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Professional Positions

2022-Present	Full Professor, Department of Operations & Information Management, Isenberg School of Management, University of Massachusetts Amherst
2015-2022	Associate Professor, Department of Operations & Information Management, Isenberg School of Management, University of Massachusetts Amherst
2011-2015/ 2016-2018	Ph.D. Coordinator, Management Science Concentration, Isenberg School of Management
2008-2015	Assistant Professor, Department of Operations & Information Management, Isenberg School of Management, University of Massachusetts Amherst
2007-2008	Postdoctoral Associate at the ISE Department, Virginia Tech

Education

2007	Ph.D.	Industrial and Systems Engineering, Virginia Tech, USA
2003	M.S.	Industrial and Systems Engineering, Virginia Tech
2002	M.S.	Operations Management in Production and Logistics, Ecole des Mines de Nantes (EMN), France

Teaching Experience

OIM 310 Manufacturing & Service Operations Methods	UMass Amherst (2011-2014)
OIM 412 Supply Chain Management	UMass Amherst (since 2009)
OIM 411 Supply Chain Analytics	UMass Amherst (since 2018)
SCH-MGMT 663 Supply Chain Analytics	UMass Amherst (since 2017)
SCH-MGMT 752 Business Process Optimization	UMass Amherst (since 2008)
SCH-MGMT 825X Integer Programming	UMass Amherst (since 2009)

Research Interests

- Optimization in supply chain management and logistics
- Retail analytics – assortment planning and shelf space management
- Emerging technologies in vehicle routing problems and last-mile delivery
- Infrastructure and logistics planning for mega-sports events
- Airline, machine, and sports scheduling
- Enhanced mathematical programming formulations and tight polyhedral representations.

Books/Edited Volumes

Ghoniem, A. and Maddah, B. (2023), *Retail Space Analytics*, Edited volume, Springer, *forthcoming*. https://doi.org/10.1007/978-3-031-27058-1

Scholarly Publications

My graduate students are indicated by (*) for any research work done under my guidance during their doctoral studies. A (**) indicates that I am the corresponding author.

Published/Accepted Papers

(1) Sherali, H. D. and **Ghoniem**, A. (2009), Joint vehicle assembly-routing problems: An integrated modeling and optimization approach, *Networks*, 53 (3), 249-265.

(2) **Ghoniem****, A. and Sherali, H. D. (2009), Complementary column generation and bounding approaches for set partitioning formulations, *Optimization Letters*, 3 (1), 123-136.

(3) **Ghoniem****, A. and Sherali, H. D. (2010), Models and algorithms for the scheduling of a doubles tennis training tournament, *Journal of the Operational Research Society*, 61, 723-731.

(4) **Ghoniem****, A. and Sherali, H. D. (2011), Set partitioning and packing versus assignment formulations for subassembly matching problems, *Journal of the Operational Research Society*, 62, 2023-2033.

(5) **Ghoniem****, A. and Sherali, H. D. (2011), Defeating symmetry in combinatorial optimization via objective perturbations and hierarchical constraints, *IIE Transactions*, 43 (8), 575-588. Award: IIE Transactions Journal Best Paper Prize 2012 (Operations Engineering & Analysis Area).

(6) Mafakheri, F., Breton, M., and **Ghoniem**, A. (2011), Supplier selection-order allocation : A two stage multiple criteria dynamic programming approach, *International Journal of*

Production Economics, 132 (1), 52-57.

(7) Ali, F. M., Al-Hamadi, H., **Ghoniem**, A., and Sherali, H. D. (2012), Hardware-software co-design for reconfigurable field programmable gate arrays using mixed-integer programming, *Informatica*, 36 (3), 287-295.

(8) **Ghoniem****, A., Scherrer, C. R. and Solak, S. (2013), A specialized column generation approach for a vehicle routing problem with demand allocation, *Journal of the Operational Research Society*, 64, 114-124.

(9) Solak, S., Scherrer, C. R. and **Ghoniem**, A. (2014), The stop and drop problem in nonprofit food distribution networks, *Annals of Operations Research*, 221 (1), 407-426.

(10) Ali, A. I., Ghoniem, A., and Franke, A. (2014), Evaluating capacity management tactics for a legacy manufacturing plant, Journal of the Operational Research Society, 65, 1361-1370.

(11) **Ghoniem****, A., Sherali, H. D., and Baik, H. (2014), Enhanced models for a mixed arrival-departure aircraft sequencing problem, *INFORMS Journal on Computing*, 26 (3), 514-530.

(12) Farhadi*, F., **Ghoniem****, A., Al-Salem, M. (2014), Runway capacity management – An empirical study with application to Doha International Airport, *Transportation Research Part E*, 68, 53-63.

(13) **Ghoniem****, A. and Farhadi*, F. (2015), A column generation approach for aircraft sequencing problems: A computational study, *Journal of the Operational Research Society*, 66, 1717-1729.

(14) **Ghoniem****, A. and Maddah, B. (2015), Integrated retail decisions with multiple selling periods and customer segments: Optimization and insights, *Omega*, 55, 38-52.

(15) **Ghoniem****, A., Farhadi*, F., and Reihaneh, M. (2015), An accelerated branch-and-price algorithm for multiple-runway aircraft sequencing problems, *European Journal of Operational Research*, 246 (1), 34-43.

(16) Rabadi, G., Khallouli, W., Al-Salem, M., **Ghoniem****, A. (2015), Planning and management of maga sports events: A survey, *International Journal of Planning and Scheduling*, 2 (2), 154-178.

(17) **Ghoniem****, A., Maddah, B., and Ibrahim*, A. (2016), Optimizing assortment and pricing of multiple retail categories with cross-selling, *Journal of Global Optimization*, 66(2), 291-309.

(18) Maddah, B., Kharbeche, M., Pokharel, S., **Ghoniem**, A. (2016), Joint replenishment model for multiple products with substitution, *Applied Mathematical Modelling*, 40 (17-18), 7678-7688.

(19) **Ghoniem****, A., Flamand*, T., Haouari, M. (2016), Exact solution methods for a generalized assignment problem with location/allocation considerations, *INFORMS Journal on Computing*, 28(3), 589-602.

(20) Flamand, T., **Ghoniem**, A., Maddah, B. (2016), Promoting impulse buying by allocating retail shelf space to grouped products, *Journal of the Operational Research Society*, 67(7), 953-969.

(21) **Ghoniem****, A., Flamand*, T., and Haouari, M. (2016), Optimization-based very large-scale neighborhood search for generalized assignment problems with location/allocation considerations, *INFORMS Journal on Computing*, 28(3), 575-588.

(22) **Ghoniem****, A., Ali, A. I., Al-Salem, M., Khallouli, W. (2017), Prescriptive analytics for FIFA World Cup lodging capacity planning, *Journal of the Operational Research Society*, 68(10), 1183-1194.

(23) Reihaneh*, M. and **Ghoniem****, A. (2018a), A branch-cut-and-price algorithm for the Generalized Vehicle Routing Problem, *Journal of the Operational Research Society*, 69(2), 307-318.

(24) Reihaneh*, M. and **Ghoniem****, A. (2018b), A multi-start optimization-based heuristic for a food bank distribution problem, *Journal of the Operational Research Society*, 69(2), 307-318.

(25) Flamand*, T., **Ghoniem**, A., Haouari, M., Maddah, B. (2018), Integrated assortment planning and storewide shelf-space allocation: An Optimization Approach, *Omega*, 81, 134-149.

(26) Reihaneh, M. and **Ghoniem****, A. (2019), A branch-and-price algorithm for an integrated vehicle routing-allocation problem, *European Journal of the Operational Research*, 272 (2), 523-538.

(27) El-Adle, A., **Ghoniem****, A., Haouari, M. (2020), Parcel delivery by vehicle and drone, *Journal of the Operational Research Society*, 72 (2), 398-416.

(28) Flamand*, T., **Ghoniem****, A., and Maddah, B. (2023), Store-Wide Shelf-Space Allocation with Ripple Effects Driving Traffic, *Operations Research*, forthcoming. https://doi.org/10.1287/opre.2023.2437

(29) El-Adle*, A.M., **Ghoniem**, A., Haouari, M. (2023), A variable neighborhood search for parcel delivery by vehicle with drone cycles, *Computers & Operations Research*, forthcoming.

(30) El-Adle*, A.M., **Ghoniem****, A., Haouari, M. (2023), The cost of carrier consistency: Last-mile delivery by vehicle and drone for subscription-based orders, *Journal of the Operational Research Society*, forthcoming.

Working Papers

(31) Reihaneh*, M., Ghoniem**, A., An optimization-based refinement heuristic for a food bank distribution problem.

(32) Ghoniem**, A., Ali, A. I., Drone hub location analytics.

(33) Flamand, T., Ghoniem**, A., Flow optimization in activity networks.

(34) Reihaneh, M., Ghoniem**, A., Optimizing the location of service sites to support food deserts.

(35) El-Adle, A., Ghoniem, A., Haouari, M., Last-mile parcel delivery by vehicle and drone with customer delivery preferences.

Conference Papers

(1) Musa, R., Chen F. F., and **Ghoniem**, A. (2006), Dynamic variation reduction technique in assembly lines after batch inspection, IERC Proceedings, Orlando, FL, May 2006.

(2) Al-Salem, A., Farhadi, F., Kharbeche, M., and **Ghoniem**, A. (2012), Multiple-runway aircraft sequencing problems using mixed-integer programming, Industrial and Systems Engineering Research Conference, Orlando, FL, May 2012, Winning 2012 ISERC Paper, OR Track.

(3) Ibrahim, A., **Ghoniem**, A. and Maddah, B. (2014), Retail assortment and pricing decisions under a deterministic maximum utility consumer choice model, Industrial and Systems Engineering Research Conference, Montreal, Canada, June 2014.

Presentations

Invited Talks

Joint vehicle assembly-routing problems: an integrated modeling and optimization approach, Virginia Tech INFORMS Student Chapter, May 2, 2007.

Symmetry compatible formulations via objective perturbations and hierarchical constraints, INFORMS Annual Meeting, Washington D.C., October 13, 2008.

Joint vehicle assembly-routing problems: an integrated modeling and optimization approach, UMass Amherst INFORMS Student Chapter, October 24, 2008.

Joint assortment, pricing, and ordering in retail management, IIE Annual Conference and Expo, Miami, FL, June 2, 2009.

Joint optimization of aircraft arrival and departure schedules, INFORMS Annual Meeting, San Diego, October 11, 2009.

A column generation approach for joint vehicle assembly-routing problems, INFORMS Annual Meeting, San Diego, October 13, 2009.

Defeating symmetry in combinatorial optimization via objective function perturbations and hierarchical constraints, IIE Transactions Best Papers Session, Industrial and Systems Engineering Research Conference, San Juan, Puerto Rico, May 18-22, 2013.

Managing variety, pricing, and ordering decisions for substitutable retail products, POMS, Chicago, IL, April 20, 2012.

Maximizing impulse buying via store-wide shelf space analytics, INFORMS Annual Meeting, Philadelphia, November 4, 2015.

Contributed Talks

A mathematical programming approach for integrated large-scale retail decisions, INFORMS Annual Meeting, Austin, November 9, 2010.
A consumer-centric optimization approach for structuring retail product lines, POMS, Reno, NV, May 1st, 2011.

A combined arrival-departure runway scheduling problem, INFORMS Northeast Regional Conference, Amherst, MA, May 6, 2011.

A vehicle routing problem with location-allocation considerations, INFORMS Northeast Regional Conference, Amherst, MA, May 7, 2011.

Multiple-runway aircraft sequencing problems using mixed-integer programming, Industrial and Systems Engineering Research Conference, Orlando, FL, May 22, 2012.

Layout-based shelf space allocation to maximize impulse buying, EURO-INFORMS, Rome, Italy, July 1, 2013.

Lodging Capacity Analytics for the Qatar 2022 FIFA World Cup, INFORMS Annual Meeting, Philadelphia, November 4, 2015.

The Tactical Traveling Salesman Problem with Drone Eligibility, Virtual 2020 INFORMS Annual Meeting, November 12, 2020.

Grants

1. 2008–2009: "Optimization of Aircraft Arrival and Departure Schedules in Multiple-Runway Airports." Agency: Faculty Research Grant/Healey Endowment Grant, University of Massachusetts Amherst. Award: $6,990.

2. 12/2010–6/2012: "Tactical Optimization Models for the Design of Retail Product Lines." Agency: Faculty Research Grant/Healey Endowment Grant, University of Massachusetts Amherst. Award: $9,828.

3. 12/2010–01/2013: "Integrated Modeling and Optimization Approaches for Airport Terminal Area Management." Agency: Qatar National Research Fund, National Priorities Research Program, NPRP09-253-2-103. Role: Lead Principal Investigator (with Co-PI Ghaith Rabadi, Old Dominion University, and Co-LPI Ameer Al-Salem, Qatar University). Award: $493,032.

4. 12/2012–12/2014: "Cutting-Edge Optimization for Modern, Consumer-Focused Retailing." Agency: Qatar National Research Fund, National Priorities Research Program, NPRP 5-591-5-082. Role: Co-PI; with LPI Bacel Maddah, American University of Beirut, Lebanon, and Co-LPI Shaligram Pokharel, Qatar University. Award: $511,185.

5. 2013-2016: "Analytics for System-Wide Infrastructure and Capacity Planning for Qatar 2022 FIFA World Cup." NPRP 6-248-5-023. Role: Lead PI (with Ameer Al-Salem Co-LPI, Qatar University; Ghaith Rabadi Co-PI, Old Dominion University, USA). Award: $530,477.

6. Summer 2022: "High-Computing Analytics for Drone Deployment Systems in Parcel Delivery." Isenberg Summer Research Grant. Award: $10,000.

University Committees & Service

University Committees

Fall 2011	Member, Review Committee for Faculty Research Grant/Healey Endowment Grant, Research Council
Spring 2012	Member, Long-range Planning Task Force, Research Council.
2011-2013	Member of the Research Council, UMass Amherst.
2018-2020	Member, UMass Center & Institute Evaluation Committee
2020-2022	Member, UMass Center & Institute Evaluation Committee
2022	Member, Scholars Network Advisory Group
2022	Panelist, UMass Amherst New Associate Professor - Faculty Panel to support Associate Professors

Isenberg Committees

2014-2015 Isenberg College Outstanding Teaching Award Committee
2018-2019 Isenberg College Outstanding Teaching Award committee
2019-2020 Isenberg Teaching Award and Recognition Selection Committee
2020-2021 Isenberg Teaching Award and Recognition Selection Committee
2021-2022 Isenberg Teaching Award and Recognition Selection Committee
2022-2023 Isenberg Teaching Award and Recognition Selection Committee

Departmental Committees

2009 Department of Finance and Operations Management Curriculum Task Force Committee
2010 Department of Finance and Operations Management Faculty Search Committee
2011 Department of Finance and Operations Management Faculty Search Committee
2015 OIM Committee for Graduate Program Strategic Planning Report
2015 OIM Lecturer Search
2017 OIM Assistant Professor Search Committee
2017 OIM Faculty Search Committee
2018-2022 OIM Curriculum Committee
2021 Chair, OIM Strategic Plan Committee
2022 Chair, OIM Faculty Search Committee
2022-present OIM Honors Program Director

Honors, M.Sc., and Doctoral Committees

Honors Thesis & Research Reports (Academic Supervisor)

2020 Randy Nguyen, Covid-19 Impact on Global Supply Chain, Honors Thesis.

2021 Maria Salazar, Pfizer COVID-19 Vaccine Supply Chain: Research Report and Future Direction, Research Report.

M.Sc. Student Committees

2012 Member, Chetan Shivsharan, M.Sc. Thesis: Optimizing the Safety Stock Inventory Cost Under Target Service Level Constraints.

2022 External Examiner, How to Ensure the Oil Production Continuity of Al-Shaheen Field During Political Disputes During Political Disputes in the Region, Qatar University

Ph.D. Committees (as a committee Member or Chair)

2010 Member, Davit Khachatryan, Topics in Univariate Time Series Analysis with Business Applications.

2012 Member, Baris Hasdemir, Enabling easy consumer access to services and products.

2012 Member, Chetan T. Shivsharan, Optimizing the Safety Stock Inventory Cost Under Target Service Level Constraints

2013 Member, Milad Ebtehaj, Two distribution tactics for retail demand fulfillment.

2014 Member, Güven Ince, Resource and Supply Allocation and Relief Center Location for Humanitarian Logistics.

2014 Chair, Farbod Farhadi, Runway Operations Management: Models, Enhancements, and Decomposition Techniques.

2014 Chair, Ameerah Ibrahim, Optimizing Consumer-Centric Assortment Planning under Cross-Selling Effects.

2015 Member, Hyun Jung Alvarez Oh, Guidelines for Scheduling in Primary Care: An Empirically Driven Mathematical Programming Approach.

2016 Member, Yashar Zeinali Farid, Transit Preferential Treatments at Signalized Intersections: Person-based Evaluation and Real-Time Signal Control.

2016 Chair, Tulay Flamand, Retail Analytics and Optimization for Store-Wide Shelf-Space Management.

2018 Chair, Mohammad Reihaneh, Integrated Routing Models for Enhanced Product and Service Delivery.

2018 Member, Farnoush Khaligi, Intersection Signal Control and Design for Improved Person Mobility and Air Quality in Urban Multimodal Transportation Systems.

2019 Member, Xinlian Yu, Modeling and Optimizing Routing Decisions for Travelers and On-demand Service Providers.

2020 Member, Nurul Yaqin, Increasing Senior High School Students' Mathematical Problem-Solving Skills Through Improving Their Spatial Visualization Skills by Learning and Practicing Three-Dimensional Dynamic Geometry with Cabri 3D.

Awards, Memberships, and Service to Profession

Awards & Honors

- Nominated by students for the Undergraduate Teaching with Digital Technology Award, 2021.
- Research Excellence Award, Isenberg School of Management, 2016.
- Nominated by students for the campus-wide Distinguished Teaching Award, UMass Amherst 2016.
- Outstanding Teaching Award, Isenberg School of Management, 2012-2013.
- IIE Transactions Best Paper Prize, 2012.
- ISERC Conference, winning paper in OR Track, 2012.
- Nominated for the Outstanding Teaching Award, Isenberg School of Management, 2012.
- 2011-present: Chancellor's Junior Faculty Fellow.
- 2009: Outstanding Faculty Support Award, INFORMS Chapter, UMass Amherst.
- Nominated by the Isenberg School of Management, UMass Amherst, to attend the Teaching Effectiveness Colloquium, INFORMS Annual Meeting, Washington D.C., 2008.
- Nominated by the ISE Department, Virginia Tech, to attend the Doctoral Colloquium, INFORMS Annual Meeting, Pittsburgh, PA, 2006.
- 1997-1999: Excellence Scholarship by the French government.

Membership

The Institute for Operations Research and the Management Sciences (INFORMS).
Institute of Industrial Engineers (IIE).
Production & Operations Management Society (POMS).

Service to Profession

Editorial Board:

- 2017-present: Associate Editor for *Journal of the Operational Research Society*.
- 2012-present: Associate Editor for *Advances in Operations Research*.

Judge Panel:

- *IISE Transactions* Best Paper Award, 2019

INFORMS Chair Session:

- Airport Operations Management 2011, 2012, 2013, and 2015.
- Routing Optimization Problems 2016, 2017, 2019, 2021.
- Retail Analytics 2018.

2013-2014: INFORMS Junior Faculty Interest Group (JFIG), Secretary.

Chaired POMS session 2016.

Referee for journals: European Journal of Operational Research; IEEE Transactions on Intelligent Transportation Systems; Interfaces; Journal of Engineering Research; Journal of Global Optimization; Journal of the Operational Research Society; Omega; Operations Research.

Referee for funding agencies: Undergraduate Research Experience Program of Qatar Foundation (Qatar); Fonds de recherche du Québec (Canada).

Ph.D. Advisees

The professional affiliations listed for each doctoral student reflects their positions at graduation.

(1) Farbod Farhadi (2009-2014), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: Runway Operations Management: Models, Enhancements, and Decomposition Techniques.

Assistant Professor, Mario J. Gabelli School of Business, Roger Williams University, starting Fall 2014.

(2) Ameera Ibrahim (2011- 2014), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: Consumer-Centric Assortment Planning Under Cross-Selling Effects.
Visiting Assistant Professor, School of Economics and Business Administration, Saint Mary's College of California, starting Fall 2014.
(Tenure-Track Assistant Professor of Business Analytics at SMC, Fall 2015)

(3) Tülay Flamand (2011-2016), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: Retail Analytics and Optimization Models for Store-Wide Shelf-Space Allocation.
Assistant Professor, Division of Economics & Business, Colorado School of Mines, Fall 2016.

(4) Mohammad Reihaneh (2014-2018), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: Integrated Routing Problems for Enhanced Product and Service Delivery.
Assistant Professor, IESEG School of Management, France, Fall 2018.

(5) Amro El-Adle (2016-2021), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: Analytics-Based Optimization for the Integration of Drones into Last-Mile Logistics.
Assistant Professor, Strome College of Business, Old Dominion University, Fall 2021.

(6) Semih Boz (2020-present), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: TBD.

(7) Joshua Gladstone (2022-present), Management Science Ph.D. Concentration, Isenberg School of Management, UMass Amherst.
Dissertation: TBD.