Maryam Daryalal

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ACADEMIC POSITIONS

HEC Montreal, University of Montreal
Department of Decision Sciences
Assistant Professor of Operations Research   (2022 - present)

EDUCATION

University of Toronto, *Mechanical & Industrial Engineering Department*
Ph.D. in Industrial Engineering   (2022)
- *Dissertation*: Sequential decision-making under uncertainty: Methodologies and applications
- *Advisor*: Dr. Merve Bodur

Concordia University, *Computer Science and Software Engineering Department*
M.Sc. in Computer Science   (2016)

Amirkabir University of Technology, *Department of Industrial Engineering*
M.Sc. in Industrial Engineering   (2013)
B.Sc. in Industrial Engineering & Systems Analysis   (2011)

RESEARCH

Research Interests:

Methodologies: Stochastic optimization, Robust optimization, Integer programming, Large-scale optimization

Application Areas: Sequential decision-making under uncertainty, Telecommunications, Healthcare, Supply chain planning, Service systems staffing, Scheduling, Description logic

Preprints:

[1] **M. Daryalal**, Amir Ahmadi-Javid. Risk-aware logic-based Benders decomposition for a location-allocation-pricing problem with stochastic price-sensitive demands. Under review. [pdf]

[2] **M. Daryalal**, A.N. Arslan, M. Bodur. Two-stage and Lagrangian dual decision rules for multistage adaptive robust optimization. Under revision. [pdf]

Journal Papers:

[1] **M. Daryalal**, M. Bodur, J. Luedtke. Lagrangian dual decision rules for multistage stochastic mixed integer programming. ***Operations Research***, volume 72, issue 2, pp. iii-vi, 425-870, C2-C3, 2024. [pdf]

[2] **M. Daryalal**, H. Pouya, M.A. DeSantis. Network migration problem: A hybrid logic-based Benders decomposition. ***INFORMS Journal on Computing***, volume 35, issue 3, pp. 519-709, C2, 2023. [pdf]

[3] **M. Daryalal**, M. Bodur. Stochastic RWA and lightpath rerouting in WDM networks. ***INFORMS Journal on Computing***, volume 34, issue 5, pp. 2383-2865, C2, 2022. [pdf]

[4] B. Jaumard, **M. Daryalal**. Efficient spectrum utilization in large-scale RWA problems. ***IEEE/ ACM Transactions on Networking***, volume 25, pp. 1263-1278, 2017. [pdf]

<u>Peer-Reviewed Conference Proceedings</u>:

[1] B. Jaumard, **M. Daryalal**. Optimizing spectrum utilization in dynamic RWA. *IEEE International Conference on Optical Network Design and Modeling (ONDM)*, pp. 1-6, 2016. [pdf]

[2] B. Jaumard, **M. Daryalal**. Scalable elastic optical path networking models. *IEEE International Conference on Transparent Optical Networks (ICTON)*, pp. 1-4, 2016. [pdf]

[3] J. Vlasenko, **M. Daryalal**, V. Haarslev, B. Jaumard. A saturation-based algebraic reasoner for $\mathcal{ELQ}$. *Practical Aspects of Automated Reasoning at International Joint Conference on Automated Reasoning (IJCAR)*, pp. 110-124, 2016. [pdf]

[4] B. Jaumard, **M. Daryalal**. Solving very large RWA data instances. *IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, pp. 1-6, 2016. [pdf]

AWARDS & HONORS

○ Best Paper Award, *INFORMS Telecom. & Network Analytics, INFORMS Annual Meeting* (2023)

○ Judith Liebman Award, *INFORMS* (2021)

○ MIE Teaching Assistant Award, *University of Toronto* (2021)

○ Best Student Paper Finalist, *Canadian Operational Research Society* (2021)

○ Discrete Choice Analysis Scholarship, Massachusetts Institute of Technology (2021)

○ Seth Bonder Foundation Student Grant, *INFORMS* (2020)

○ Best Operations Research Poster, *MIE Graduate Research Symposium* (2018)

○ Connaught International Scholarship Award, *University of Toronto* (2017)

○ Concordia Merit Award, *Concordia University* (2014)

SUPERVISION

Current

<u>PhD</u>:

○ Mahsa Hajamini (Co-advice with Dr. Louis-martin Rousseau and Dr. Hossein Hashemi Doulabi)

○ Wanzheng Liu (Co-advise with Dr. Xiangpei Hu, Dalian University of Technology)

MSc:

- Soheil Tavana

- Pedram Peiroasfia

- Nastaran Behzadpour (co-advise with Dr. Michel Denault)

- Kamel Yousri Amrouche

BBA:

- Adrien Darbes

Past

- Philippe Béliveau, *MITACS Accelerate Intern* (Fall 2024)

- Zixuan Yang, *MITACS Globalink Intern* (Summer 2024)

- Yubo Cai, *MITACS Globalink Intern* (Summer 2023)

- Haoyuan Xue, *BASc* (co-supervised, 2022)
  - Centennial Senior Project Award, *University of Toronto* (2022)

- Diana Spirina, *Research Associate* (Fall 2022)

FUNDING

Principal Investigator

- IVADO Grant R3AI Regroupment 9 (April 2025 - March 2027)

  - Funding source: IVADO

  - Title: *Learning-based sequential decision-making under uncertainty*

  - Amount: 40,000$

- Discovery Grant (April 2024 - March 2029)

  - Funding source: Natural Sciences and Engineering Research Council of Canada (NSERC)

  - Title: *Multistage stochastic programming and robust optimization: Novel methodologies and applications*

  - Amount: 170,000$ - Discovery Launch Supplement: 12,500$

- Mitacs Accelerate Program (June 2024 - December 2024)

  - Funding source: Mitacs

  - Title: *Sequential relational synthetic data generation*

  - Amount: 15,000$

Co-PI

- IVADO Exploratory Projects Program (November 2024 - October 2025)

- Funding source: IVADO

- Title: *Large-scale power grids: Transition to net zero*

- Amount: 100,000$

- Co-PIs: Michel Denault, Pierre-Olivier Pineau

TEACHING

HEC Montreal

- MATH 60612A - Application Models in Business Analytics (graduate)   (Winter 2025)

- MATH60623A - Sequential Decision-making Under Uncertainty (graduate)   (Fall 2023, 2024)

- MATH60623 - Prise de décisions séquentielles sous incertitude (graduate)   (Winter 2024)

- MATH20604A - Linear Optimization Models (core undergraduate)   (Fall 2022, 2023, 2024)

- MATH10620A - Statistics (core undergraduate)   (Winter 2023)

Teaching Assistant:

University of Toronto

- Algorithms & Numerical Methods (undergraduate core)   (2021, 2022)

- Integer Programming (graduate)   (2020)

- Stochastic Programming & Robust Optimization (graduate)   (2019, 2020)

- Operations Management (undergraduate core)   (2019)

- Mathematical Programming (undergraduate core)   (2019)

Concordia University

- Algorithms (graduate)   (2015)

- Data Communication & Computer Networks (undergraduate core)   (2015)

- Discrete Structures & Formal Languages (professional degree)   (2015)

Amirkabir University of Technology

- Simulation (undergraduate elective)   (2012, 2013)

- Design of Industrial Systems (graduate)   (2012, 2013)

- Operations Research I (undergraduate core)   (2011, 2012, 2013)

- Operations Research II (undergraduate core)   (2011, 2012)

- Theory of Probability & Statistics (undergraduate core)   (2010, 2011, 2012, 2013)

TALKS

- A Risk-aware Location-Allocation-Pricing Problem with Stochastic Price-Sensitive Demands, *International Symposium on Mathematical Programming*, Montreal (July 2024)

- Large-scale optimization methods for logical reasoning: A novel perspective, *Mixed-Integer Programming Workshop*, Lexington (June 2024, *speaker*)

- Large-scale optimization methods for logical reasoning: A novel perspective, *GERAD Research Seminars*, Montreal (May 2024)

- A risk-aware location-allocation-pricing problem with stochastic price-sensitive demands, *Optimization Days*, Montreal (May 2024)

- Two-stage decision rules for multistage adaptive robust optimization, *INFORMS Annual Meeting*, Phoenix (2023, *invited*)

- Network migration problem: A hybrid logic-based Benders decomposition approach, *INFORMS Annual Meeting, Award presentations*, Phoenix (2023)

- A hybrid logic-based Benders decomposition approach for the network migration problem, *Discrete Optimization Talks*, Online (2023, *invited*)

- Novel decision rules in sequential decision-making under uncertainty, *International Conference on Stochastic Programming*, Davis (2023, *invited*)

- Logic-based Benders decomposition for the network migration problem, *International Network Optimization Conference* (2022)

- Novel bounding techniques for multistage adaptive robust optimization, *CORS/INFORMS International Conference*, Vancouver (2022)

- On primal and dual bounding techniques for multistage adaptive robust optimization, *Optimization Days*, Montreal (2022, *invited*)

- Logic-based Benders decomposition and hybrid column generation for the network migration problem, *Optimization Days*, Montreal (2022)

- Stochastic routing and wavelength assignment problem in WDM networks, *INFORMS Annual Meeting* (2021)

- Lagrangian dual decision rules for integrated staffing and scheduling in service systems, *CORS Annual Conference* (2021)

- Stochastic routing and wavelength assignment problem in WDM networks, *CIRRELT* (2021, *invited*)

- Lagrangian dual decision rules for integrated staffing and scheduling in service systems, *INFORMS Annual Meeting* (invited, 2020)

- Stochastic routing and wavelength assignment problem in network defragmentation, *INFORMS Telecommunications and Network Analytics Conference* (2020)

- Integrated staffing and scheduling for service systems via multistage stochastic integer programming, *International Conference on Stochastic Programming*, Trondheim (2019)

- Lagrangian dual decision rules for multistage stochastic integer programming, *Optimization Days*, Montreal (2019)

○ Integrated pricing and routing decisions, *INFORMS Revenue Management & Pricing*, Toronto (2018, *invited*)

○ Facility location problem with general objective functions, *MIE Graduate Research Symposium*, Toronto (poster, 2018)

MEMBERSHIPS

○ Group for Research in Decision Analysis (GERAD) (2024 - present)

○ Interuniversity Research Center On Enterprise Networks, Logistics And Transportation (CIRRELT) (2024 - present)

○ NSERC-IVADO CREATE Program on Machine Learning in Quantitative Finance and Business Analytics (2024 - present)

○ Mathematical Optimization Society (2024 - present)

○ Mixed-integer Programming Society (2024 - present)

○ Stochastic Programming Society (2023 - present)

○ INFORMS Optimization Society (2022 - present)

○ Institute for Operations Research and the Management Sciences (2021 - present)

ACADEMIC SERVICE

○ Councils/committees:
  – Council member, INFORMS Telecommunications & Network Analytics Section (2025 - 2028)
  – Committee member, INFORMS Chapters and Fora (2022 - 2024)

○ Award evaluations:
  – Chair, Best Paper Award, INFORMS TNA Section (2025)
  – Committee member, Best Undergraduate Paper Award, CORS (2025)

○ Conference organization activities & roles
  – INFORMS Computing Society Conference, Sponsorship chair (2025)
  – CORS Annual Conference, Cluster chair (2024)
  – Conference session chair/organizer:
    • ISMP, Montreal (2024), Optimization Days, Montreal (2022, 2024), CORS/INFORMS International Conference (2022), INFORMS Annual Meeting (2020, 2021), INFORMS Telecommunications & Network Analytics Conference (2020)

○ President of INFORMS/CORS Student Chapter at University of Toronto, (2019 - 2022)
  – INFORMS Student Chapter Award - Magna cum laude, 2021
  – INFORMS Student Chapter Award - Honorable mention, 2020

Ad-hoc Reviewer/Referee:

Mathematical Programming, Operations Research, INFORMS Journal on Computing, Health Care Management Science, European Journal of Operational Research, Annals of Operational Research, Information Systems and Operational Research, IEEE Communications Letters, CPAIOR

CORPORATE EXPERIENCE

Morgan Stanley Canada (2017 - 2018)
Wealth Management Division
Technology Analyst

REFERENCES *References available upon request.*