

# Ahmad Rammal

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## EDUCATION

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

2023 – 2024

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

Relevant Coursework:

- Introduction to AGI Safety
- Theoretical foundations of Deep Learning
- Advanced learning for text and graph data
- Foundations of Distributed and Large Scale Computing Optimization
- Introduction to Probabilistic Graphical Models and Deep Generative Models

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

2020 – 2023

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

Specialization in Applied Mathematics.

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

2018 – 2020

Ranked among top 1% in the faculty of engineering.

## RESEARCH EXPERIENCE

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

Thuwal, Saudi Arabia

**Researcher in the group of Peter Richtárik**

April 2023 – October 2023

Contributed to two research papers for *AISTATS 2024*:

- *Communication Compression for Byzantine Robust Learning*:
  - Led the research effort as the primary author.
  - Paper available on arXiv: [arXiv:2310.09804](https://arxiv.org/abs/2310.09804)
- *Correlated Quantization for Faster Non-convex Distributed Optimization*:
  - Anticipated publication soon.

### ***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 capable of scraping and analysing data in order to evaluate a company's ESG score 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

### ***SCAFFOLD algorithm extension***

September 2022 – December 2022

- Integrating Byzantine-robustness to SCAFFOLD (Karimireddy et al.) using variance reduction.
- Studying and visualizing the bounded gradient assumption.

### ***Image Classification and Segmentation***

October 2022 – November 2022

Second prize winner in McKinsey's Quantum Black Hackathon at Ecole polytechnique.

### ***Gram-Schmidt Model***

June 2022 – September 2022

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

### ***Forest Cover Type Prediction***

October 2021 – January 2022

Using machine learning techniques to classify forest cover types based on a set of features.

## EXTRACURRICULAR

### ***Institut Polytechnique de Paris Students' Council***

Palaiseau, France

#### **Off-Campus Event Officer**

October 2023 – Present

- Organize and coordinate off-campus events to enhance student engagement and community building.
- Collaborate with external partners and local businesses to secure venues and sponsorships for events.

### ***XPROJETS - The junior enterprise of Ecole Polytechnique.***

Palaiseau, France

#### **Vice President**

October 2021 – December 2022

- Built XProjets' global strategy in collaboration with each member of the enterprise.
- Organizing "Congrès Régional du Printemps 2022" in collaboration with four junior enterprises.
- Negotiating with the school's administration to obtain the national student entrepreneur status for the members of XProjets.

#### **Project Manager**

April 2021 – December 2022

- In charge of managing clients, recruiting qualified students to carry out assignments, and establishing the enterprise's proposal.
- Signed two missions of a strategic and digital nature

#### **Quality Manager**

April 2021 – October 2021

- Developed written and formalized processes for the enterprise's commercial development.
- Launched a data-driven study on the enterprise's missions.
- Summarized results and presented a commercial strategy to senior members.

### ***X-LIBAN - The association of Lebanese students at Ecole Polytechnique***

Palaiseau, France

#### **President**

November 2021 – March 2023

- Managing the relation with the school's administration, the alumni association and the Lebanese associations in other schools.
- Raised a fundraising for the Lebanese students after Lebanon's financial crisis.
- Organized Lebanese themed events for Ecole polytechnique's students.
- Expanded the association size by including the Masters and Bachelors of the school.

### ***Model United Nations (MUN) club***

Palaiseau, France

#### **Club Member**

September 2021 – February 2022

- Weekly debating, public speaking training (2h/week), and study of international affairs
- Represented Ecole polytechnique at URJCmun 2022 Madrid conference

## SKILLS AND HOBBIES

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

## Awards

- Merit scholarship for my 3rd-year academic performance at Ecole polytechnique (GPA: 3.96/4)