

# Omar Bennouna

(33) 627187546 | omarben@mit.edu

## EDUCATION

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### Massachusetts Institute of Technology

*PhD in applied mathematics and CS*

Cambridge, MA

*Sep. 2022 – Present*

- Research assistant at LIDS (Laboratory of Information and Decision Systems).
- Working with Prof. Asuman Ozdaglar and Prof. Pablo Parrilo.

### École polytechnique

*Bachelor of Science and Master of Science in Applied Mathematics*

Palaiseau, France

*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

*Classes préparatoires, Mathematics, Physics, Computer Science*

Paris, France

*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 WORK

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### École polytechnique, Applied Mathematics Department (CMAP)

*Research project in optimization supervised by Prof. Stéphane Gaubert*

Palaiseau, France

*Sep. 2021 – May 2022*

- Explored new algorithms to solve the quantum optimal transport problem with better complexity using semi-definite programming.

### École polytechnique, Applied Mathematics Department (CMAP)

*Research project in advanced statistics supervised by Prof. Tony Lelièvre and Prof. Amandine Véber*

Palaiseau, France

*Apr. 2021 – June 2021*

- Studied the behavior of the queue of pending requests on online servers and the probability of their saturation.

### École polytechnique, Applied Mathematics Department (CMAP)

*Research project in deep learning supervised by Prof. Charles Ollion*

Palaiseau, France

*Sep. 2020 – June 2021*

- Worked on the detection of floating plastic in rivers using deep learning computer vision, in collaboration with the NGO Sufrider.

## INTERNSHIP EXPERIENCE

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### HireSweet

*Machine Learning Intern*

Paris, France

*June 2021 – Sep. 2021*

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

### Cornell Tech

*Research Assistant*

New York, USA

*April 2022 – August 2022*

- Working on assortment optimization problems with Omar El Housni and Huseyin Topaloglu.
- Developed novel algorithm with competitive theoretical guarantees compared to the state of the art.
- Earned 1st prize of research internship in Applied Mathematics at École polytechnique.

## AWARDS

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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

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### Lycée Saint-Louis

*Teaching assistant in mathematics for undergraduate students*

Paris, France

*Sep. 2020 – March 2021*

### Collège-Lycée Saint-Charles

*Volunteering as mathematics and physics teacher for high school students with special needs.*

Athis-Mons, France

*Sep. 2019 – Apr. 2019*

## TECHNICAL SKILLS

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**Languages:** French (*native*), Arabic (*native*), English (TOEFL score: 107), Japanese (*beginner*).

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

## COMMUNITY WORK

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### **Math&Maroc**

Rabat, Morocco

*Head of education pole*

*Oct. 2019 – Present*

- Moroccan NGO working with the ministry of education to train students sitting for the IMO, and promoting mathematics in Morocco in general.
- Contributed to the Moroccan IMO team training.
- Helped over 1800 Moroccan students to prepare for the baccalaureate by creating educational content and gathering volunteering teachers.

### **cpge-paradise.com**

*Education website for undergraduate students*

*Sep. 2018 – Present*

- Writing and publishing mathematics courses (Analysis, Topology, Linear Algebra ...) to support students in preparatory programs. Currently more than 1 million views and 14000 active users.
- The book is available here: [https://cpge-paradise.com/MP4Math/MP4\\_book.pdf](https://cpge-paradise.com/MP4Math/MP4_book.pdf)