

# Ruben IFRAH

M.Sc. Student in AI – École Polytechnique & Dauphine-PSL

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## Education

**Dauphine - PSL**  
M2 IASD (AI, Systems, Data)

2025 – Present  
Paris, France

- Highly selective research-oriented Master's program
- Directed by Olivier Cappé & Francis Bach
- co-accredited ENS-Ulm & Mines Paris

**École Polytechnique**  
Ingénieur Polytechnicien diploma

2021 – 2025  
Palaiseau, France

- Majored in Applied Maths and Statistics
- Economy minor: econometrics, financial models, micro/macro economy
- Strong scientific background: general physics, quantum physics, fluid mechanics, solid mechanics, econo-physics
- GPA: 3.7/4.0

**Lycée Saint-Louis**  
CPGE PCSI-PSI\*

2019 – 2021  
Paris, France

- A two-year intensive program in physics, mathematics and engineering sciences
- Top of the 2020-2021 PSI\* class

## Experience

**Clevaligner**  
Data Scientist Intern

June 2025 – Aug. 2025  
Paris, France

- Worked in a startup on AI applied to the medical field (dental correction).
- Responsible for assessing and implementing SOTA models in point-cloud teeth segmentation (Transformer-based PointNet).
- Assisted AI engineers in designing and constructing point-cloud pipelines.

**University of Valencia**  
Research Assistant (Statistics)

April 2024 – July 2024  
Valencia, Spain

- Worked on ecological inference estimators and statistical modeling.
- Developed an extended model using different norms for estimator efficiency.

**MBDA**  
Applied Research Intern

May 2023 – Aug. 2023  
Plessis-Robinson, France

- Conducted applied research to optimize anti-jamming filters on stochastic signals.
- Developed advanced stochastic models and simulations using MATLAB.
- Collaborated with defense industry experts on signal processing challenges.

**French Army (Saint-Cyr)**  
Officer Cadet / Platoon Leader

Sept. 2021 – April 2022  
Martinique & Coëtquidan

- Platoon Leader (Jan 2022 - April 2022):** Led a platoon of 30 new recruits soldiers in Martinique. Organized training exercises and managed logistics.
- Military Academy (Sept 2021 - Jan 2022):** Intensive officer training at Saint-Cyr Coëtquidan. Developed leadership, rigor, and team management skills.

## Objective

I am an **Ingénieur Polytechnicien** (X21) currently pursuing the **M2 IASD** (AI, Systems, Data) at Dauphine-PSL. With a pluridisciplinary background in Physics / Economics and **Applied Mathematics**, I am looking forward for opportunities in Machine Learning, with a strong interest on Deep-RL and Computer Vision.

## Projects

### Deep RL Autonomous Racing Agent



- Developed an autonomous F1 racing agent using PPO, DQN, and Dueling DDQN algorithms.
- Built a custom Gym environment with LIDAR perception and procedural track generation (Harmonic Noise).

### Spotify Recommender System



- Developed a personal music recommendation pipeline using based on my own Spotify playlists

### Bayesian Probabilistic Matrix Factorization



- A study on Probabilistic Matrix Factorization for recommender systems.

### Computer Vision as a Defense



- Exploring adversarial attacks and defense mechanisms in computer vision.

### MNIST Generative via VAE GANs



- Generating handwritten digits using Variational Autoencoders.

## Skills

### Languages & Tools

- Python: Pytorch, Gymnasium, Hugging Face, APIs
- MATLAB, Java, R
- Git, Docker, LaTex

### Maths Expertise

- Stochastic models: Markov Processes, Time series
- Optimization: convex and non-convex
- Numerical Analysis, ODEs

**Languages:** French(Native), English(C1), Spanish(B1)

## Coursework

### AI & Theory

- Foundations of Machine Learning (*F. Bach*)
- Reinforcement Learning (*O. Cappé*)
- Computer Vision (*T. Walter*)
- Large Language Models (*A. Allauzen*)

### Probability & Statistics

- Markov Processes
- Times series
- Probability theory and Stochastic Processes

- DataBases Management Systems
- Data acquisition
- Python for ML

### Other Graduate courses

- Physics:** Quantum Physics, General Physics, Electromagnetism
- Mechanics:** Fluid Mechanics, Solid Mechanics
- Economy:** Econo-Physics, Econometrics, Micro/Macro-economy