Raphaël Attias

Boston, MA • 929-600-4563 • raphael_attias@hms.harvard.edu • raphaelattias.com • LinkedIn • Github

Education

09/2022 – 03/2023
Boston, USA

Harvard University, *Master Thesis*
- Develop advanced Machine Learning methods to analyze slide pathology images.
- Motivated Self-Supervised Learning for detecting regions of interest in an unlabeled set of slide images.
- Extend the existing framework by implementing and testing Convolutional Nets, Vision Transformers, and other state-of-the-art models using Pytorch.

09/2020 – 03/2023
Lausanne, Switzerland

Swiss Federal Institute of Technology (EPFL), *Master Degree in Data Science*
Focus on Machine Learning, Data Science, and Computer Vision. Grade: 5.36/6

09/2017 – 09/2020
Lausanne, Switzerland

Swiss Federal Institute of Technology (EPFL), *Bachelor Degree in Mathematics*
Focus on Numerical Analysis, Statistics, and Numerical Optimization. Grade: 5.02/6

Professional Experience

09/2022 – present
Geneva, Switzerland

Software Developer, *University of Geneva*
- Developed in Python a web library for understanding energy needs with graph modeling.
- Contributed to an existing framework by adding key features when handling networks and geodata.

02/2022 – 08/2022
Princeton, USA

Software & Research Intern, *NEC Laboratories America*
- Tested data augmentation techniques in order to improve model generalization for the segmentation of cancer cells in whole-slide pathology images.
- Contributed to the existing framework in Pytorch by implementing an uncertainty estimator.

09/2021 – 02/2022
Lausanne, Switzerland

Teacher Assistant in Machine Learning CS-433, *Swiss Federal Institute of Technology (EPFL)*
Graded projects, wrote part of the exam, and maintained weekly TA sessions.

07/2021 – 09/2021
Lausanne, Switzerland

Machine Learning Intern, *Arcanite*
- Implemented a Generative Adversarial Network (GAN) to produce images of handwritten text.
- Wrote a Python library using Pytorch Lightning using the original work of GANWriting (2021).

Projects

2022

Decentralized Federated Learning using D-Cliques topology, *Grade: 90/100*
Contributed and experimented on a Distributed Federated Learning framework using Pytorch.

2021

Movie Recommendation System in Spark for Big Data, *Grade: 90/100*
Reached SOTA performance on a recommander system on the MovieLens dataset using Spark in Scala.

2021

Robust Journey Planning for CFF Zurich, *Grade: 100/100*
Built in group a journey planner using Swiss transportation dataset with PySpark, BeHive, and Kafka.

2021

Robust Deep Learning Diagnosis of Pneumonia from Chest X-ray Data, *Grade: 90/100*
Implemented and tested a self-supervised learning model to detect pneumonia from chest X-rays.

2021

Reinforcement Learning for moon landing in OpenGym, *Grade: 90/100*
Implemented in Tensorflow an agent to perform moon landing using Q-Learning.

Publications

09/08/2021

Quantification of the suitable rooftop area for solar panel installation from overhead imagery using Convolutional Neural Networks, *Journal of Physics*

Skills

Machine Learning (Python, Pytorch, Lightning, Tensorflow, Scikit, Huggingface, Wandb)

Big Data (Python, Scala, Spark, Beautiful Soup, Kafka) • **Data Science** (R, Python, Pandas, Statsmodel, Seaborn)

MLOps (Python, Docker, Spark ML, Airflow, Ray, Kubernets) • **Software Engineer** (C++, Python, Scala, Github, Docker, FastAPI)

Reference Letters

Prof. Martin Jaggi, *Professor of Machine Learning*, EPFL

Dr. Eric Cosatto, *Senior Researcher*, NEC Labs America

Prof. Kun-Hsing Yu, *Professor of Biomedical Informatics*, Harvard Medical School