

# Er Raqabi El Mehdi

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## Education

### Polytechnique Montreal (Poly)

Montreal, Canada

*Doctor of Philosophy in Applied Mathematics*

2020 - Present

- Research Topic: Primal Large-scale Optimization - Application to a Global Supply Chain
- Advisors: Profs. El Hallaoui Issmail and Soumis François
- Relevant Coursework: Mathematical Programming (A\*), Integer Programming (A\*), Graph and Network Theory (A\*), Modeling in Operations Research (A\*), Decomposition Methods and Real-Time Optimization (A\*)
- Top 1% (**GPA: 4.0/4.0**)

### International University of Japan (IUJ)

Niigata, Japan

*Master of Business Administration*

2017 - 2019

- Research Topic: Design of Electric Vehicles Charging Station Network
- Advisor: Prof. Li Wenkai
- Relevant Coursework: Operations Management (A\*), Supply Chain Management (A\*), Applied Statistics (A\*), Computer-based Decision Modeling (A\*), Infrastructure Planning and Management (A\*)
- Valedictorian (**GPA: 3.89/4.0**)

### Ecole Mohammadia d'Ingénieurs (EMI)

Rabat, Morocco

*Master of Engineering in Industrial Engineering*

2013 - 2016

- Entry based on a competitive national exam following two years of intensive maths and physics courses.
- Relevant Coursework: Operations Research (A), Applied Mathematics (A\*), Probabilities and Statistics (A\*), Data Science (A), Lean Manufacturing (A\*)
- With Honors (**GPA: 3.8/4.0**)

## Papers

### Published

- [1] **Er Raqabi El Mehdi**, Himmich Ilyas, El Hachemi Nizar, El Hallaoui Issmail and Soumis François (2023). Incremental LNS Framework for Integrated Production, Inventory, and Vessel Scheduling: Application to a Global Supply Chain. *Omega*, 116, 102821.
- [2] **Er Raqabi El Mehdi** (2019). Design of Electric Vehicles Charging Station Network. *Master's Thesis*, International University of Japan.

### Under Review

- [3] Himmich Ilyas, **Er Raqabi El Mehdi**, El Hachemi Nizar, El Hallaoui Issmail, Metrane Abdelmoutalib and Soumis François. MPILS: An Automatic Tuner for MILP Solvers. *Major Revision, Computers & Operations Research*.
- [4] **Er Raqabi El Mehdi** and Li Wenkai. An Electric Vehicle Migration Framework for Public Fleet Planning, *Minor Revision, Transportation Research Part D: Transport and Environment*.

### Working

- [5] **Er Raqabi El Mehdi** et al. OCP Optimizes its Supply Chain for Africa. **Soon to be submitted**.
  - Finalist at the IFORS Prize for OR in Development 2023
  - Selected for presentation at the *23rd Conference of the International Federation of Operational Research Societies, Santiago, Chile, on 10-14 July 2023*
- [6] **Er Raqabi El Mehdi**, El Hallaoui Issmail and Soumis François. The Primal Benders Decomposition. **Soon to be submitted**.
- [7] **Er Raqabi El Mehdi**, Yong Wu, El Hallaoui Issmail, and Soumis François. Towards Resilience: Primal Large-scale Re-optimization.

## Honors & Awards

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- IFORS Prize for OR in Development, *Finalist*, IFORS, 2023
- GERAD Competition for Doctoral Fellowships "Conference Fees", \$1,750, GERAD, 2022
- FRQNT Ph.D. Merit Scholarship, \$77,000, FRQNT, 2021
- IVADO Ph.D. Excellence Scholarship, \$75,000, IVADO Institute, 2021
- Vanier Canada Graduate Scholarship, *Finalist*, Government of Canada, 2021
- OCP Group Fellowship, \$32,000, OCP Group, 2020
- Increased Tuition Fees Exemption, \$25,000, Polytechnique Montreal, 2020
- James Brian Quinn Scholar, *MBA Batch Valedictorian*, IUJ, 2019
- Beta Gamma Sigma Academic Honor Society, *Top 1% MBA Batch*, IUJ, 2019
- Valedictorian Speech, *IUJ Graduation Ceremony*, IUJ, 2019
- Dean's List, *Academic Terms Distinction* ( $\times 3$ ), IUJ, 2017-2019
- First Year Special Recognition, *Top 1% MBA Batch*, IUJ, 2018
- ABE Initiative Scholarship, \$120,000, Japan International Cooperation Agency, 2017
- Third Year Valedictorian, *Distinction*, EMI, 2016
- EMI Industrial Challenge, \$2,000, EMI, 2015

## Research Experience

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### Griffith University (Griff)

Queensland, Australia

*Visiting Scholar*

2023 - Present

- Advisors: Prof. Yong Wu
- Research Areas: Operations Research, Re-optimization, Resilience, Supply Chain Management, Machine Learning for Operations Research
- Applications: Mining, Operations and Supply Chain Management
- Collaborations with OCP and UM6P

### Groupe d'études et de recherche en analyse des décisions (Gerad)

Montreal, Canada

*Research Assistant*

2020 - Present

- Advisors: Profs. El Hallaoui Issmaïl and Soumis François
- Research Areas: Operations Research, Large-Scale Optimization, Decompositions, Metaheuristics, Solvers, Data Science, Machine Learning for Operations Research
- Applications: Airline, Mining, Transportation, Operations and Supply Chain Management
- Collaborations with OCP, UM6P, Laminaar, and IVADO

### International University of Japan (IUJ)

Niigata, Japan

*Research Project*

2018 - 2019

- Advisor: Prof. Li Wenkai
- Developed an Electric Vehicles Migration Framework for Developing Countries
- Collaboration with Fostergergy Technologies Inc.

## Teaching Experience

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### Griffith University (Griff)

Queensland, Australia

*Teaching Assistant*

2023 - Present

- 7108IBA - Supply Chain Modelling, Postgraduate (Trimester 1 2023)
- 7102IBA - Strategic Supply Chain Management, Postgraduate (Trimester 1 2023)

### Polytechnique Montreal (Poly)

Montreal, Canada

*Teaching Assistant*

2021 - Present

- MTH6406 - Modeling in Operations Research, 4 hours/week for 13 weeks, Masters and Ph.D. (Winter 2021, Winter 2022, Winter 2023)
- Stats: Winter 2021 Average GPA: 3.70/4, Winter 2022 Average GPA: 3.73/4

## **International University of Japan (IUJ)**

**Niigata, Japan**

*Teaching Assistant*

*2018 - 2019*

- OPR1010 - Operations Management, 3 hours/week for 12 weeks, Average GPA: 3.72/4, Masters (Winter 2019)
- QIS1070 - Computer-based Decision Modeling, 3 hours/week for 12 weeks, Average GPA: 3.65/4, Masters (Fall 2019)
- QIS1020 - Applied Statistics, 3 hours/week for 12 weeks, Average GPA: 3.68/4, Masters (Fall 2019)
- Feedback: *"I could obtain B<sup>+</sup> for statistics because of your TA sessions", "Too sad that we do not have any other TA session. I really enjoyed every session", "Thank you very much Mehdi. You are a good instructor, a good teacher"*

*JDS Tutor*

*2017 - 2018*

- Tutor for MBA students under the Graduate School of International Management. Topics: QIS1020 - Applied Statistics, QIS1070 - Computer Based Decision Making, ACT1010 - Financial Accounting, FIN1010 - Corporate Finance, ECN1010 - Managerial Economics, 2 hours/week for 48 weeks
- Stats: 6 out of 7 tutored students reached the lowest GPA level required for continuing studies and graduation
- Feedback: *"As for Mehdi, it is above all the way he delivers the message with all the energy he exudes, but also the relevance of his advice. If today I am comfortable in the MBA program, it is partly thanks to his support, advice, and guidance"*

## **Work Experience**

### **Fostergy Technologies Inc.**

**Niigata, Japan**

*Operational Researcher & Data Scientist (Part-Time)*

*2017 - 2019*

- Designing an efficient and effective selection of the appropriate electric vehicle components and prediction of its behavior over different kinds of routes/duty cycles and over a huge number of parameters' choices
- Enhancing user's simulation capability and reducing development time many folds

### **ProQuest**

**Yokohama, Japan**

*Systems Engineering Intern (Part-Time)*

*Fall 2018*

- Promoting the online ProQuest's product training
- Planning, Designing, and Implementing the use of databases and the conduct of research within IUJ Library

### **Induproj**

**El Jadida, Morocco**

*Quality & Safety Manager (Full-Time)*

*2016 - 2017*

- Leading quality management through the international standard ISO 9001, quality control of the work done on the construction sites, and quality assurance into which I was dealing with customers' requirements and seeking their satisfaction
- Leading safety management through the standard OHSAS 18001 and safety control of all the work done on the construction sites. Achieved the main safety KPI of 0 accident

### **Bombardier**

**Casablanca, Morocco**

*Operations Management Intern (Full-Time)*

*Spring 2016*

- Designing and implementing an Automated Production System (APS) for assembly lines monitoring
- Introducing Data mining for knowledge extraction

### **Managem Group**

**Tinghir, Morocco**

*Industrial Challenge (Full-Time)*

*Summer 2015*

- Modeling and Simulating the Silver Treatment Plant at SMI
- Mapping of Ag rocks flows at SMI

## Selected Talks

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### Modeling for Strategic Supply Chain Management

- Griffith University Business School, Queensland, Australia, 2023

### MPILS: An Automatic Tuner for MILP Solvers

- CORS/INFORMS International Conference, Vancouver, Canada, 2022
- JOPT, Montreal, Canada, 2022

### Design of Electric Vehicle Charging Stations

- SLACJ 6th International Conference on Indo-Pacific Studies, Niigata, Japan, 2019

### Achieving Traceability within Supply Chains through Data Science

- International Conference On Advances In Cloud Computing, Data Science And Big Data Analytics, Tokyo, Japan, 2019

## Service & Engagement Activities

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### Leadership & Organizing

- *Science Popularization*: Bringing science to the general public, to disseminate scientific knowledge, foster experience sharing, and introducing research topics to students via Medium & LinkedIn, 2018-Present
- *Better Research Better Life*: Leading the organization and execution of the first Library Day in IUJ history. The initiative is still going on within more Japanese universities, 2019
- *Head of Houses*: Leading the social interaction among international students from around 70 countries through the House System. Our motto is: "Honoring Our Unique Social Environment". The initiative is still going on, 2018

### Outreach & Volunteering

- *Canadian Operations Research Society*: Volunteer in the Montreal Operations Research Student Chapter (MORSC), 2022
- *Industrial Seminars*: Speaker at several seminars within the Industrial Engineering Departement of EMI, 2019-Present
- *Tutor*: Academic orientation and schooling for Moroccan undergraduate and graduate students, 2017-Present
- *Snow Shoveling*: Volunteer in snow shoveling activities to help and support elderly citizens of Minamiuonuma City, 2018

## Skills

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- **Programming & Software**: C++, CPLEX, LaTeX, Excel, PowerPoint (Proficient), Python, R, Git, VBA, SQL (Familiar)
- **Languages**: Arabic (Native), French, English (Bilingual)
- **Interests**: Football, Snowboarding, Swimming

## Selected Media Coverage

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- **IVADO Student Portraits - Er Raqabi El Mehdi**, IVADO Institute, 2022
- **IUJ held its 2019 Graduation Ceremony**, International University of Japan, 2019
- **La coopération japonaise élargit son spectre**, Laformation News, 2017

## References

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*Full Professor*

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### **Li Wenkai**

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