
Esra Ağca Aktunç, Ph.D.

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Faculty of Engineering and Natural Sciences
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- Education** **Virginia Polytechnic Institute and State University, Blacksburg, VA**
Ph.D. Industrial and Systems Engineering August 2013
Dissertation Title: Optimization-based logistics planning and performance measurement for hospital evacuation and emergency management
Committee: Douglas Bish (Chair), Kimberly Ellis, Roger Glick, Raghu Pasupathy, Subhash Sarin
CGPA: 3.82/4.00
- M.Sc. Industrial and Systems Engineering May 2010
CGPA: 3.80/4.00
- Bilkent University, Ankara, Turkey**
B.Sc. Industrial Engineering May 2008
CGPA: 3.75/4.00
- Employment** **Kadir Has University, İstanbul, Turkey**
Department of Industrial Engineering
Assistant Professor 2016 - Present
Lecturer 2014 - 2016
- Virginia Polytechnic Institute and State University, Blacksburg, VA**
Grado Department of Industrial and Systems Engineering
Instructor 2011 - 2013
Graduate Research Assistant 2009 - 2013
Graduate Teaching Assistant 2008 - 2009
- Department of Engineering Education
Graduate Teaching Assistant 2010 - 2011
- Research Interests** Mathematical Programming, Combinatorial Optimization, Humanitarian Logistics, Disaster and Emergency Management, Transportation, Healthcare Operations Management, Scheduling
- Journal Publications**
- Yukseltan, E., Yucekaya, A., Bilge, A.H., **Agca Aktunc, E.** 2020. "Forecasting models for daily natural gas consumption considering periodic variations and demand segregation," *Socio-Economic Planning Sciences*, DOI: 10.1016/j.seps.2020.100937.
 - **Agca Aktunc, E.**, Yukseltan, E., Yucekaya, A., Bilge, A.H. 2020. "Managing natural gas demand for free consumers under uncertainty and limited storage capacity," *Journal of Natural Gas Science and Engineering*, 79, 1-16, DOI: 10.1016/j.jngse.2020.103322.
 - Hançerlioğulları, G., Şen, A., **Ağca Aktunç, E.** 2016. "Demand uncertainty and inventory turnover performance: An empirical analysis of the U.S. retail industry," *International Journal of Physical Distribution & Logistics Management*, 46(6/7), 681-708, DOI: 10.1108/IJPDLM-12-2014-0303.
 - Bish, D. R., **Ağca, E.**, Glick, R. 2014. "Decision support for hospital evacuation and emergency response," *Annals of Operations Research*, 221(1), 89-106, DOI: 10.1007/s10479-011-0943-y.
 - Glick, R., Bish, D. R., **Ağca, E.** 2013. "Optimization-based decision support to assist in logistics planning for hospital evacuations," *Journal of Emergency Management*, 11(4), 261-270, DOI: 10.5055/jem.2013.0142.

- Book Chapters**
- **Ağca Aktunç, E.**, Samarah, M. 2019. “A Comparative Study of Multiple Objectives for Disaster Relief Logistics,” in Calisir, F. and Korhan, O. (Eds.), *Lecture Notes in Management and Industrial Engineering, Industrial Engineering in the Digital Disruption Era*, 13-25, Springer Nature Switzerland AG, DOI: 10.1007/978-3-030-42416-9_2.
 - **Ağca Aktunç, E.**, Başaran, M., Arı, G., İrican, M., Güngör, Ş. 2018. “Inventory Control through ABC/XYZ Analysis,” in Calisir, F., Cevikcan, E., and Akdag, H. C. (Eds.), *Lecture Notes in Management and Industrial Engineering, Industrial Engineering in the Big Data Era*, 175-187, Springer Nature Switzerland AG, DOI: 10.1007/978-3-030-03317-0_15.
 - **Ağca Aktunç, E.**, Tekin, E. 2018. “Nurse Scheduling with Shift Preferences in a Surgical Suite using Goal Programming,” in Calisir, F. and Akdag, H. C. (Eds.), *Lecture Notes in Management and Industrial Engineering, Industrial Engineering in the Industry 4.0 Era*, 23-36, Springer International Publishing, DOI: 10.1007/978-3-319-71225-3_3.
- Conference Proceedings**
- **Ağca Aktunç, E.**, Tekin, E. 2017. “Multi-Objective Nurse Scheduling with Preferences in a Surgical Suite,” in A.B. Özer, O. Alkaç, B. Durmuş (Eds.) *Proceedings of the International Conference on Advances and Innovations in Engineering (ICAIE)*, May 10-12, Firat University, Elazığ, Turkey, pp. 111-116.
 - **Ağca Aktunç, E.**, Argun, H., Gökçe, E. 2017. “Class-Based Warehouse Location Allocation for Homeware Products,” in A.B. Özer, O. Alkaç, B. Durmuş (Eds.) *Proceedings of the International Conference on Advances and Innovations in Engineering (ICAIE)*, May 10-12, Firat University, Elazığ, Turkey, pp. 117-122.
- Conference Presentations**
- **Ağca Aktunç, E.**, Arkan, R. 2021. “Store-based merchandise testing for a fashion retail company,” 40th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2021), July 5-7, Boğaziçi University, Istanbul, Turkey.
 - Yükseltan, E., Kök, A., Yücekaya, A., Bilge, A., **Ağca Aktunç, E.**, Hekimoğlu, M. 2020. “The impact of COVID-19 pandemic and restrictions on the electricity demand and daily demand curve in Turkey,” The Science Academy Society of Turkey II. COVID-19 Modelling Workshop, November 30, 2020.
 - Yükseltan, E., Kök, A., Yücekaya, A., Bilge, A., **Ağca Aktunç, E.**, Hekimoğlu, M. 2020. “The impact of COVID-19 pandemic and restrictions on the electricity demand and daily demand curve in Turkey,” EMP-E Conference 2020 – Modelling Climate Neutrality for the European Green Deal, October 6-8, 2020.
 - **Ağca Aktunç, E.**, Samarah, M. 2019. “A Comparative Study of Multiple Objectives for Disaster Relief Logistics,” Global Joint Conference on Industrial Engineering (GJCIE), September 2-3, Gazimagusa, Turkish Republic of Northern Cyprus.
 - **Ağca Aktunç, E.**, Kabatepe, E.M., Kaçar, E.A. 2019. “Allocation and Resource Scheduling for the Operating Theatre,” 39th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2019), June 12-14, Başkent University, Ankara, Turkey.
 - **Ağca Aktunç, E.**, Başaran, M., Arı, G., İrican, M., Güngör, Ş. 2018. “Inventory Control through ABC/XYZ Analysis,” Global Joint Conference on Industrial Engineering (GJCIE), June 21-22, Ürgüp-Neveşehir, Turkey.
 - **Ağca Aktunç, E.**, Tekin, E. 2017. “Nurse Scheduling with Shift Preferences in a Surgical Suite using Goal Programming,” Global Joint Conference on Industrial Engineering (GJCIE), July 20-21, Vienna, Austria.
 - **Ağca Aktunç, E.**, Bish, D. R., Glick, R. 2017. “Decision Support System for Optimization-Based Hospital Evacuation Logistics,” 37th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2017), July 5-7, Yıldız Technical University, İstanbul, Turkey.
 - **Ağca Aktunç, E.**, Tekin, E. 2017. “Multi-Objective Nurse Scheduling with Preferences in a Surgical Suite,” International Conference on Advances and Innovations in Engineering (ICAIE), May 10-12, Firat University, Elazığ, Turkey.
 - **Ağca Aktunç, E.**, Argun, H., Gökçe, E. 2017. “Class-Based Warehouse Location Allocation for Homeware Products,” International Conference on Advances and Innovations in Engineering (ICAIE), May 10-12, Firat University, Elazığ, Turkey.
 - **Ağca Aktunç, E.** 2016. “Equitable Nurse Scheduling by Goal Programming,” INFORMS Annual Meeting, November 13-16, Nashville, TN, USA.

- **Ağca Aktunç, E.**, Argun, H., Gökçe, E. 2016. “Class-Based Warehouse Location Allocation for Textile Products,” INFORMS Annual Meeting, November 13-16, Nashville, TN, USA (Poster Presentation).
- **Ağca Aktunç, E.** 2016. “Hemşire Vardiyalarının Hedef Programlamayla Çizelgelenmesi,” 36th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2016), July 13-15, Yaşar University, İzmir, Turkey.
- **Ağca Aktunç, E.** 2016. “Simulation of Operating Theatre Processes,” 28th European Conference on Operational Research (EURO 2016), July 3-6, Poznań, Poland.
- **Ağca Aktunç, E.** 2015. “Ameliyat Öncesi ve Ameliyat Süreçlerinin Benzetimi,” 35th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2015), September 9-11, Middle East Technical University, Ankara, Turkey.
- Hancıoğulları, G., Şen, A., **Ağca Aktunç, E.** 2015. “Taleplerdeki Belirsizlik Envanter Dönüş Hızını Nasıl Etkiler?: Amerika Birleşik Devletleri Perakende Sektörü Analizi,” 35th National Operations Research and Industrial Engineering Congress (ORIE/YAEM 2015), September 9-11, Middle East Technical University, Ankara, Turkey.
- **Ağca Aktunç, E.**, Bish, D. R. 2014. “Equity Modeling and Resource Management for Hospital Evacuations,” INFORMS Annual Meeting, November 9-12, San Francisco, CA, USA.
- **Ağca, E.**, Bish, D. R., Glick, R. 2012. “Fleet Management and Equity Measures in Evacuation Transportation Planning for Multiple Hospitals,” INFORMS Annual Meeting, October 14-17, Phoenix, AZ, USA.
- **Ağca, E.**, Bish, D. R., Glick, R. 2012. “Evacuation Transportation Planning for Multiple Hospitals,” IIE Annual IE Conference and Expo, May 19-23, Orlando, FL, USA.
- **Ağca, E.**, Bish, D. R., Glick, R. 2011. “Optimization-based Decision Support for Hospital Evacuation Transportation Planning,” INFORMS Healthcare Conference, June 20-22, Montreal, Canada.
- Hancıoğulları, G., Sen, A., **Ağca, E.** 2011. “Sales Forecast Inaccuracy and Inventory Turnover Performance: An Empirical Analysis of US Retail Sector,” INFORMS Annual Meeting, November 13-16, Charlotte, NC, USA.
- **Ağca, E.**, Bish, D. R., Glick, R. 2010. “Decision Support for Hospital Evacuation and Disaster Response,” INFORMS Annual Meeting, November 7-10, Austin, TX, USA.

Seminars

- **Ağca Aktunç, E.** 2018. “Disaster Operations Management: Operations Research and Management Sciences Approaches,” Erasmus+ Teaching Mobility Program, University Politehnica of Bucharest, Romania.
- **Ağca Aktunç, E.** 2013. “Optimization-based Decision Support for Hospital Evacuation Logistics,” Istanbul Bilgi University, Istanbul, December; Anadolu University, Eskişehir, October; Kadir Has University, Istanbul, October.
- **Ağca, E.** 2013. “An Optimization-based Framework for Hospital Evacuation Logistics,” INFORMS Virginia Tech Student Chapter Seminar, February, Blacksburg, VA, USA.
- **Ağca, E.** 2010. “Hospital Evacuation and Emergency Response Planning,” INFORMS Virginia Tech Student Chapter Seminar, September, Blacksburg, VA, USA.

Projects

- Researcher, TÜBİTAK ARDEB 1001 Project No: 120M251, “Managing Electricity Supply, Production Resources and Demand During the Covid-19 Pandemic (Covid-19 Salgını Sürecinde Elektrik Tedariğinin, Üretim Kaynaklarının ve Talebinin Yönetilmesi),” July-December 2020.
- Researcher, Kadir Has University Individual Research Project No: 2017-BAP-19, “Annual natural gas demand forecasting for free eligible customers under take-or-pay constraint, demand uncertainty and storage constraint (Al ya da öde koşulu, talep belirsizliği ve depolama kısıtı ortamında serbest tüketici kurumlar için yıllık doğalgaz talebinin tahmini),” October 2017-October 2018.

**Teaching
Experience**

Department of Industrial Engineering, Kadir Has University

| Course Name | Number of Students | Academic Semester |
|--|--------------------|-------------------|
| IE214 Programming Tools for Industrial Engineers | 94 | Spring 2021 |
| | 71 | Spring 2020 |
| | 45 | Spring 2019 |
| | 45 | Spring 2018 |
| | 84 | Spring 2017 |
| | 61 | Spring 2016 |
| | 66 | Spring 2015 |
| | 51 | Spring 2014 |
| IE311 Operations Research I | 8 | Summer 2021 |
| | 17 | Summer 2018 |
| | 19 | Summer 2017 |
| IE313 Statistical Decision Making | 83 | Fall 2020 |
| | 85 | Fall 2019 |
| | 79 | Fall 2018 |
| | 78 | Fall 2017 |
| | 59 | Fall 2016 |
| | 61 | Fall 2015 |
| | 39 | Fall 2014 |
| IE332 Systems Simulation | 9 | Summer 2021 |
| | 95 | Spring 2021 |
| | 63 | Spring 2020 |
| | 7 | Summer 2019 |
| | 37 | Spring 2017 |
| | 40 | Spring 2018 |
| | 14 | Summer 2017 |
| | 64 | Spring 2017 |
| | 55 | Spring 2016 |
| | 74 | Spring 2015 |
| 58 | Spring 2014 | |
| IE425 Stochastic Processes (Elective) | 10 | Fall 2019 |
| | 27 | Fall 2018 |
| | 6 | Fall 2017 |
| | 28 | Fall 2015 |
| GE400 Engineering Design Project | 9 (2 teams) | Spring 2021 |
| | 8 (2 teams) | Spring 2020 |
| | 6 (2 teams) | Spring 2019 |
| | 5 (2 teams) | Spring 2018 |
| | 12 (3 teams) | Spring 2017 |
| | 10 (4 teams) | Spring 2016 |
| | 9 (3 teams) | Spring 2015 |
| IE595 OR/MS Applications in Health Care (Graduate) | 6 | Fall 2016 |
| | 9 | Fall 2014 |

Grado Department of Industrial and Systems Engineering, Virginia Polytechnic Institute and State University

- ISE 3414 Probabilistic Operations Research Fall 2012 (Instructor)
Fall 2011 (Co-instructor)
- ISE 2404 Deterministic Operations Research Spring 2013 & 2012 (Instructor)
Summer 2011 (TA)
- ISE 2214 Manufacturing Processes Lab Spring 2009, Fall 2008 (TA)

Department of Engineering Education, Virginia Polytechnic Institute and State University

- ENGE 1114 Exploration of Engineering Design Spring 2011 (TA)
- ENGE 1024 Engineering Exploration Fall 2010 (TA)

**Doctoral
Dissertations
Advised**

- Ramazan Arkan, “Product-Based Segmentation and Trend Forecast in Fashion Retail,” 2022 (expected).
- Emrah Can, “Pension Fund Portfolio Optimization,” 2023 (expected).

Master's Theses Advised

- Cuneyt Erkol, M.Sc., (co-advised with Dr. Nur Cavdaroglu) “A Behavioral Study to Examine the Compliance of Pricing Models in Theoretical Revenue Management with the Decisions of Real Decision Makers,” 2020.
- Mahdi Samarah, M.Sc., “Multi-Objective Disaster Relief Logistics,” 2018.
- Elif Tekin, M.Sc., “Multi-Objective Nurse Scheduling with Shift Preferences in a Surgical Suite,” 2017.

Awards, Grants & Honors

- Selected for the INFORMS Future Academician Colloquium, 2012
- Awarded the Dean's Teaching Fellowship by the College of Engineering at Virginia Polytechnic Institute and State University, 2010-2013, where fellows are selected based on the consideration of the nominee's personal statement and the reference letters that address the candidate's potential for future success in an academic environment. Completed training in Engineering Education and Future Professoriate programs including coursework and practica. Served in focus groups on the improvement of the first-year engineering curriculum. Received the following certificates:
 - Future Professoriate Graduate Certificate, Graduate School, Virginia Polytechnic Institute and State University, 2011
 - Engineering Education Graduate Certificate, Department of Engineering Education, Virginia Polytechnic Institute and State University, 2011
 - Online Instructor Certificate, Institute for Distance and Distributed Learning, Virginia Polytechnic Institute and State University, 2013
- Initiated into Alpha Pi Mu (APM) Industrial Engineering Honor Society at Virginia Polytechnic Institute and State University, 2009
Graduate students who have demonstrated exceptional scholarly achievement are considered for membership upon nomination by the department head.
- Graduated 8th with cumulative GPA 3.75/4.00 among approximately 150 senior students in the IE Department at Bilkent University, 2008
- High Honor student of Bilkent University (with GPA above 3.5/4.0), 2004-2008
- Awarded full undergraduate fellowship including tuition waiver and stipend by Bilkent University
- Ranked 32nd among approximately 1.3 million entrants in the Turkish Nationwide University Admissions Exam, 2004

Professional Activities

- Refereed manuscripts for: OMEGA: The International Journal of Management Science, Production Planning and Control, Computers & Operations Research, Turkish Journal of Electrical Engineering & Computer Sciences, Journal of the Faculty of Engineering and Architecture of Gazi University, IIE Annual Conference Proceedings
- Vice Dean, Graduate School of Science and Engineering, Kadir Has University (2015-2019)
- Kadir Has University, Department of Industrial Engineering:
Quality and Accreditation Coordinator and Committee Member for MÜDEK (2015-), Education and Curriculum Committee Member (2015-), Student Organizations and Alumni Relations Coordinator (2015-), Bologna Process Coordinator (2014-), Course Equivalency Committee Member (2016-), Undergraduate student advisor (2014-)
- Session chair for: GJCIE 2018, YAEM 2016 (Sağlık Sistemlerinde YAEM), IIE Annual Conference 2012 (Social Decision Support Systems)
- Graduate student volunteer for INFORMS Annual Meeting 2011
- Member of: Institute for Operations Research and Management Sciences (INFORMS) (2009-), Institute of Industrial Engineers (IIE) (2012-), Operational Research Society, Turkey (ORST) (YAD) (2015-), Alpha Pi Mu (APM) Industrial Engineering Honor Society (2009-), American Society for Engineering Education (ASEE) (2010-2013), Institute of Electrical and Electronics Engineers (IEEE) (2007-2011), IEEE Women in Engineering (WIE) (2007-2011), Bilkent University Operational Research Club (2004-2008)
- Virginia Tech INFORMS Student Chapter Outreach Coordinator (2012-2013), Treasurer (2011-2012)
- Bilkent University IEEE Student Branch Executive Committee Secretary (2007-2008)

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| Industrial Experience | <p>Frito Lay Co., Ankara, Turkey <i>Senior Design Project Team Member</i> Sep 2007 - May 2008</p> <ul style="list-style-type: none"> Developed a performance measurement system and standardized work methods for the warehouses of Frito Lay in Turkey. <p>Arçelik Inc. Dishwasher Plant, Ankara, Turkey Production Management Division (Consumer Goods Industry) <i>Production Management Trainee</i> July 2007 - Aug 2007</p> <ul style="list-style-type: none"> Assisted the development of a scrap material and idle time tracking system. <p>Doğadan Nutrition Products Corp., Ankara, Turkey Production Planning Division (Food and Beverages Industry) <i>Production Planning Trainee</i> June 2007 - July 2007</p> <ul style="list-style-type: none"> Carried out a motion and time study to improve the production environment. <p>ASELSAN Inc., Ankara, Turkey Microwave and System Technologies Division (Defense and Space Industry) <i>Research Project Trainee</i> June 2006 - July 2006</p> <ul style="list-style-type: none"> Conducted research on “Resource Allocation Heuristics”, developed a solution algorithm coded in Java for a military resource allocation problem. |
| Faculty Development | <ul style="list-style-type: none"> GenderEx Training Program: The Integration of a Sex and Gender Dimension in the Natural Sciences and Engineering Research, July 9, 2021 International Conference on Innovative Teaching and Technology in Higher Education at Kadir Has University, July 2, 2015 Online Instructor Certificate, Institute for Distance and Distributed Learning, Virginia Polytechnic Institute and State University, 2013 INFORMS Future Academician Colloquium, October 2012 Faculty Interest Group sessions on Practice-based Learning (PBL) & Case-based Teaching at Virginia Polytechnic Institute and State University, 2012 Future Professoriate Graduate Certificate, Graduate School, Virginia Polytechnic Institute and State University, 2011 Engineering Education Graduate Certificate, Department of Engineering Education, Virginia Polytechnic Institute and State University, 2011 Laboratory for Interdisciplinary Statistical Analysis (LISA) workshops on R at Virginia Polytechnic Institute and State University, 2010-2012 Faculty Development Institute (FDI) training sessions on Blackboard, Scholar Learning Management System, ePortfolio System within Scholar at Virginia Polytechnic Institute and State University, 2008-2013 |
| Technical and Programming Skills | <p>Languages: MATLAB, Python, Java, Mathematica Optimization-related: OPL, AMPL, CPLEX, LINDO, LINGO, GAMS Simulation: Arena, Simio Statistical analysis: Minitab, R Office/Editing tools: Microsoft Office, L^AT_EX Design: Autodesk AutoCAD, Autodesk Inventor</p> |
| Languages | <p>Turkish (native speaker) English (native speaker fluency)</p> |