

Abir HARRASSE

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Education

Master Degree in Industrial Engineering

EMINES-UM6P

Engineering degree program

Sept 2022 - present

Coursework includes: multivariable calculus, Probabilities, Martingale strategies, Statistics, Lebesgue integration, measure theory, linear programming, biomedical engineering, Monte-Carlo method, Robotics, Analytics, Principles of economics

Preparatory classes: Maths- Physics- CS - Robotics

EMINES-UM6P

Preparatory classes program

Sept 2020 - June 2022

Coursework includes: Real Analysis, General Topology, General Algebra, Linear Algebra, Electromagnetics, Electronics, Robotics

Papers

Adversarial Multi-Agent Evaluation of Large Language Models through Iterative Debates

Chaithanya Bandi, Hari Bandi, Abir Harrasse.

Available at: arXiv:2410.04663

Industry Experience

Withmartian

September 2024 - Present

Research Intern

Bay Area, San Francisco

- Contributing to the development of more reliable LLMs routers and exploring methods to enhance the interpretability and trustworthiness of current Large Language Models.

Research Experience

LLMs evaluating LLMs

April 2024 - August 2024

Research Intern, supervised by **Prof. Dr. Chaithanya Bandi** National University of Singapore

- Developed adversarial agentic architectures for evaluating LLM outputs. This project involved designing multi-agent systems where LLMs act as advocates, judges, and juries to dynamically assess responses. By implementing evaluation frameworks that improve decision-making through iterative adversarial interactions, we achieved up to a 8% improvement over existing evaluation techniques. We are submitting this work to the ICLR 2025 Conference.

RL with generative models

Jan 2023 - Jan 2024

Research assistant

College of Computing-UM6P

- I worked under the supervision of **Prof. Dr. Omar Saadi** on model-based reinforcement learning with generative models. My role included testing existing algorithms and exploring ways to enhance their runtime or sampling complexity.

Product Assortment Optimization

June 2023 - July 2023

Research Intern

Africa Business School - UM6P

- I researched the assortment optimization's problem theoretical and its impact on retailer profitability under the supervision of **Prof. Agnès GORGE**. We explored the assortment problem under substitution and demand uncertainty and designed a new ML heuristic to solve our problem. The research report is accessible through: published report.

Key Achievements and Projects

BCG Platinion Hackathon

Winner

October 2023

BCG Casablanca

- Our mobility solution, which optimizes the matchmaking process between transporters, suppliers, and demanders of goods, secured the top national prize and the second-place in the international round. The hackathon drew participants from 7 major global cities.

Morocco IoT and AI Challenge

Finalist

September 2023

Marrakech, Morocco

- As a finalist in the Morocco IoT and AI Challenge, I presented an ongoing project called Med-Flamingo. It merges medical visual language models with Large Language Models (LLMs) to develop a medical **chatbot**. This chatbot converses with patients in **Moroccan Dialect**, answering medical questions and creating reports for healthcare professionals. Currently, we are actively working on enhancing the AI safety aspects of our solution. The project is accessible through: medical chatbot

Assets flood protection

Project leader

Mar 2023 - Apr 2023

EMINES-UM6P

- We developed exact algorithms to optimize the cost of building walls around a city of assets for small data and meta-heuristic algorithm to tackle the case of large data

Asthma Mathematical Modelisation

Project leader

Oct 2022 - Dec 2022

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- Under the guidance of **Prof. Marcel Filoche**, our biomedical engineering project applied mathematical modeling, employing Navier-Stokes equations to simulate asthma and gain insights into respiratory airflow during attacks. The project is accessible through: results.

NaMO - Preparing for IMO's 61st edition

Participant

Jan 2019-March 2020

Rabat, Morocco

Among the top 30 participants selected for the country's most prestigious mathematical competition, where the best high school students gathered to prepare for international contests like the International Mathematical Olympiads (IMO).

Awards

National Moroccan Merit Scholarship FAR

For the first 50 national scores of high school final examinations

UM6P Excellence Scholarship

For outstanding results in entrance examinations

Selected Courses

MIT introduction to deep learning
Stanford CS 224N

MIT's introduction to NLP
Stanford's NLP course

Skills

Languages

Native: Arabic, French. *Fluent:* English. *Beginner:* Mandarin

Programming Languages/Tools

Python, Pytorch, Transformers, Diffusers, Datasets, Slurm, FICO Xpress, SQL

Volunteering

The GenAI Winter School

Oct 2023-Present

Organizer

Taking an active role in the coordination and organization of The **GenAI Winter School**, an upcoming event set to welcome distinguished researchers including **Yann Le Cun**, **Eric Xing**, and other prominent figures in the field.

MathMaroc

Sept 2021-Present

Vice General Secretary

Collaborating with fellow members to organize events, workshops, and outreach programs to engage students and enthusiasts in the exploration and appreciation of mathematics.

President and Founder of E-maths

Jan 2021 - June 2021

EMINES-UM6P

Founded the first mathematics club at EMINES-UM6P to promote math culture through ludic activities, conferences and peer-to-peer workshops and study groups. Organized orientation sessions connecting students with alumni to explore academic and research pathways.

General Secretary and co-founder of Rotaract EMINES

Jan 2022 - June 2022

EMINES-UM6P

A club with a social impact that aims to make students have a positive impact on local communities in need.