

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 multi-stage adaptive robust optimization. Under revision at *Operations Research*. [\[pdf\]](#)
- [2] **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. [\[pdf\]](#)
- [3] **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. [\[pdf\]](#)
- [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. [\[pdf\]](#)

**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)

SUPERVISION

Current

- Wanzheng Liu, *PhD* (Co-advise, Dalian University of Technology)
- Soheil Tavanal, *MSc*
- Pedram Peiro, *MSc*
- Nastaran Behzadpour, *MSc*
- Junmeng Du, *MSc*
- Adrien Darbes, *BBA*
- Philippe Béliveau, *MITACS Accelerate Intern*
- Zixuan Yang, *MITACS Globalink Intern*

Past

- Haoyuan Xue, *BASc* (co-supervised, 2022)

- Centennial Senior Project Award, *University of Toronto* (2022)
 - Yubo Cai, *MITACS Globalink Intern* (Summer 2023)
 - Diana Spirina, *Research Associate* (Fall 2022)
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FUNDING

- 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: 135,000\$ - Discovery Launch Supplement: 12,500\$
 - Mitacs Accelerate Program (May 2024 - August 2024)
 - Funding source: Mitacs
 - Title: *Sequential relational synthetic data generation*
 - Amount: 15,000\$
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TALKS

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

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)

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 - 2013)
 - Operations Research II (undergraduate core) (2011 - 2012)
 - Theory of Probability & Statistics (undergraduate core) (2010 - 2013)
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- 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)
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ACADEMIC SERVICE

- Cluster chair:
 - CORS Annual Conference (2024)
- Session chair/organizer:
 - Optimization Days, Montreal (2022, 2024)
 - CORS/INFORMS International Conference (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, 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.