Giulia **Zarpellon**, Ph.D.

OPERATIONS RESEARCH · DATA SCIENCE · MACHINE LEARNING
AI SCIENTIST

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Summary

AI Scientist working at the intersection of operations research and machine learning. My **interdisciplinary training** and experiences equipped me with a **broad set of skills**, ranging from data manipulation to Python development, ML and optimization software. Passionate about **interrogating data** in search of both meaningful questions and actionable answers, I would love that my work could make a difference for **social good**!

Experience

Vector Institute · AI SCIENTIST

📅 2021 – present 📍 Toronto, Canada   [remote from New York, NY]

- Design and application of novel deep learning models to answer research questions at the intersection of AI and optimization.
- Reference figure in Combinatorial Optimization for students and faculty involved in the projects, active participation in development and analysis.

IBM Analytics · RESEARCH INTERN

📅 2017 – 2018 📍 Montreal, Canada

- Implemented SVM regression + classification pipeline to decide algorithmic switch in the solver, in 1-year with IBM CPLEX Optimizer Developers Team.
- Managed data collection (proprietary and public sources), built Python framework, designed new evaluation metrics and ran ML experiments.
- Assisted integration and deployment of tool in CPLEX 12.10.0, achieving 28% runtime improvement over previous default strategy.

Polytechnique Montreal · TEACHING ASSISTANT

📅 2017 – 2019 📍 Montreal, Canada

- Guided exercise sessions, conducted grading and support for graduate-level course in Integer Programming, 3 semesters and up to 30 students/class.

Business Integration Partners · CONSULTANT INTERN

📅 2015 📍 Milan, Italy

- 6-months on directional-oriented projects for the client's IT department, identifying opportunities to drive operations and innovate processes.
- Coordinated subdivisions and management, prepared analyses and weekly presentations for non-technical audience (MS Excel and Power Point).

Education

📅 2015 – 2020	**Polytechnique Montreal**	📍 Montreal, Canada	
	PH.D. APPLIED MATHEMATICS	GPA: 4.0/4.0	
	CERC Data Science for real-time Decision Making		
📅 2012 – 2014	**University of Padova**	📍 Padova, Italy	
	M.SC. MATHEMATICS	110/110 *cum laude*	
📅 2013 – 2014	**Aarhus University**	📍 Aarhus, Denmark	
	ERASMUS PROGRAM	GPA: 12.0/12.0	
📅 2009 – 2012	**University of Padova**	📍 Padova, Italy	
	B.SC. MATHEMATICS	102/110	

Technical skills

Data manipulation + visualization

Python | pandas | matplotlib | Jupyter | MS Excel | SQL

Statistical machine learning

scikit-learn | PyTorch

Optimization + modeling

IBM ILOG CPLEX Optimization Studio | SCIP Optimization Suite | AIMMS | AMPL | MATLAB | Mathematica

Soft skills

Communication

Talks at 10+ international conferences (AAAI, CPAIOR, INFORMS) and seminars (IBM, Mila, Vector). Writing of research papers and reports.

Interaction + teamwork

Effective collaborations with researchers from diverse fields. Interfacing with faculty, developers, engineers, IT and project managers, students.

Management + delivery

Lead role in 5 research projects, from design to publication. Deployment of ML component in IBM software (CPLEX).

Knowledge transfer

Tutorial organizer and presenter (IJCAI, AAAI). Mentoring students as Project Co-Tutor and Teaching Assistant (3 terms).

Most proud of

- > My survey paper identified fresh research opportunities and proved instrumental to grow a new field (90+ citations since 2017).
- > I transformed an issue in CPLEX into actionable data science, integrating a new tool in an IBM product.
- > I framed the known learning-to-branch problem originally and attained models with broader generalization.