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

Journal Papers:

[1] **M. Daryalal**, A.N. Arslan, M. Bodur. Two-stage and Lagrangian dual decision rules for multistage adaptive robust optimization. Under revision at ***Operations Research***. [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, J. Luedtke. Lagrangian dual decision rules for multistage stochastic mixed integer programming. ***Operations Research***, articles in advance, pp. 1–21, 2022. [pdf]

[4] **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]

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

Peer-Reviewed Conference Proceedings:

[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]

Working Papers:

○ H. Xue, **M. Daryalal**, M. Bodur. A chance-constrained programming approach to wavelength dimensioning under traffic uncertainty. (submitted).

○ A. Deza, **M. Daryalal**, C. Guo, M. Bodur. A multistage stochastic integer programming approach to distributed operating room scheduling. (in preparation for submission).

○ B. Naderi, V. Roshanaei, **M. Daryalal**. Robust flexible job-shop scheduling problem. (in preparation for submission).

○ **M. Daryalal**, M. Bodur. Integrated staffing and scheduling in service systems. (work in progress).

○ Y. Cai, **M. Daryalal**. Large-scale optimization methods for description logic $\mathcal{ELQ}$. (work in progress).

○ A. Darbes, **M. Daryalal**. A risk-aware logic-based Benders decomposition method for location-allocation problem with price-sensitive demands. (work in progress).

○ S. Tavana, **M. Daryalal**, Demand uncertainty in supply chain: A stochastic approach to integration (work in progress).

○ **M. Daryalal**, Retailer-supplier flexible contracts under uncertainty: A game theory approach. (work in progress).

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)

○ 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)

TALKS &
POSTERS

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

○ 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)

SUPERVISION

<u>*PhD*</u>:

    ○ Wanzheng Liu (Co-advise, Dalian University of Technology)

<u>*Master*</u>:

    ○ Soheil Tavanal

    ○ Pedram Peiro

    ○ Nastaran Behzadpour

    ○ Junmeng Du

<u>*Undergraduate*</u>:

    ○ Adrien Darbes

<u>*Research Intern*</u>:

    ○ Philippe Béliveau (MITACS Accelerate)

Past

<u>*Undergraduate*</u>:

    ○ Haoyuan Xue (co-supervised, B.A.Sc. 2022)
        – Centennial Senior Project Award, *University of Toronto* (2022)

<u>*Research Intern*</u>:

    ○ Yubo Cai (MITACS Globalink Intern, Summer 2023)

    ○ Diana Spirina (Research Associate, Fall 2022)

TEACHING EXPERIENCE

HEC Montreal

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

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

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

○ MATH10620A - Statistics (undergraduate)   (Winter 2023)

<u>*Teaching Assistant*</u>:

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 - 2013)

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

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

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

- Mathematical Optimization Society (2024 - present)

- Institute for Operations Research and the Management Sciences (2021 - present)
  - Committee member: INFORMS Chapters and Fora (2022 - present)

ACADEMIC SERVICE
- Cluster chair:
  - CORS Annual Conference (2024)

- Session chair/organizer:
  - CORS/INFORMS International Conference (2022)
  - Optimization Days, Montreal (2022)
  - INFORMS Annual Meeting (2020, 2021)
  - INFORMS Telecommunications and 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, European Journal 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.*