Antoine Prouvost

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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
Mar-Aug **VoyagePrive.com**, Aix en Provence – Data Science internship.
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
July-Aug **Crédit-Agricole**, Singapore – Two-month summer internship in Database management.
Projects involved database testing and sampling tools.

2014
Jan-Apr **RSMA army centre**, Saint-Pierre, Réunion Island – Second lieutenant supervisor in a military
training centre for young adults in social and professional difficulty.

2013 **Saint Cyr**, Coëtquidan – Three months military training for young officers.

TEACHING

2018 **Tutorials** – Interactive presentations given to research groups.
Git ([Gerad](#)), PyTorch ([Gerad](#), [Mila](#), [NextAi](#)).

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.

PAPERS

Bengio, Y., Lodi, A., & Prouvost, A. (2018). **Machine Learning for Combinatorial Optimization: a Methodological Tour d'Horizon.** arXiv preprint arXiv:1811.06128. (Under review for the *European Journal of Operations Research*)

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

PRESENTATIONS

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

WORKSHOPS

July 2019	**Learning a Cutting Plane Selection Policy** – Student poster at the MIP Workshop. Using reinforcement learning and graph neural networks for combinatorial optimization.

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

Languages	**French** (mother tongue) – **English** (fluent) – Spanish (limited)
Programming	**Python** (Advanced) – **C/C++**, **Java**, **Scala** (Strong) – C#, OCaml (Moderate)
Machine Learning	**PyTorch, Keras**, **Scikit-learn**, Theano, Tensorflow
Computer Skills	Python C++ extensions and packaging, Cython, Pipenv, Pytest, Linux, Network, Databases (SQL and NoSQL), Git, Make/CMake, Singularity (Containers)

OUTSIDE INTERESTS

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

Travel   International living experience: 4 years in Abu Dhabi, 2 years in London, internships in la Réunion and Singapore, studying in Montréal