Ismail Labiad

X2020 | MVA

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Education & Diplomas

2023 - 2024 **Master 2**, *Mathematics, Vision, Learning (MVA)*, ENS Paris-Saclay
Relevant courses: 3D computer vision, Geometric data analysis, Generative models for images, Inverse problems and imagery: statistical and stochastic approaches, Algorithms for speech and NLP, Online algorithms, Convex optimization

2020 - 2024 **Engineering Degree**, *Diploma of École Polytechnique*, Ecole Polytechnique
Applied Mathematics Major
Relevant courses: Statistics, Fundamentals of CS, Operations research, Monte Carlo methods, Advanced algorithms, Robots and drones, Advanced ML and autonomous agents, Optimization, Regression and classification, 3D Computer Graphics

Professional Experience

2023 **Research Intern**, INRIA (Magnet Team), Lille, 5 months
Title Fairness in fully decentralized federated learning
Description Proposed a decentralized version of SearchFair and provided theoretical guarantees on the obtained level of fairness for the practical version of the algorithm.
Supervisors Michael Perrot and Batiste Le Bars

2022 **Research Intern**, ReciTAL, Paris, 3 months
Description Developing and analyzing the training of the latest NLP models on document processing.
Supervisor Jacopo Staiano

2021 **Software Engineer Intern**, Freterium, 1 month
Description Developed an optimization algorithm for the 3D bin packing problem with additional constraints (rotations, weight limit and client-grouped products) and worked closely with the dev team to test it on a client dataset.

Teaching

2020 – 2021 **Tutor**, Lycée Paul Eluard, 5 months
Description Helped high-school and undergraduate students in mathematics and physics by organizing small tutoring groups and adapting abstract concepts (as part of the human and military training program at Ecole Polytechnique).

Academic Projects

2023 **Research project**, 3 months, Principal Component Analysis
Description The theoretical aspect of PCA (perturbation theory) and some of its applications:

spectral clustering, image compression, anomaly detection.

Supervisor: Karim Lounici

2023 — **Snake Game,** group project, Reinforcement Learning

Description: Investigated the effect of state coding on the agent and proposed a trained agents that matches human performance on small boards. project report

2022 — **Research project**, 3 months, Tropical Support Vector Machines

Description: Proof of the existence of an optimal margin separating tropical Halfspace/Hyperplane and development an algorithm to compute it.

Supervisors: Stéphane Gaubert and Xavier Allamigeon

2022 — **Group project**, Acoustic keyboard eavesdropping

Description: Reconstructing typed text from keyboard taps audio recording using AI and Hidden Markov models in collaboration with "Gendarmerie Nationale".

Personal Projects

2022 — **Chrome Dino**, Python

Description: Creating a Chrome Dino game copy and an RL agent capable of learning to play the game from visual inputs.

2021 — **Sarcastic headline classification,** Python

Description: Used GloVe word vector representation with LSTM layers to classify a dataset of news headlines.

Computer Skills

Programming	Python, Java, C#, Dart, C/C++, R
Technologies	Flutter, Unity
Tools	Git, LaTeX

Languages

French	Fluent
English	Fluent
Arabic	Mother tongue
Spanish	Beginner

Other

Software dev	Mobile/Web Apps, Games
Sport	Cross-training, Climbing