Mohammed Amine Bennouna

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Education

Massachusetts Institute of Technology — Cambridge, MA
Ph.D candidate in Operations Research — *Aug 2019 – Present*

- Coursework: Mathematical programming, Probability, Robust Optimization, Reinforcement Learning, Statistical Learning. GPA: 5.0/5

Ecole Polytechnique — Paris, France
Bachelor of Science and Master of Science in Applied Mathematics — *Aug 2016 – May 2019*

- Coursework includes: Operations Research, Statistics, MonteCarlo Methods, Stochastic Processes, Game Theory, Algorithmic, Numerical Approximation and Optimization. GPA: 3.9/4 - Major GPA: 4.0/4

Lycée Louis-le-Grand — Paris, France
Classes préparatoires, Mathematics, Physics, Computer Science — *Aug 2014 – May 2016*

- Admitted to ENS ULM Paris program and Ecole Polytechnique (4th). Relevant Coursework: Real and Complex Analysis, Probability Theory, General Topology, General Algebra, Linear Algebra. GPA: 4.0/4

Research & Industry Experience

Massachusetts Institute of Technology — Aug 2019 – Present
Doctoral Research Assistant — *Cambridge, MA*

- Research interest: Data-driven Decision Making, Dynamic Optimization, Reinforcement Learning, Statistical Learning.

Columbia University — May 2019 – Aug. 2019
Visiting scholar at the IEOR department — *New York, NY*

- Worked with prof. Vineet Goyal on designing new policies for dynamic robust optimization problems.

Ecole Polytechnique — Sep. 2018 – Apr. 2019
Research Assistant at the CMAP department — *Paris, France*

- Worked with prof. Stephane Gaubert, Xavier Allamigeon, Igor Korchemski and Emmanuel Gobet.

Crédit Agricole CIB — Summer 2018
Data scientist intern — *Singapore*

- Designed and implemented a prediction-based optimization and pattern detection tool for budget optimization.

Research

Learning the Minimal Representation of a Dynamic System from Transition Data: a Novel Approach to Off-line RL
with Dessislava Pachamanova, Georgia Perakis & Omar Skali Lami. Soon to be submitted.

The Representation Power of Shallow Neural Networks
with Moïse Blanchard. Working Paper.

Near Optimal Tractable Treshold Policies for Two-stage Robust Optimization Problems
with Omar El Housni & Vineet Goyal. Working Paper.
Winner of Ecole Polytechnique's 1st Prize of research internship in Applied Mathematics.

Complexity of Interior-point Algorithms: Tropical Computations
with Yassine El Maazouz, Stéphane Gaubert & Xavier Allamigeon, Research project.

On Random Minimal Factorizations of Large n-cycles
with Yassine El Maazouz & Igor Kortchemski, Research project.

Simulating Rare Events with Hawkes Processes
with Yassine El Maazouz, Emmanuel Gobet & Martin Bompaire, Research project.

Teaching Experience

Massachusetts Institute of Technology, Teaching Assistant — Fall 2020
Optimization Methods 15.093/6.255, Graduate, 125 students — *Cambridge, MA*

Mathematical Olympiad, Instructor — 2016 – 2019
Morocco's national team IMO training — *Rabat, Morocco*

Institut Bossuet, Instructor — 2016 – 2019
Advanced mathematics for undergraduate students of top french classes préparatoire. — *Rabat, Morocco*

Skills

Languages — *Fluent:* English. *Native:* French, Arabic.
Programming — *Proficient:* Python. *Prior experience:* Julia, SQL, Maple, Java, C++, OCaml, HTML.

Community Work

Moroccan Mathematical Olympiad Society — Nov 2016 – Nov 2019
President and co-founder — *Casablanca, Morocco*

- NGO, Math&Maroc, dedicated to the preparation of Moroccan high school students to international mathematical competitions in partnership with the ministry of education.

Awards

Postgraduate Excellence Scholarship, *OCP Foundation.* 2019

Chanoine Pierre Garand award for outstanding undergraduate pathway, *Institut Bossuet.* 2016

Moroccan merit scholarship for outstanding results in entrance examination. 2016

Honorable Mention in national French national Physics Olympiad. 2016

Honorable Mention in **International Mathematical Olympiad IMO**, Cape Town, South Africa. 2014

Outside Activities

Soccer, Piano, Biking, Reading, Hiking, Debating.