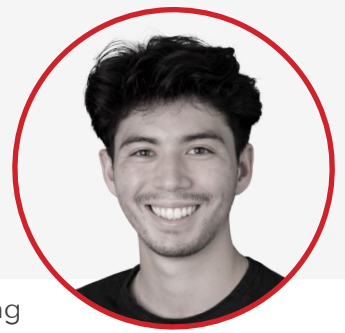


RAPHAEL ATTIAS

EPFL STUDENT IN DATA SCIENCE



I am fascinated by Machine Learning techniques and their applications, as I am reinforcing my skills with both a deep understanding of the theoretical insights and state-of-the-art technologies. With the recent data revolution and breakthrough in computational power, only creativity will dictate the next steps of this technological era that I am thriving to be part of.

EDUCATION 2022 - 2023



Harvard Medical School

Master Thesis in joined program with EPFL and Harvard in **Bioinformatics** department.

2017 - 2022

Swiss Federal Institute of Technology in Lausanne (Switzerland)

- Master in **Data Science** (Master Cycle: 5.51/6).
- Focus on machine Learning, computer vision and theoretical learning theory
- Bachelor of Sciences in **Mathematics** (Bachelor Cycle: 5.06/6).
- Focus on numerical analysis, statistics, optimization and modeling problems.

2016 - 2017

Lycée Stendhal of Milan, Baccalauréat (Italy)

Scientific french high-school diploma, mathematics specialization (score: 16.98/20).

PROFESSIONAL EXPERIENCE



2023

Visiting Postgraduate Researcher Fellow at Harvard

In the context of my Master Thesis at EPFL, will work on Machine Learning empowered pathology detection, supervised by Prof. Yu and Prof. Van De Ville. I will work on algorithms to analyze digital whole-slide histopathology images, with the goal of predicting patients' diagnoses and prognoses.

2022

Research & Software Intern at NEC Laboratories in Princeton, NJ

Implemented and researched the various techniques of data augmentation to improve results on a complex multi-class segmentation problem. In the Medical Machine Learning department, I motivated the use of GANs to produce new samples.

2021

Deep Learning Internship at Arcanite

Worked on the deployment of a state-of-the-art GAN model for generating hand written words, with the goal of writing a full library in Pytorch Lightning. This framework relied on a deep understanding of Computer Vision and complex ML system.

PROJECTS & PUBLICATIONS



2021

Detecting Rooftop Area for installing PV modules with Deep Learning

Won the 2nd place for best project presentation, presented at the CISBAT 2021 and published in the Journal of Physics. With Prof. Castello, we worked on Deep-learning for the detection of available for solar panel installation from satellite images. This computer vision problem relied on U-net architecture of neural networks done in Pytorch, and reached state of the art performance.

Movie Recommendation System in Spark for Big Data

Developed and deployed a movie recommendation system in Scala with Spark. The movie recommender is modeled with an approximate k-NN system that can predict efficiently over several machines the best movie for a user

Robust Journey Planning for CFF Zurich

Developed and deployed a journey planner using Spark to compute and visualize the best transportation and path using Zurich Transportation System. Using CFF data, we built a predictive model that solved efficiently the transportation problem. (score: 6/6)



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PROJECTS & PUBLICATIONS

2021



Decentralized Federated Learning using D-Cliques topology

Researched the decentralized implementation of a Federated Learning algorithm in the Scalable Computing Systems Laboratory at EPFL. Supervised by Prof. Karmarec, I explored and identify the computational implications of a Decentralized approach to a state-of-the-art topology (D-Cliques) in a research environment.

TECHNICAL SKILLS



Programming Languages

- Python : **Pytorch**, TensorFlow, Pandas, SKlearn
- Scala : **Spark**
- SQL: MySQL, OracleSQL, NoSQL
- Matlab
- R
- C++

Machine Learning and Programming

Machine Learning (score: 5.75/6), Reinforcement Learning, Natural Language Processing, Automatic Speech Processing, Computer Vision, Systems for Data Science (Big data systems and large scale processing)

Numerical Analysis and Statistics

Statistics for Data Science (6/6), Advanced Numerical Analysis (5.75/6), Numerical Approximation of PDEs (5/6), Applied Biostatistics (5.5/6), Time Series (5.25/6), Linear Models (5.25/6), Graph Theory (4.5/6)

SKILLS



Collaborative Coding and Deployment

Proficient in version control system systems such as Github and Gitlab, and in project deployments with Docker.

Time management, cooperation and collaborative work

Ability to organize my work under pressure.

Ability to coordinate a group project in a timely manner.

Experience in interactions in a dynamic and changing environment.

ENGLISH



Great level of English proficiency (C1 oral / C1 written)

TOEFL certificat (100/120), high school diploma (19/20)

SPANISH

High school knowledge (B2)

ITALIAN

Practical knowledge

I currently live both in Milan (Italy) and Lausanne (Switzerland)

FRENCH

Native

EXTRA-CURRICULAR ACTIVITIES



Communication Manager for CQFD

Member of the presidency of the Association of Mathematics Students (CQFD)

Theatrical Improvisation with Impro Academy at EPFL

Tennis and Guitar

PERSONAL INFORMATIONS



Born in Marseille (France), March 4th 1999.

23 years old, french nationality, no military obligation

Domiciled in Milan, but lives in Switzerland for studies.



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