

# Charly Robinson La Rocca

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## Summary

My multidisciplinary background in Machine Learning, Operations Research, Full-Stack Web Development and Physics makes me a great addition to teams that are looking to advance the state of the art.

- Great candidate for Data Scientist, ML/AI Engineer or Operational Research Developer positions.
- Expert in the integration of machine learning and combinatorial optimization.
- Proficiency in multiple programming languages and developer tools (Python, Julia, C++, Git, SQL, AI agents).

## Experience

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|-------------------|---|
| 07/2025 – present | <i>Software Developer, Core Algorithms.</i> Kinaxis, Ottawa – Remote<br>Implemented an ML-augmented combinatorial optimization heuristic to make the optimization of supply chain planning problems for pharma companies up to 5 times faster. Developed a React dashboard, a REST API in Python, C++ bindings for Gurobi, and a job scheduling system to deploy the heuristic in production. |
| 11/2024 – 06/2025 | <i>SaaS Founder.</i><br>Founded mathopt.dev, a mathematical optimization as a service platform. Users can solve combinatorial problems with a simple API and a pay-as-you-go pricing model.<br>TypeScript (Next.js) for the frontend, Python for the backend (DevOps/CLI), Docker, AWS.   |
| 11/2016 – 10/2017 | <i>Operations Research Analyst and Web developer.</i> Téo Taxi, Montréal<br>Designed dispatching algorithms which improved revenue by up to 20% [paper]. Developed a Ruby on Rails backend to manage the assignment of requests to taxis.<br>Ruby on Rails, REST, AWS, PostgreSQL, Agile, Jira, QA.   |

## Education

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|-------------|--|
| 2019 – 2025 | UNIVERSITÉ DE MONTRÉAL – Ph. D. Operations Research and Machine Learning<br><i>What are effective strategies for learning to solve combinatorial optimization problems?</i><br>Canadian National Railway Company Chair on Optimization of Railway Operations<br>Supervisors: Emma Frejinger and Jean-François Cordeau<br>Python, Julia, Gurobi, CPLEX, PyTorch, Docker, NumPy, Pandas, HPC |
| 2015 – 2016 | HEC MONTRÉAL – M. Sc. Operations Research<br>GPA : 4.0/4.3 (highest GPA of my cohort) – Thesis : A+<br>Supervisor: Jean-François Cordeau   |
| 2011 – 2015 | ÉCOLE POLYTECHNIQUE DE MONTRÉAL – B. Sc. Engineering Physics<br>GPA : 3.9/4.0  |

## Latest Peer-Reviewed Publications

- Robinson La Rocca, C., Cordeau, J.-F., Frejinger, E. *Combining supervised learning and local search for the multicommodity capacitated fixed-charge network design problem.* *Transportation Research Part E* 192 (2024), 103805. doi:10.1016/j.tre.2024.103805
- Robinson La Rocca, C., Cordeau, J.-F., Frejinger, E. *One-Shot Learning for MIPs with SOS1 Constraints.* *Operations Research Forum* 5(3) (2024), 57. doi:10.1007/s43069-024-00336-6