

# DHIA HMILA

#### Senior Data Scientist at AXA France

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# PROFESSIONAL EXPERIENCE

#### Senior Data Scientist

#### **Data Science Team, AXA France**

- June 2021 Present
- Nanterre, France
- Automated the indexing of 70% of AXA's incoming documents by developing a retrainable document classification AI System (exposed as an API).
- Developed text extraction AI Systems using computer vision to read documents (Driver's license, National ID card, etc.). The models processed over 6M documents in batches using PvSpark Jobs
- Developed a range of reusable python packages for document processing (OCR, object detection, etc.) The packages are designed using the strategy pattern to quickly experiment with different algorithms / models.
- Created a YAML-based templating system to streamline the creation of Azure ML pipelines.
- Built reusable Azure ML Pipelines (Continuous Training) to automatically retrain Al Systems and publish to Model Registry.
- Designed Azure DevOps CI/CD/CT pipeline templates to be used in the Team's projects.
- Led the hiring process, onboarding new team members and facilitating efficient knowledge transfer.
- Coordinated the annotation process with annotators and SMEs (subject matter experts) to ensure consistent datasets across various projects.
- Led AXA's 'Python COP' initiative, organizing a series of monthly programming talks and events on topics such as testing, web scraping, packaging, code qual-
- Teached a series of training sessions/courses on Python, Data Manipulation (pandas & pyspark). Software Engineering best practices for over 30 AXA collaborators.

#### **Graduate Data Scientist**

#### Data, Fraud, Waste & Abuse Team, AXA France

- May 2020 June 2021
- Nanterre, France
- Engineered an advanced Al-driven Fraud, Waste, and Abuse Detection Tool with a wide-ranging impact across multiple scopes, including Claims, Health Providers, Beneficiaries, and more. This innovative tool played a pivotal role in achieving savings exceeding 150k euros in 2022.
- Designed and trained various fraud detection models for fraudulent patterns as part of the FWA detection tool.

# **Data Scientist**

## **Shift Technology**

- April 2019 March 2020
- Paris. France
- Applied Natural Language Processing (NLP) techniques to cluster Claim managers' notes, leveraging advanced visualization methods to uncover and identify emerging fraud patterns.
- Built new AI Models for Shift's fraud detection solution & Deployed their solution for a new customer.

## **ABOUT**

I am a passionate Data Scientist and programming enthusiast who has tackled challenges in fraud/anomaly detection and document classification. I am also an active contributor on GitHub.

# **EDUCATION**

## Engineering double degree

- ENSTA ParisTech
- **ENIT**
- **2016 2019**
- France Tunisia

Specialized in Artificial Intelligence

## **Preparatory School**

- IPEIT
- 🙎 Esprit Prépa
- **2014 2015**
- France Tunisia

Specialized in Mathematics & Physics Ranked 10th in the entrance exam for engineering schools among 3,000 candidates.

# SKILLS

## **Machine Learning**

mlflov	w scil	kit-learn	Tenso	rflow	pytorch						
trax	pyod	transfo	rmers	huggingface							
pytorch-lightning											

## **Computer Vision**

OpenCV	torchvi	sion	Vision Transformers							
VGG16	YOLO	Feat	ture Matching	tesseract						
easy-ocr	paddle	OCR								

## **Natural Language Processing**

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## **Data Wrangling**

pandas	pyspark	SQL	ETL
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## Research Internship

#### **U2IS - ENSTA Paris**

- **May 2018 August 2018**
- Palaiseau, France
- Created a synthetic image dataset by building a simulation of an agent in an in-house environment and using Raytracing to render realistic images.
- Studied Catastrophic Forgetting in Incremental Learning of Principal Components of generated Images

## **PROJECTS**

mlflower: Lightweight orchestration tool for mlflow projects

mlflow orchestration experiment-tracking

November 2023 - Present

Tool to extend mlflow projects with inbuilt multi step workflow orchestration

pysira: publish resumes in different formats

Github Actions Jinja2 Templates jsonschema

February 2023 - Present

CLI tool to export 'jsonresume' files to different formats (HTML, TeX, PDF, etc.) and languages.

- Created a CI/CD pipeline (Github Actions) to publish resumes in different themes, formats and languages
- This resume was created using pysira: hmiladhia.github.io, hmiladhia.github.io/cv.pdf, English hmiladhia.github.io/fr/kendall or hmiladhia.github.io/resume.pdf
   French

nbmanips: Split, merge and convert IPython Notebooks

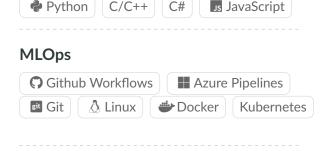
Jupyter Databricks Zeppelin

May 2021 - Present

An open-source package containing a collection of tools to manipulate Notebooks via a python or CLI.

- Developed a python package/CLI to manipulate (Split, Merge, ...) Jupyter Notebooks
- Used CI/CD piplines (Github Actions) to Lint, Test and publish the package to Pypi

## **Programming Languages**



#### Cloud



## Web Scraping



#### Web



## **LANGUAGES**

Arabic English French German



# **CERTIFICATES**



Coursera 2023 2023

Machine Learning Engineering for Production (MLOps)

Coursera = 2022 2022

Machine Learning & General Coding Logic
Triplebyte # 2023 2023

TOEIC Listening and Reading Test (Score 985/990)

ETS Global = 2018 2018

# **PUBLICATIONS**