Omar Bennouna

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Education

Massachusetts Institute of Technology — Cambridge, MA

PhD and MS in Computer Science — *Sep. 2022 – Dec. 2027 (expected)*

- Affiliated to Laboratory of Information and Decision Systems (LIDS).
- Working with Prof. Asuman Ozdaglar and Saurabh Amin.
- Coursework includes: *Inference and Information, Advances in Computer Vision, Mathematical Programming, Probability Theory, Machine Learning, Algorithms for Inference, Statistical Reinforcement Learning. Cumulative GPA: 5.0/5.0*

École polytechnique — Palaiseau, France

Bachelor of Science and Master of Science in Applied Mathematics — *Sep. 2019 – May 2022*

- Coursework includes: *Statistics, Introduction to Machine Learning, Optimization and Control, Theoretical Computer science, Introduction to Data Science using C++, Random Event Modeling, Monte-Carlo Methods, Operations Research, Game Theory. Cumulative GPA: 3.94/4.*

Lycée Louis-le-Grand — Paris, France

Classes préparatoires, Mathematics, Physics, Computer Science — *Sep. 2017 – June 2019*

- Two-year post secondary program in advanced mathematics and physics leading to nationwide entrance examinations to the *Grandes Ecoles* for scientific studies. *GPA: 4.0/4.*

Research Interests

Data-driven decision-making, Optimization for Machine Learning, Deep learning, Contextual Optimization

Research Experience

Massachusetts Institute of Technology — Cambridge, MA

Research assistant with Prof. Asuman Ozdaglar and Prof. Saurabh Amin — *Sep. 2022 - Present*

- Developed a new algorithm that characterizes the smallest dataset needed for optimal linear decision-making. arXiv pre-print The paper was accepted in NeurIPS 2025 and is a finalist at the INFORMS Data Mining and Decision Analytics best paper competition 2025.
- Designed a novel contextual optimization algorithm with better theoretical and practical performance than the state of the art, presented at ISMP 2024 and INFORMS annual meeting 2024. The paper was accepted in ICML 2025. ICML paper
- Working paper: creating a first-order bilevel optimization algorithm with improved guarantees over the state of the art.

Cornell Tech — New York, USA

Research Assistant with Prof. Omar El Housni and Prof. Huseyin Topaloglu — *April 2022 – August 2022*

- Developed novel state of the art algorithms for assortment optimization problems guaranteeing a $O(\frac{1}{\log n})$-approximation compared to the $O(\frac{1}{n})$ state-of-the-art approximation.
- Earned 1st prize of research internship in Applied Mathematics at École polytechnique.

Ecole polytechnique — Palaiseau, France

Research assistant in the Applied Mathematics Department (CMAP) — *Sep. 2020 – May 2022*

- Working with Prof. Stéphane Gaubert on the exploration of new algorithms to solve the quantum optimal transport problem with better complexity using semi-definite programming.
- Working with Prof . Tony Lelièvre and Prof. Amandne Véber on the behavior of the queue of pending requests on online servers and the probability of their saturation.
- Working with Prof. Charles Ollion on the detection of floating plastic in rivers using deep learning computer vision, in collaboration with the NGO Sufrider.

Industry Experience

Waymo — Mountain View, California
Data Scientist Intern — *June 2025 – Aug. 2025*

- Formerly known as the Google self driving car project. Worked with the safety team on modeling human behavior to estimate the likelihood of collision in traffic conflicts.

HireSweet — Paris, France
Machine Learning Intern — *June 2021 – Sep. 2021*

- A startup that exploits various Machine Learning techniques to help companies recruiting.
- Developed NLP algorithms using Python and language models to extract key information from any type of text and job postings.

Awards

Robert B. Guenassia Award	2024
1st prize of research internship in Applied Mathematics, *École Polytechnique.*	2022
Moroccan merit scholarship for outstanding results in entrance examination.	2019
Honorable Mention in national French national Physics Olympiad.	2018
Finalist in Moroccan International Mathematical Olympiad team selection.	2016

Teaching Experience

Lycée Saint-Louis — Paris, France
Teaching assistant in mathematics for undergraduate students — *Sep. 2020 – March 2021*

Collège-Lycée Saint-Charles — Athis-Mons, France
Volunteering as mathematics and physics teacher for high school students with special needs. — *Sep. 2019 – Apr. 2019*

Technical Skills

Languages: French (*native*), Arabic (*native*), English (*Proficient*), Japanese (*beginner*).

Programming: *Proficient:* Python, Pytorch, Gurobi, SQL. *Prior Experience:* C++, Java, OCaml, CSS, PHP, HTML.

Community work

Math&Maroc — Rabat, Morocco
President — *Oct. 2019 – Present*

- Moroccan NGO aiming at promoting mathematics and science in Morocco. LinkedIn page
- Organized multiple major nationwide events promoting science and mathematics in Morocco, as well as large scale education initiatives, for example: Math&Maroc Competition, Moroccan Tournament of Young Mathematicians, Moroccan Day or Mathematics, Math&Maroc Summer Camp.

cpge-paradise.com
Mathematics education website for undergraduate students — *Sep. 2018 – Present*

- Author of "Fundamentals of Mathematics in the French preparatory programs", an undergraduate mathematics textbook on Analysis, Topology, Linear Algebra, and probabilities to support students in preparatory programs. Currently more than 5 million views and 34000 active users. The book is available for free here.