactions on Semiconductor Manufacturing, European Journal of Industrial Engineering

PhD/Masters Thesis/Qual Exam Jury Member for the following departments:

Department of Industrial Engineering, Bilkent University
Department of Industrial Engineering, Middle East Technical University
Department of Industrial Engineering, Ozyegin University
Department of Industrial Engineering, Hacettepe University
Institute of Population Studies, Hacettepe University
Renewable Energy Program, Hacettepe University

Administrative Duties

Sep 2014 – Present	Departmental Erasmus Coordinator, TED University
Oct 2021 – Present	Alumni Relations Coordinator, TED University
Feb 2017 – Sep 2019	Departmental Internship Coordinator, TED University
Sep 2015 – Sep 2016	Member of Institutional Research Fund Commission, TED University

Professional Society Membership

	Member of INFORMS
	Member of YAD
Oct 2008 – Sep 2009	Committee Member, INFORMS Arizona State University Student Chapter
Oct 2007 – Sep 2008	Treasurer, INFORMS Arizona State University Student Chapter