

Hadi Charkhgard

LAST UPDATE	August 23, 2022	
CONTACT INFORMATION	University of South Florida, 4202 East Fowler Avenue, ENG 030 Tampa, FL 33620-5350, USA	Phone: +1 813 974 2090 hcharkhgard@usf.edu
RESIDENCY STATUS	Permanent Resident of USA	
LINKS	Open-source Software Packages (C++ and Julia) Website	Google Scholar Linkedin
CURRENT POSITIONS	Associate Professor (tenured) & <i>Director of Multi-objective Optimization Laboratory</i> Department of Industrial and Management Systems Engineering University of South Florida, Tampa, Florida Start date: 16 June 2022 Founder and CEO Opinionbricks LLC, Tampa, Florida Start date: 09 August 2022	
PREVIOUS POSITIONS	Assistant Professor (tenure-track) & <i>Director of Multi-objective Optimization Laboratory</i> Department of Industrial and Management Systems Engineering University of South Florida, Tampa, Florida Dates: 07 Aug 2016 - 16 June 2022	
RESEARCH INTERESTS	Multi-objective Optimization, Operations Research, Integer Programming, Artificial Intelligence, Data Science	
EDUCATION	Postdoctoral Research Fellow, Operations Research , Industrial and Systems Engineering , Georgia Institute of Technology, Atlanta, Georgia, USA. Aug 2015–Aug 2016. • Advisors: Prof. Martin Savelsbergh, Prof. Natasha Boland Ph.D., Operations Research (mathematics) , School of Mathematical and Physical Sciences, The University of Newcastle, NSW, Australia, Jan 2016. <i>Thesis Submitted:</i> 11 Aug, 2015; <i>officially awarded in:</i> 19 Jan, 2016. • Thesis Topic: <i>Theory and Algorithms for Multi-objective Integer Programming</i> • Advisors: Prof. Martin Savelsbergh, Prof. Natasha Boland, and Dr. Masoud Talebian M.Sc., Industrial Engineering, Sharif University of Technology, Tehran, Iran, Aug 2011. • Thesis Topic: <i>locating wireless transmitters by using maximal covering location problem and Hata model</i> • Advisor: Prof. Mohammad Reza Akbari Jokar B.Sc., Industrial Engineering, Shomal University, Amol, Mazandaran, Iran, Sep 2009.	

EDITORIAL TASKS	Computers & Operations Research	
	• Editorial Advisory Board/Associate Editor	July 2019 - present
	Optimization Letters	
	• Guest editor for the special issue on “SI: Advances in Computational Optimization and Their Modern Applications”	March 2022 - present
	IEEE Transactions on Evolutionary Computation	
	• Guest editor for the special issue on “Multi-objective Evolutionary Optimization in Machine Learning”	Jan 2022 - present

STATISTICS	#Citations: 893	#h-index: 16
	#Book Chapter: 1	
	#published/accepted journal articles: 46	#under review journal articles: 8
	#published/accepted conference articles: 6	#under review conference articles: 0
	<i>INFORMS Journal on Computing</i> : 5 publications	
	<i>Mathematical Programming Computation</i> : 1 publication	
	<i>Computers & Operations Research</i> : 8 publications	
	<i>European Journal of Operational Research</i> : 4 publications	
	<i>Operations Research Letters</i> : 1 publication	
	<i>Discrete Optimization</i> : 1 publication	
	<i>Transportation Research Part C: Emerging Technologies</i> : 1 publication	
	<i>4OR - A Quarterly Journal of Operations Research</i> : 2 publications	
	<i>Annals of Operations Research</i> : 1 under review	
	<i>International Transactions in Operational Research</i> : 5 publications and 2 under review	
	<i>Journal of Optimization Theory and Applications</i> : 1 under review	
	<i>Journal of Global Optimization</i> : 1 under review	
	<i>Physics in Medicine and Biology</i> : 1 publication	
	<i>IEEE Transactions on Smart Grid</i> : 1 publication	
	<i>Ecography</i> : 1 publication	
	<i>Socio-Economic Planning Sciences</i> : 3 publications and 1 under review	
	<i>Water Resources Research</i> : 1 publication	
	<i>Ecological Applications</i> : 1 publication	
	<i>Ecological Modeling</i> : 2 publications	
	<i>Smart and Sustainable Manufacturing Systems</i> : 1 publication	
	<i>Water Resources Management</i> : 1 under review	
	<i>ANZIAM Journal</i> : 3 publications	
	<i>Ecology and Society</i> : 1 under review	
	<i>Journal of Cleaner Production</i> : 1 publication	
	<i>International Journal of Transportation Science and Technology</i> : 1 publication	
	<i>Lecture Notes in Computer Science</i> : 1 publication	
	<i>U.S. Geological Survey</i> : 1 publication	

TEACHING RATES (OUT OF 5)	• Fall 2022 : Median: pending and Mean: pending
	Course Name: Integer Programming; <i>doctoral-level</i>
	• Fall 2022 : Median: pending and Mean: pending
	Course Name: Engineering the Supply Chain; <i>undergraduate level</i>
	• Spring 2022 : No teaching assignment.
	• Fall 2021 : Median: 5 and Mean: 4.9
	Course Name: Linear Programming and Network Optimization; <i>doctoral level</i>
	• Fall 2021 : Median: 5 and Mean: 4.8
	Course Name: Deterministic Operations Research; <i>undergraduate level</i>

- **Spring 2021:** Median: 5 and Mean: 4.7
Course Name: Multi-objective Optimization; *doctoral level*
- **Fall 2020:** Median: 5 and Mean: 4.8
Course Name: Engineering the Supply Chain; *undergraduate level*
- **Spring 2020:** Median: 5 and Mean: 5
Course Name: Integer Programming; *doctoral-level*
- **Fall 2019:** Median: 5 and Mean: 5
Course Name: Sequencing and Scheduling; *undergraduate level*
- **Spring 2019:** Median: 5 and Mean: 4.7
Course Name: Optimization in Operations Research; *masters level*
- **Fall 2018:** Median: 5 and Mean: 5
Course Name: Integer Programming; *doctoral level*
- **Spring 2018:** Median: 5 and Mean: 4.9
Course Name: Multi-objective Optimization; *doctoral level*
- **Fall 2017:** Median: 5 and Mean: 4.7
Course Name: Integer Programming; *doctoral-level*
- **Spring 2017:** Median: 5 and Mean: 4.7
Course Name: Multi-objective Optimization; *doctoral level*
- **Fall 2016:** Median: 5 and Mean: 4.9
Course Name: Integer Programming; *doctoral level*

PROFESSIONAL
SERVICE
ACTIVITIES

- A *cluster chair* of the 23rd Conference of the International Federation of Operational Research Societies July 10-14, 2023, Santiago, Chile.
- A main *co-chair* of INFORMS Computing Society (ICS) Conference 2021 and 2022, Jan 23-25, Tampa, FL. 2021 ICS postponed to 2022 due to COVID-19. 2022 ICS conference was the first *fully* in-person INFORMS conference after 2 years of pandemic: 90+ attendees. The *conference* turn out to be a very successful event according to its *post-conference survey results* (participation rate: ~60%). I secured \$16,500 in sponsorship for this conference by finding 7 generous sponsors.
- Faculty Search Panelist; IMSE department @ USF, Academic Year 2021-2022.
- *Stream Organizer*, Multiobjective (Mixed) Integer Optimization, the 22nd Conference of the International Federation of Operational Research Societies conference (IFORS 2020), June 21-26, Seoul, Korea. canceled: due to COVID19
- *NSF Panelist*: Algorithmic Foundations, April 2020.
- Faculty Advisor of *Alpha Pi Mu*, University of South Florida, Aug 2016-present
- *Faculty Advisor* of 25 undergraduate per semester on average, University of South Florida, August 2017-present
- *REU program coordinator*: research experience for industrial engineering undergraduate program, August 2019-present.
- *Writing course coordinator/developer*, 10 writing seminars for industrial engineering PhD students, Sep 2017-Apr 2018

FUNDED
PROPOSALS OR
PROJECTS

1. Hadi Charkhgard (co-PI: 100%): One Research Grant (to support 2022 INFORMS Computing Society conference). **The University of South Florida.** Jan/01/2022 to Feb/01/2022: \$1k.
2. Hadi Charkhgard (co-PI: 50%): Cycle 1 Conference Support Grant (to support 2022 INFORMS Computing Society conference). **The University of South Florida.** Jan/01/2022 to Feb/01/2022: \$5k.

3. Hadi Charkhgard (Co-PI: 20%), Mark Rains (Co-PI), James Mihelcic (Co-PI), Qiong Zhang (PI), Sarina Ergas (co-PI), and Mauricio Arias (Co-PI) “*Temporal and Spatial Optimization of Existing and Emerging Nutrient Management Technologies and Practices for Control of Harmful Algal Blooms*”. **U.S. Environmental Protection Agency**. August/01/2020 to July/31/2023: \$1,000,000. (*My share: \$200,000*)
4. Hadi Charkhgard (PI: 100%), “*CRII (also known as Mini-CAREER): AF: Theory and Algorithms for Maximum Multiplicative Programs Through the Lens of Multi-objective Optimization*”. **National Science Foundation**. July/01/2019 to June/30/2021: \$174,985.
5. Hadi Charkhgard (PI: 100%), Research collaboration project with **United States Geological Survey**. *Topic*: Robust Reserve Design Optimization. The funding supported my PhD student: Ashim Khanal. September 2021 to July 2022. August 2018 to July 2018: \$6k.
6. Hadi Charkhgard (PI: 100%), Research collaboration project with **United States Geological Survey**. *Topic*: Developing the SiteOpt package. The funding supported my PhD students: Payman Ghasemi Saghand and Zulqarnaian Haider. August 2019 to July 2020. August 2018 to July 2018: \$16k.
7. Hadi Charkhgard (PI: 100%), Research collaboration project with **United States Geological Survey**. *Topic*: Novel solution approaches for reserve design problems. The funding supported my PhD student: Alvaro Sierra Altamiranda. August 2019 to July 2020: \$16k.
8. Hadi Charkhgard (co-PI: 50%): Proposal enhancement grant. **The University of South Florida**. May/01/2018 to April/30/2019: \$25k.
9. Hadi Charkhgard (PI: 100%): New researcher grant. **The University of South Florida**. May/01/2018 to April/30/2019. \$10k.
10. Hadi Charkhgard (PI: 100%): Startup grant. **The University of South Florida**. August/01/2016 to May/01/2020. \$180k.

AWARDS

- Research Award — USF Research & Innovation (selected by the USF Research Council)
- 2021 Faculty Outstanding Research Achievement Award June 2021
 - Only two tenure-track assistant professors won this award in 2021
- Research Award — University Honors and Awards Council (selected by the USF Senate)
- 2020-2021 Excellence in Research, Pre-Tenure Award May 2021
 - This award goes to only one tenure-track assistant professor per year
- Research Award — International Society on MCDM
- One of the three finalists of Doctoral Dissertation Award July 2017
- Research Award — International Society on MCDM
- One of the three finalists of Doctoral Dissertation Award July 2017
- Research Award — The INFORMS Computing Society — INFORMS Annual Meeting
- A runner-up for ICS Best Student Paper Award Nov 2016
- Thesis Scholarship — University of Newcastle- Faculty of Science and IT
- Thesis Submission Scholarship Aug 2015
- Research Award — University of Newcastle- Faculty of Science and IT
- Outstanding Postgraduate Student Achievement Award for 2014 Nov 2014
- Research Award — Australian Society for Operations Research- ASOR recent advances

	• Best student paper award Jul 2013
	PhD scholarships for 3.5 years — University of Newcastle- School of Mathematical and Physical Sciences
	• International Postgraduate Research Scholarship Nov 2011 • Australian Postgraduate Award Nov 2011 • Conference Scholarship Nov 2011
	Student Awards — Shomal University- Industrial Engineering (IE) Department
	• Ranked 6th amongst all (approx. 6,000) Iranian IE students Dec 2009 • The highest GPA undergraduate student award May 2009
FEATURED/AWARD WINNING PAPERS	• A featured article of INFORMS Journal on Computing (2019): Sierra Altamiranda, A., Charkhgard, H. (2019) “A New Exact Algorithm to Optimize a Linear Function Over the Set of Efficient Solutions for Bi-objective Mixed Integer Linear Programming”. <i>INFORMS Journal On Computing</i>, 31(4): 823-840. • A runner-up for INFORMS ICS best student paper award (2016): Boland, N., Charkhgard, H., Savelsbergh, M. (2015). “A Criterion Space Search Algorithm for Biobjective Mixed Integer Programming: The Triangle Splitting Method”. <i>INFORMS Journal on Computing</i>, 27(4):597-618. • Australian Society for Operations Research (ASOR) best student paper award (2014): Boland, N., Charkhgard, H., Savelsbergh, M. (2015). “A Criterion Space Search Algorithm for Biobjective Integer Programming: The Balanced Box Method”. <i>INFORMS Journal on Computing</i>, 27(4):735-754.
U.S. PATENTS	• Under process: <i>Title:</i> Fluency Map Bargaining Game; <i>Scope:</i> Radiotherapy treatment planning; 17/559,912, 2022.
PRESENTATIONS	• AMAZON seminar, Seattle (online) August 2022 • OPTIMA AI-based Optimisation Seminar, Australia (online) June 2022 • 17th INFORMS Computing Society Conference, Tampa Jan 2022 • EURO conference (Online/COVID-19) July 2021 • INFORMS Annual Meeting (Online/COVID-19) Nov 2020 • Recent Advances in Multi-objective Optimization (Online/COVID-19) Sep 2020 • Discrete Optimization Talks (online) May 2020 • Session Chair: INFORMS Annual Meeting, Seattle Oct 2019 • European Conference on Operational Research, Ireland Oct 2019 • USGS - Wetland and Aquatic Research Center, Gainesville Jun 2019 • 16th INFORMS Computing Society Conference, Knoxville Jan 2019 • Session Chair: INFORMS Annual Meeting, Phoenix Nov 2018 • Session Chair: INFORMS Annual Meeting, Houston Oct 2017 • IISE Annual Conference, Pittsburgh May 2017 • INFORMS Annual Meeting, Nashville Nov 2016 • INFORMS Annual Meeting, Philadelphia Nov 2015 • IPCO conference, Bonn, Germany Jun 2014 • MODSIM conference, Adelaide, Australia Dec 2013 • ANZIAM conference, Newcastle, Australia Feb 2013 • MIMT conference, Singapore Feb 2011

BOOK CHAPTERS

1. **Charkhgard, H.** (2022) “Mixed Integer Linear Multiplicative Programming”. *Encyclopedia of Operations Research and Management Science*, To appear.

JOURNAL:
REFEREED
PUBLICATIONS

1. **Charkhgard, H.**, Keshanian, K., Esmaeilbeigi, R., Charkhgard, P. “The Magic of Nash Social Welfare in Optimization: Do Not Sum, Just Multiply!”. *ANZIAM Journal*, Available online.
2. Haider*, Z., Hu, Y., **Charkhgard, H.**, Himmelgreen, D., Kwon, C. (2022) “Creating Grocery Delivery Hubs for Food Deserts at Local Convenience Stores via Spatial and Temporal Consolidation”. *Socio-Economic Planning Sciences*. 82: 101301.
3. Mahmoodian*, V., Dayarian, I., Ghasemi Saghand*, P., Zhang, Y., **Charkhgard, H.** (2022) “A Criterion Space Branch-And-Cut Algorithm For Mixed Integer Bi-Linear Maximum Multiplicative Programs”. *INFORMS Journal on Computing*, 34(3): 1453-1470.
4. Rasmi, S. A. B., Wang, Y., **Charkhgard, H.**, Lee, L. H., (2022) “Wave Order Picking Under the Mixed-Shelves Storage Strategy: a Solution Method and Advantages”. *Computers & Operations Research*. 137, 105556.
5. Ghasemi Saghand*, P., **Charkhgard, H.** (2022) “Exact Solution Approaches for Integer Linear Generalized Maximum Multiplicative Programs Through the Lens of Multi-objective Optimization”. *Computers & Operations Research*. 137, 105549.
6. Ghasemi Saghand*, P., **Charkhgard, H.** (2022) “A Criterion Space Search Algorithm for Mixed Integer Linear Maximum Multiplicative Programs: A Multi-objective Optimization Approach”. *International Transactions in Operational Research*, 29: 1659-1687.
7. Dai*, R., **Charkhgard, H.**, Rigterink, F. (2022) “A robust bi-objective optimization approach for operating a shared energy storage under price uncertainty”. *International Transactions in Operational Research*, 29: 1627-1658.
8. Tang, H., Zhang, Y., Mahmoodian*, V., **Charkhgard, H.** (2021) “Automated flight planning of high-density urban air mobility”. *Transportation Research Part C: Emerging Technologies* 131, 103324.
9. Mahmoodian*, V., Zhang, Y., **Charkhgard, H.** (2021) “A dynamic hub-based rebalancing approach for free-floating bike sharing systems using multi-objective simulation optimization”, *International Journal of Transportation Science and Technology*. Available online.
10. Ghasemi Saghand*, P., Haider*, Z., **Charkhgard, H.**, Eaton, M., Martin, J., Yurek, S., Udell, B. J. (2021) “SiteOpt: an Open-source R-package for Site Selection and Portfolio Optimization”. *Ecography*. 44: 1678-1685.
11. Eaton, M.J., Johnson, F.A., Mikels-Carrasco, J., Case, D.J., Martin, J., Stith, B., Yurek, S., Udell, B., Villegas, L., Taylor, L., Haider*, Z., **Charkhgard, H.**, and Kwon, C. (2021), Cape Romain Partnership for Coastal Protection; *U.S. Geological Survey Open-File Report* 2021–1021, 158 p.
12. Ghasemi Saghand*, P., **Charkhgard, H.** (2021) “A Cooperative Game Solution Approach for Intensity Modulated Radiation Therapy Design: Nash Social Welfare Optimization”. *Physics in Medicine and Biology*. 66 (7): 075011.

*My student

13. Dai*, R., Esmaeilbeigi, R., **Charkhgard, H.** (2021) “The utilization of shared energy storage in energy systems: a comprehensive review”. *IEEE Transactions on Smart Grid*, 12(4): 3163-3174.
14. Mahmoodian*, V., **Charkhgard, H.**, Zhang, Yu. (2021) “Multi-objective Optimization Based Algorithms for Solving Mixed Integer Linear Minimum Multiplicative Programs”. *Computers & Operations Research*, 128: 105178.
15. Bogyrbayeva*, A., Takallo*, M., **Charkhgard, H.**, Kwon, C. (2021) “An Iterative Combinatorial Auction Design for Fractional Ownership of Autonomous Vehicles”. *International Transactions in Operational Research*. 28: 1681-1705.
16. Takallo*, M., Bogyrbayeva*, A., **Charkhgard, H.**, Kwon, C. (2021) “Solving the Winner Determination Problem in Combinatorial Auctions for Fractional Ownership of Autonomous Vehicles”. *International Transactions in Operational Research*. 28: 1658-1680.
17. Diaz-Elsayed, N. **Charkhgard, H.**, Wang, M. (2020) “Sustainable and Resilient Manufacturing for Post-COVID-19”. *Smart and Sustainable Manufacturing Systems*. 4(3): 264-268.
18. Eslami*, M., Mahmoodian*, V., Dayarian, I., **Charkhgard, H.**, Tu, Y. (2020) “Query Batching Optimization in Database Systems”. *Computers & Operations Research*. 121:104983.
19. Sierra Altamiranda*, A., **Charkhgard, H.**, Eaton, M., Martin, J., Yurek, S., Udell, B. J. (2020) “Spatial Conservation Planning Under Uncertainty Using Modern Portfolio Theory and Nash Bargaining Solution”. *Ecological Modelling*. 423: 109016.
20. **Charkhgard, H.**, Takalloo*, M., Haider*, Z. (2020) “Bi-objective autonomous vehicle repositioning problem with travel time uncertainty”. *4OR- A Quarterly Journal of Operations Research*. 18, 477–505.
21. Mendoza-Alonzo*, J., Zayas-Castro, J., **Charkhgard, H.** (2020) “Office-based and home-care for older adults in primary care: a comparative analysis using the Nash bargaining solution”. *Socio-Economic Planning Sciences*, 69: 100710.
22. Pal*, A., **Charkhgard, H.** (2019) “FPBH: A Feasibility Pump Based Heuristic for Multi-objective Mixed Integer Linear Programming”. *Computers & Operations Research*. 122: 104760.
23. Acuna-Melo*, J., Zayas-Castro, J., **Charkhgard, H.** (2019) “Ambulance allocation optimization model for the overcrowding problem in US emergency departments: A case study in Florida”. *Socio-Economic Planning Sciences*. 71: 100747.
24. Rezaei, N., Sierra Altamiranda*, A., Diaz-Elsayed, N. **Charkhgard, H.**, Zhang, Q. (2019) “A multi-objective optimization model for decision support in water reclamation system planning”. *Journal of Cleaner Production*. 240: 118227.
25. Sierra Altamiranda*, A. , **Charkhgard, H.** (2019) “OOES.jl: A julia package for optimizing a linear function over the set of efficient solutions for bi-objective mixed integer linear programming”. *International Transactions in Operational Research*. 7(2): 945-957.

*My student

26. Eaton, M., Yurek, S., Haider*, Z., Julien, M., Johnson, F., Udell, B., **Charkhgard, H.**, Kwon., C. (2019) "Spatial conservation planning under uncertainty: adapting to climate change risks using modern portfolio theory". *Ecological Applications*, 29(7), e01962.
27. Abdel-Mottaleb*, N., Ghasemi Saghand*, P., **Charkhgard, H.**, Zhang. Q. (2019) "An Exact Multi-Objective Optimization Approach for Evaluating Water Distribution Infrastructure Criticality and Geo-spatial Interdependence". *Water Resources Research*, 55(7): 5255-5276.
28. Ghasemi Saghand*, P., **Charkhgard, H.**, Kwon, C. (2019) "A Branch-and-Bound Algorithm for a Class of Mixed Integer Linear Maximum Multiplicative Programs: A Bi-objective Optimization Approach". *Computers & Operations Research*, 101: 263-274.
29. Pal* A., **Charkhgard, H.** (2019) "A feasibility pump and local search based heuristic for bi-objective integer programming". *INFORMS Journal on Computing*, 31(1): 115-133.
30. Boland, N., **Charkhgard†, H.**, Savelsbergh, M. (2019) "Preprocessing and Cut Generation Techniques for Multi-objective Binary Programming", *European Journal of Operational Research*, 274(3): 858-875.
31. **Charkhgard, H.**, Eshragh, A. (2019) "A New Approach to Select the Best Subset of Predictors in Linear Regression Modelling: Bi-objective Mixed Integer Linear Programming, *ANZIAM Journal*, 61(1): 64-75.
32. Sierra Altamiranda*, A., **Charkhgard, H.** (2019) "A New Exact Algorithm to Optimize a Linear Function Over the Set of Efficient Solutions for Bi-objective Mixed Integer Linear Programming". *INFORMS Journal On Computing*, 31(4): 823-840.
33. **Charkhgard, H.**, Subramanian*, V., Silva, W., Das T. K. (2018) "An integer linear programming formulation for removing nodes in a network to minimize the spread of influenza virus infections". *Discrete Optimization*, 30: 144-167.
34. Dai*, R., **Charkhgard, H.** (2018) "Bi-objective mixed integer linear programming for managing building clusters with a shared electrical energy storage". *Computers & Operations research*. 96: 173-187.
35. Dai*, R., **Charkhgard, H.** (2018) "A two-stage approach for bi-objective integer linear programming". *Operations Research Letters*, 46: 81-87.
36. Haider*, Z., **Charkhgard, H.**, Kwon, C. (2018) "A Robust Optimization Approach for Solving Problems in Conservation Planning". *Ecological Modelling*, 368: 288-297.
37. **Charkhgard, H.**, Savelsbergh, M., Talebian, M. (2018) "A Linear Programming Based Algorithm to Solve a Class of Optimization Problems with a Multi-linear Objective Function and Affine Constraints". *Computers & Operations research*, 89: 17-30.
38. **Charkhgard, H.**, Savelsbergh, M., Talebian, M. (2018) "Nondominated Nash points: application of biobjective mixed integer programming". *4OR- A Quarterly Journal of Operations Research*, 16(2): 151-171.

[†]I am the main contributor of this paper because it is written during my postdoctoral study. The names are written in alphabetical order.

*My student

39. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2017) “The Quadrant Shrinking Method: A simple and efficient algorithm for solving tri-objective integer programs”. *European Journal of Operational Research*, 260 (3): 873-885.
40. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2017) “A New Method for Optimizing a Linear Function over the Efficient Set of a Multiobjective Integer Program”. *European Journal of Operational Research*, 260 (3): 904-9019.
41. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2016) “The L-Shape Search Method for Triobjective Integer Programming”. *Mathematical Programming Computation*, 8(2):217-251.
42. Charkhgard, P., Esmaeilbeigi, R., **Charkhgard, H.** (2016). “Order Acceptance and Scheduling Problem in Two-machine Flow Shops: New Mixed Integer Programming Formulations”. *European Journal of Operational Research*, 261(2):419-431.
43. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2015). “A Criterion Space Search Algorithm for Biobjective Mixed Integer Programming: The Triangle Splitting Method”. *INFORMS Journal on Computing*, 27(4):597-618.
44. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2015). “A Criterion Space Search Algorithm for Biobjective Integer Programming: The Balanced Box Method”. *INFORMS Journal on Computing*, 27(4):735-754.
45. **Charkhgard, H.**, Savelsbergh, M. (2015). “Efficient Algorithms for Traveling Salesman Problems Arising in Warehouse Order Picking”. *ANZIAM Journal*, 57(2):166-174.
46. Boland, N., **Charkhgard[†], H.**, Savelsbergh, M. (2014). “The Triangle Splitting Method for Biobjective Mixed Integer Programming.” *Lecture Notes in Computer Science*, 8494:162–173.

JOURNAL: PAPERS
UNDER SECOND
ROUND OF
REVIEW

1. Ghasemi Saghand*, P., Rigterink, F., Mahmoodian*, V., **Charkhgard, H.** “Solving Multiplicative Programs by Binary-encoding the Multiplication Operation”. Submitted to *Journal of Global Optimization*.
2. Abdel-Mottaleb*, N., Ghasemi Saghand*, P., Wakhungo, M., Zhang. Q., **Charkhgard, H.**, Wells, C. (2021) “Identifying Critical Isolation Valves in a Water Distribution Network: A Socio-Technical Approach”. Submitted to *Water Resources Management*.
3. Martin, J., Richardson, M., Passeri, D., Enwright, N., Yurek, S., Flocks, J., Eaton, M., Zeigler, S., **Charkhgard, H.**, Udell, B., Irwin, E. “Decision science as a framework for combining geomorphological and ecological modeling for the management of coastal systems”. Submitted to *Ecology and Society*.

JOURNAL: PAPERS
UNDER FIRST
ROUND OF
REVIEW

1. Haider*, Z., **Charkhgard, H.**, Kim, S. W., Kwon, C. “Optimizing the Relocation Operations of Free-Floating Electric Vehicle Sharing Systems”. Submitted to *Annals of Operations Research*.
2. Sierra Altamiranda*, A., **Charkhgard, H.**, Dayarian, I., Eshragh, A., Javadi, S. “Learning to Project in Multi-Objective Binary Linear Programming”. Submitted to *International Transactions in Operational Research*.

[†]I am the main contributor of this paper because it is written during my PhD study. The names are written in alphabetical order.

*My student

3. Dai*, R., **Charkhgard, H.**, Feizollahi, M. J. “A game-theoretical approach for balancing multi-prosumer energy trading through a shared energy storage”. Submitted to *International Transactions in Operational Research*.
4. Mahmoodian*, V., Pal*, A., **Charkhgard, H.** “MSEA.jl: A Multi-Stage Exact Algorithm for Bi-objective Pure Integer Linear Programming in Julia”. Submitted to *Journal of Optimization Theory and Applications*.
5. Mendoza-Alonzo*, J., Zayas-Castro, J., **Charkhgard, H.** “Reactive or proactive care? Assessing efficiency and equity of care access among critical patients while considering medical and non-medical conditions”. Submitted to *Socio-Economic Planning Sciences*.

CONFERENCE:
REFEREED
PUBLICATIONS

1. Eslami*, M., Tu, Y., Xu, Z., Liu, J., **Charkhgard, H.** (2019) “PsiDB: A Framework for Concurrent Query Processing and Optimization”. *IEEE International Conference on Big Data (Big Data)*.
2. Dai *, R., **Charkhgard, H.**, Chen, Y., Kuang, Y. (2019) “Balancing Benefit Distribution for Energy Storage Sharing based on Nash Bargaining Solution”. *IEEE Power & Energy Society General Meeting (PESGM)*.
3. Bogyrbayeva*, A., Tatapudi* S. H. A., **Charkhgard, H.**, Silva W. (2019), “Best subset selection of factors affecting influenza spread using bi-objective optimization”. *IISE Annual Conference*.
4. Mahmmodian*, V., **Charkhgard, H.**, Zhang, Y. (2019), “A bi-level branch-and-bound algorithm for the capacitated competitive facility location problem”. *IISE Annual Conference*.
5. Subramanian*, V., Das, T. K., **Charkhgard, H.** (2018), “Controlled Islanding of Power Networks based on Anticipated Severity of Extreme Event”, *IEEE Power and Energy Society General Meeting*.
6. Sadat*, S., Dai* R., **Charkhgard, H.** (2018), “Bi-objective Mixed Integer Program for Energy Storage Sharing Considering Storage Lifetime Maintenance”. *IEEE Power & Energy Society General Meeting (PESGM)*.

CONFERENCE:
UNDER-REVIEW
PAPERS

1. NA

PAST PHD
STUDENTS

1. Vahid Mahmoodian; Graduation Year: Fall 2021; Role: advisor.
First Position: Operations Research Scientist @ Altria.
PhD Dissertation title: Theory and Algorithms for Systems Optimization
 - Click [here](#) to watch his exist-interview video.
2. Dr. Payman Ghasemi Saghand; Graduation Year: Summer 2021; Role: advisor.
First Position: Postdoc @ Moffitt Cancer Center.
PhD Dissertation title: Maximum Multiplicative Programming: Theory, Algorithms, and Applications
 - Click [here](#) to watch his exist-interview video.

*My student

3. Dr. Rui Dai; Graduation Year: Fall 2020; Role: advisor.
First Position: Postdoc @ Texas Tech.
PhD Dissertation title: The Utilization of Shared Energy Storage in Energy Systems: Design, Modeling and Optimization
 - Click [here](#) to watch his exist-interview video.
4. Dr. Zulqarnain Haider; Graduation Year: Summer 2020; Role: co-advisor.
Main advisor: Dr. Changhyun Kwon;
First Position: Operations Research Scientist @ Walmart
PhD Dissertation title: Using Optimization Methods and Algorithms for Solving Problems in Sustainable Urban Mobility and Conservation Planning
 - Click [here](#) to watch his exist-interview video.
5. Dr. Alvaro Sierra Altamiranda; Graduation Year: Fall 2019; Role: advisor.
First Position: Operations Research Scientist - Robotics @ Amazon Robotics
PhD Dissertation title: Algorithms for Multi-Objective Mixed Integer Programming Problems
 - Click [here](#) to watch his exist-interview video.
 - Click [here](#) to watch his graduation video.

CURRENT PHD STUDENTS

1. Ashim Khanal; Expected Graduation Year: 2024; Role: advisor.
2. Hanieh Rastegar Moghaddam; Expected Graduation Year: 2025; Role: advisor.

TEACHING EXPERIENCE

List of courses: Linear Programming and Network Optimization, Deterministic Operations Research, Supply Chain Engineering, Sequencing and Scheduling, Optimization in Operations Research, Multi-objective Optimization, Integer Programming, Discrete Optimization, Calculus, Operations Research I.

Instructor Fall 2021
University of South Florida
Department of Industrial and Systems Engineering
Description: Deterministic Operations Research- Undergraduate level course.

Instructor Fall 2021
University of South Florida
Department of Industrial and Systems Engineering
Description: Linear Programming and Network Optimization- PhD level course.

Instructor Fall 2020-Present
University of South Florida
Department of Industrial and Systems Engineering
Description: Supply Chain Engineering- Undergraduate/Masters level course.

Instructor Fall 2019
University of South Florida
Department of Industrial and Systems Engineering
Description: Sequencing and Scheduling- Undergraduate/Masters level course.

Instructor Spring 2019
University of South Florida
Department of Industrial and Systems Engineering
Description: Optimization in Operations Research- Masters level course.

Instructor	Spring 2017- Present
University of South Florida	
Department of Industrial and Systems Engineering	
Description: Multi-objective Optimization- PhD level course.	
Instructor	Fall 2016- Present
University of South Florida	
Department of Industrial and Systems Engineering	
Description: Integer Programming- PhD level course.	
Teaching Assistant	Jul 2012 - Aug 2015
University of Newcastle	
School of Mathematical and Physical Sciences	
Coordinators: Dr. Judy-Anne Osborn and Prof. Natashaia Boland	
Phone: +61 2 4921 5543	
Description: Calculus and discrete optimization courses.	
Teaching Assistant	Sep 2007 - Jan 2008
Shomal University	
Industrial Engineering Department	
Advisor: Dr. Mohammad Pour Omran	
Phone: +98 912 197 7451	
Description: Operations Research 1.	

JOURNAL REFEREEING

- Management Science
- Operations Research
- International Transactions in Operational Research
- Mathematical Programming Computation
- INFORMS Journal on Computing
- European Journal of Operational Research
- Discrete Optimization
- 4OR - A Quarterly Journal of Operations Research
- Annals of Operations Research
- Computers & Operations Research

VISITS

- H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology, USA Jan 2015 - Mar 2015
- The University of Newcastle, NSW, Australia March 2018

OTHER SERVICE ACTIVITIES

- Committee member, PhD Defense of Xufei Liu (Industrial Engineering), University of South Florida, May 2022
- Chair, PhD Defense of Hadi Zanddizari (Electrical Engineering), University of South Florida, March 2022
- Committee member, PhD Defense of Fatih Gordu (Civil and Environmental Engineering), University of South Florida, Mar 2022
- Committee member, PhD Defense of Noha Abdel-Mottaleb (Civil and Environmental Engineering), University of South Florida, Sep 2021
- Committee member, PhD Defense of Jorge Acuna Melo (Industrial Engineering), University of South Florida, June 2021
- Committee member, PhD Defense of Aigerim Bogyrbayeva (Industrial Engineering), University of South Florida, May 2021

- Committee member, PhD Defense of Jennifer Mendoza-Alonzo (Industrial Engineering), University of South Florida, May 2021
- Committee member, PhD Proposal Defense of Jorge Acuna Melo (Industrial Engineering), University of South Florida, March 2021
- Chair, PhD Defense of Alvaro Cintas Canto (Computer Science and Engineering), University of South Florida, March 2021
- Committee member, PhD Candidacy Exam of Xufei Liu (Industrial Engineering), University of South Florida, November 2020
- Committee member, PhD Defense of Zhiwei Chen (Civil and Environmental Engineering), University of South Florida, November 2020
- Committee member, PhD Proposal Defense of Aigerim Bogrybayeva (Industrial Engineering), University of South Florida, Oct 2020
- Committee member, PhD Proposal Defense of Jennifer Mendoza-Alonzo (Industrial Engineering), University of South Florida, July 2020
- Chair, PhD Defense of Fatemeh Khorramshahi (Electrical Engineering), University of South Florida, May 2020
- Committee member, PhD Proposal Defense of Zhiwei Chen (Civil Engineering), University of South Florida, April 2020
- Committee member, PhD Proposal Defense of Mahdi Takallo (Industrial Engineering), University of South Florida, March 2020
- Committee member, PhD Proposal Defense of Osama Tarabih (Environmental Engineering), University of South Florida, March 2020
- Committee member, PhD Proposal Defense of Hualong Tang (Civil Engineering), University of South Florida, Feb 2020
- Committee member, PhD Candidacy exam of Jorge Acuna Melo (Industrial Engineering), University of South Florida, Nov 2019
- Committee member, PhD Proposal Defense of Kevin Melendez (Industrial Engineering), University of South Florida, Nov 2019
- Committee member, PhD Proposal Defense of Zhiqiang Wu (Civil Engineering), University of South Florida, Nov 2019
- Chair, PhD Defense of Belqasem Aljafari (Electrical Engineering), University of South Florida, Oct 2019
- Committee member, PhD Candidacy Exam of Aigerim Bogrybayeva (Industrial Engineering), University of South Florida, Oct 2019
- Committee member, PhD Defense of Nader Rezaei (Civil and Environmental Engineering), University of South Florida, May 2019
- Committee member, PhD Proposal Defense of Mahdi Takallo (Industrial Engineering), University of South Florida, April 2019
- Committee member, PhD Defense of Vignesh Subramanian (Industrial Engineering), University of South Florida, Mar 2019
- Committee member, PhD Defense of Liu Su (Industrial Engineering), University of South Florida, Mar 2019
- Committee member, PhD Candidacy Exam of Jennifer Mendoza-Alonzo (Industrial Engineering), University of South Florida, Mar 2019
- Chair, PhD Defense of Anand Kumar Santhanakrishna (Electrical Engineering), University of South Florida, Feb 2019
- Committee member, PhD Proposal Defense of Noha Abdel-Mottaleb (Civil and Environmental Engineering), University of South Florida, Feb 2019
- Committee member, PhD Proposal Defense of Liu Su (Industrial Engineering), University of South Florida, Nov 2018
- Committee member, PhD Candidacy Exam of Kevin Melendez (Industrial Engineering), University of South Florida, Oct 2018
- Committee member, PhD Proposal Defense of Vignesh Subramanian (Industrial Engineering), University of South Florida, Sep 2018

- Committee member, PhD Candidacy Exam of Vignesh Subramanian (Industrial Engineering), University of South Florida, Mar 2018
- Committee member, PhD Candidacy Exam of Mahdi Takallo (Industrial Engineering), University of South Florida, Nov 2017
- Committee member, PhD Candidacy Exam of Liu Su (Industrial Engineering), University of South Florida, Nov 2017
- Chair, PhD Defense of Benjamin Gruenwald (Mechanical Engineering) , University of South Florida, Oct 2017
- Committee member, PhD Proposal Defense of Nader Rezaei (Civil and Environmental Engineering), University of South Florida, Apr 2018
- Chair, PhD Defense of Alireza Chakeri (Computer Science and Engineering) , University of South Florida, March 2017
- Judge, Engineering Research Day, University of South Florida, Nov 2016
- Chair, PhD Defense of Hossein Ghassempour Aghamolki (Electrical Engineering) , University of South Florida, Oct 2017

LANGUAGES

- Persian (native)
- English (fluent)

SOFTWARE SKILLS

- Programming Languages: Python, Julia, C++, VB, C, VBA, Shell Script.
- Optimization Solvers: CPLEX, Gurobi, SCIP, IPOPT, etc.
- Others: AMPL, LaTeX, Gnuplot, Minitab, SAS, Arena, GAMS, LINGO, etc.

CODES

1. A comprehensive C++ package for multi-objective integer programming
2. A feasibility pump based heuristic algorithm in Julia for multi-objective mixed integer linear programming
3. A C++ package for solving bi-objective mixed integer linear programming using The Triangle Splitting Method
4. A C++ package for optimizing a linear function over the set of efficient solutions of bi-objective mixed integer linear programs
5. A C++ package for solving a class of mixed integer linear maximum multiplicative programs
6. A C++ package for solving mixed integer linear maximum multiplicative programs
7. A C++ package for solving pure integer linear generalized maximum multiplicative programs
8. MSEA.jl: A Multi-Stage Exact Algorithm for Bi-objective Pure Integer Linear Programming in Julia
9. OOE.jl: A julia package for optimizing a linear function over the set of efficient solutions for bi-objective mixed integer linear programming
10. A C++ implementation of the L-shape Search Method for tri-objective pure integer linear programs
11. A C++ implementation of the Quadrant Shrinking Method for tri-objective pure integer linear programs
12. A Julia package for solving mixed integer linear minimum multiplicative programs

13. A web tool for sustainable decision making in the design of integrated wastewater management systems
14. SiteOpt: an Open-source R-package for Site Selection and Portfolio Optimization

PRIOR WORK EXPERIENCE

- Consultant** Sep 2011 - Feb 2012
 Vana Persian Rayaneh
 No.7, Attar alley, Abou saeid crossroads, 15 khordad Avenue, Tehran, Iran
 CEO: Nasrin Yousefi
 Phone: +98 21 5562 4721
 Description: Hired by a group of investors for writing business plans and conducting feasibility studies.
- Research Assistant** Sep 2009 - Jan 2010
 Sharif University of Technology
 Industrial Engineering Department
 Advisor: Prof. Mohammad Reza Akbari Jokar
 Phone: +98 21 6616 5742
 Description: Minimizing handling costs of the painting section of a car manufacturing company, Zamyad. A research project for my facilities planning course.
- Research Assistant** Jun 2009 - Sep 2009
 Shomal University
 Industrial Engineering Department
 Advisor: Dr. Majid Behzadian
 Phone: +98 912 172 2110
 Description: Implementing statistical process control in Saba Battery Company. Part of my internship program.
- Research Assistant** Jun 2009 - Sep 2009
 Shomal University
 Industrial Engineering Department
 Advisor: Dr. Ahmad Jafarzadeh Afshari
 Phone: +98 917 314 2789
 Description: Increasing the productivity of one of the petrol stations in Amol. A research project for my simulation course.
- Research Assistant** Sep 2007 - Jan 2008
 Shomal University
 Industrial Engineering Department
 Advisor: Dr. Beheshtiniya
 Phone: +98 912 401 4117
 Description: Minimizing handling costs of Keyhan Moharekeh Company in Amol. A research project for my facilities layout course.

REFERENCES

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 H. Milton Stewart School of Industrial & Systems Engineering
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