

## Ph.D. Student

### EDUCATION

- 2018-Present **CERC Data Science for Decision Making**, under supervision of Andrea Lodi, **Mila, Quebec Artificial Intelligence Institute**, under co-supervision of Yoshua Bengio, École polytechnique de Montréal – Ph.D. in machine learning for combinatorial optimization.
- 2016-2018 **CERC Data Science for Decision Making**, under supervision of Andrea Lodi, École polytechnique de Montréal – M.Sc. in machine learning and operations research. Ungraduated: accelerated transition to Ph.D.
- Optimization of sensors placement on a railroad network.
  - Prediction of adverse events for healthcare patients.
- 2013-2016 **l’X, École polytechnique**, Paris – France’s leading university for high-level scientific studies. M.Sc. in Data Science: Machine learning, statistics, operations research, computer vision, computer science and applied mathematics.
- 2011-2013 **Lycée Blaise Pascal**, Orsay – Two year intensive program in mathematics and physics in preparation for competitive examinations to the French Grandes écoles for scientific studies.
- 2010-2011 **Lycée Blaise Pascal**, Orsay – Scientific Baccalauréat: French secondary school diploma, awarded with Very High Honors (mention Très Bien).

### EXPERIENCE

- 2016 **VoyagePrive.com**, Aix en Provence – Data Science internship.
- Mar-Aug Built a generic distributed workflow tool for large data processing using Spark and the Apache ecosystem, and worked on member clustering and predictive marketing modelling.
- 2015 **École Polytechnique**, Paris – Kès: student body officer awarded *Outstanding Investment* by the School Director.
- 2015 **Crédit-Agricole**, Singapore – Two-month summer internship in Database management.
- July-Aug Projects involved database testing and sampling tools.
- 2014 **RSMA army centre**, Saint-Pierre, Réunion Island – Second lieutenant supervisor in a military training centre for young adults in social and professional difficulty.
- Jan-Apr
- 2013 **Saint Cyr**, Coëtquidan – Three months military training for young officers.

### PAPERS

**Ecole: A Library for Learning Inside MILP Solvers.** Prouvost A., Dumouchelle J., Gasse M., Chételat, D., & Lodi A. (2020). Under review in *INFORMS Journal of Computing*.

**Ecole: A Gym-like Library for Machine Learning in Combinatorial Optimization Solver.** Prouvost A., Dumouchelle J., Scavuzzo L, Gasse M., Chételat, D., & Lodi A. (2020). *NeurIPS Learning Meets Combinatorial Algorithm Workshop*.

**Machine Learning for Combinatorial Optimization: a Methodological Tour d’Horizon.** Bengio, Y., Lodi, A. & Prouvost, A. (2020). *European Journal of Operations Research*.

**Adverse Event Prediction by Telemonitoring and Deep Learning.** Prouvost, A., Lodi, A., Rousseau, L.-M., & Valle, J. (2019). *Health Care Systems Engineering* conference.

## PRESENTATIONS

- Feb 2021 **Recent Advances in Integrating Machine Learning and Combinatorial Optimization** – Khalil E. B., Lodi A., Dilkina B., Chételat D., Gasse M., Prouvost A., Zarpellon G., Charlin L., Online tutorial in AAAI.
- Jan 2021 **Machine Learning for Combinatorial Optimization** – Khalil E. B., Chételat D., Gasse M., Prouvost A., Zarpellon G., Charlin L., Lodi A. Online tutorial in IJCAI 2020.
- Dec 2020 **Ecole: A Gym-like Library for Machine Learning in Combinatorial Optimization Solvers** Online poster in NeurIPS LMCA Workshop.
- Nov 2020 **Ecole: A Library for Learning Inside MILP Solvers** – INFORMS, Online session presentation.
- Oct 2019 **Learning to select cutting planes in MILP** – INFORMS, Seattle session presentation.
- July 2019 **Learning a Cutting Plane Selection Policy** – Student poster at the MIP Workshop. Using reinforcement learning and graph neural networks for combinatorial optimization.
- May 2019 **Adverse Event Prediction by Telemonitoring and Deep Learning** – Health Care Systems Engineering, Montreal.
- May 2019 **Machine Learning for Combinatorial Optimization** – Optimization days, IVADO session, Montréal.
- Feb 2019 **Machine Learning for Combinatorial Optimization** – ElementAi, Montréal.
- Aug 2018 **Methodology of Machine Learning for Combinatorial Optimization** – Student talk at CERMICS Operations Research and Machine Learning summer school

## TEACHING

- 2018-2020 **Tutorials** – Interactive presentations given to research groups. Git ([Gerad](#)), PyTorch ([Gerad](#), [Mila](#), [NextAi](#)), Python packaging ([Gerad](#)).
- 2017  
Sep-Dec **École polytechnique de Montréal** – Teaching assistant for the implementation of operations research algorithms course MTH6412B (graduate course).
- 2014-2015 **Lycée Blaise Pascal**, Orsay – Teaching assistant in preparatory school. Performed oral examination of students during their weekly test.

## PRIZES AND AWARDS

- 2019-2023 **IVADO excellence Ph.D. scholarship** – Competitive 25'000CAD/year Ph.D. scholarship renewable for four years.
- 2013-2016 **Excellence scholarship** – €10'000/year scholarship paid by l'X, École polytechnique for four years.
- 2016 **Outstanding investment** as a student body officer, awarded by the school director of l'X, École polytechnique.
- 2014-2015 **Finalist in the Scientific Team Project Awards** in l'X, École Polytechnique.

## LANGUAGE AND SKILLS

<b>Languages</b>	<b>French</b> (mother tongue) – <b>English</b> (fluent) – Spanish (limited)
<b>Programming</b>	<b>Python, C/C++</b>
<b>Machine Learning</b>	<b>PyTorch, Keras, Scikit-learn</b> , Theano, Tensorflow
<b>Computer Skills</b>	Python C++ extensions and packaging, Cython, Virtual Env, Pytest, Linux, Web, Databases, Git, Make/CMake, Docker.

## OUTSIDE INTERESTS

<b>Sport</b>	Cycling, Long distance running, Climbing, Scuba diving
<b>Music</b>	Trumpet (7 years) – Grade 5 of British Royal Academy of Music