

Giulia Zarpellon, Ph.D.

OPERATIONS RESEARCH · DATA SCIENCE · MACHINE LEARNING

AI SCIENTIST

📍 New York, NY ✉ gzarpellon@cs.toronto.edu 🌐 <https://gizarp.github.io>

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, machine learning and optimization software. Passionate about **interrogating data** in search of both meaningful questions and actionable answers, I love to learn and explore new approaches when presented with challenging problems!

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 development 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 PH.D. APPLIED MATHEMATICS CERC Data Science for real-time Decision Making	📍 Montreal, Canada GPA: 4.0/4.0
📅 2012 – 2014	• University of Padova M.SC. MATHEMATICS	📍 Padova, Italy 110/110 <i>cum laude</i>
📅 2013 – 2014	• Aarhus University ERASMUS PROGRAM	📍 Aarhus, Denmark GPA: 12.0/12.0
📅 2009 – 2012	• University of Padova B.SC. MATHEMATICS	📍 Padova, Italy 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 (100+ citations since 2017).
- I transformed an issue in CPLEX into actionable data science, integrating a new tool in an IBM product.
- I originally framed the “learning-to-branch” problem and attained models with broader generalization.