

# Maryam Daryalal

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🏠 3000 Côte-Sainte-Catherine Road, Montreal, QC H3T 2A7

🌐 daryalal.aroralab.ca ✉ maryam.daryalal@hec.ca ☎ +1 (514) 340-6000 ext. 6025

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## ACADEMIC POSITIONS

**HEC Montreal, University of Montreal**

*Department of Decision Sciences*

Assistant Professor of Operations Research

(2022 - present)

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## 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)

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## 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. [\[pdf\]](#)

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**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)

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**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*

**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\$
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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

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**CORPORATE  
EXPERIENCE**

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

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**REFERENCES** *References available upon request.*