

# Ahmad Rammal

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## EDUCATION

### **MVA (Mathématiques, Vision, Apprentissage) - Master 2**

2023 – 2024

#### **Highest Honors, GPA: 4/4**

Highly competitive renowned program in the field of mathematical modelling and machine learning

Relevant Coursework:

- Reinforcement Learning
- Advanced learning for text and graph data
- Introduction to AGI Safety
- Foundations of Distributed and Large Scale Computing Optimization

### **ECOLE POLYTECHNIQUE - Ingénieur Polytechnicien**

2020 – 2023

#### **High Distinction, GPA: 3.91/4**

- Merit scholarship for my 3rd -year academic performance (**Year GPA: 3.96/4**)
- Specialization in Applied Mathematics

### **SAINT JOSEPH UNIVERSITY - French preparatory classes MP\***

2018 – 2020

Ranked among top 1% in the faculty of engineering.

## RESEARCH EXPERIENCE

### **JPMorgan Chase & co**

Paris, France

#### **AI Researcher**

April 2024 – Present

- Research on Mathematical Reasoning in LLMs:
  - Paper accepted at NeurIPS 2024 Workshop MATH-AI and selected for oral presentation (top 4%). Available on arXiv:2410.16973.
  - Evaluated the impact of synthetic data on improving mathematical problem-solving abilities.
  - Enhanced LLM architecture for better performance in math tasks.

### **King Abdullah University of Science and Technology**

Thuwal, Saudi Arabia

#### **Researcher in the group of Peter Richtárik**

April 2023 – October 2023

Nominated by Ecole Polytechnique for the best internship award.

Contributed to two research papers:

- *Communication Compression for Byzantine Robust Learning*:
  - Paper accepted at AISTATS 2024 and available on arXiv: arXiv:2310.09804
  - Led the research effort as first author.
- *Correlated Quantization for Faster Non-convex Distributed Optimization*:
  - Submitted to AISTATS 2025 and available on arXiv: arXiv:2401.05518

### **Surf-Metrics**

Paris, France

#### **Research Intern**

June 2022 – September 2022

- Research on the state of the art in the area of sentiment analysis.
- Designed a semi-supervised NLP model based on the theory of orthonormal spaces.
- Created a pipeline from scratch to scrape and analyse data in order to evaluate companies on Twitter.

### **SAINT JOSEPH UNIVERSITY**

Beirut, Lebanon

#### **Teaching assistant in Mathematics**

September 2020 – January 2021

- Prepared students for Ecole Polytechnique's entrance exam.
- Taught classes, prepared supervised homework, corrected students' papers, and graded oral exams.

## SIDE PROJECTS

### **Gram-Schmidt Model**

June 2022 – September 2022

A semi-supervised approach applied on binary classification based on the theory of orthonormal spaces.

## SKILLS AND HOBBIES

- **Programming** – Python, Pytorch, *Scikit-Learn*, *Flask*, *Git*, *Aws*
- **Languages** - English fluent, French fluent, Arabic native, German beginner.
- **Hobbies** – Calisthenics, guitar, cycling, reading.