



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

- 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 PySpark 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.
- Automated the indexing of 70% of AXA France's incoming documents by developing a retrainable document classification AI System (exposed as an API).
- Reduced the workload of the help-desk by developing an LLM-based RAG system to answer insurance agents questions.
- Created a YAML-based templating system to streamline the creation of Azure ML pipelines.
- Built reusable Azure ML Pipelines (Continuous Training) to automatically retrain AI 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 quality, etc.
- 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 AI-driven Fraud, Waste, and Abuse Detection Tool that inspects different 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.

ABOUT

I am a Senior Data Scientist and I specialize in fraud/anomaly detection and document classification. My expertise extends to leading-edge technologies, including machine learning, computer vision, and natural language processing. Additionally, I have a strong understanding of MLOps practices, ensuring seamless integration of ML models into production environments.

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

mlflow scikit-learn Tensorflow pytorch
trax pyod transformers huggingface
pytorch-lightning

Computer Vision

OpenCV torchvision Vision Transformers
VGG16 YOLO Feature Matching tesseract
easy-ocr paddleOCR

Natural Language Processing

nlTK spaCy Gensim torchtext langchain

Data Wrangling

- Built new AI Models for Shift's fraud detection solution & Deployed their solution for a new customer.

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

mlflow: 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, hmiladhia.github.io/fr/kendall or hmiladhia.github.io/resume.pdf

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 pipelines (Github Actions) to Lint, Test and publish the package to Pypi

Spot-Language: Programming Language Detection

Classification Flask NLP Lime

January 2020

Spot-Language is a classification model to detect the language used in code snippets.

- Assembled a training dataset using public repositories on GitHub.
- Built an ML experiment to train an NLP model for language classification.
- Improved model interpretability using Lime.
- Deployed a demo Web Application of the ML model using flask.

pandas pyspark SQL ETL

Programming Languages

Python Rust JavaScript C/C++ C#

MLOps

Github Actions Azure Pipelines Git Linux Docker Kubernetes

Cloud

Azure ML Databricks Heroku

Web Scrapping

selenium requests BeautifulSoup4

Web

HTML CSS JavaScript fastapi flask Dash

LANGUAGES

Arabic
English
French
German



CERTIFICATES

- Machine Learning Engineering for Production (MLOps) Specialization
DeepLearning.AI 2022 2022
- Natural Language Processing Specialization
DeepLearning.AI 2024 2024
- Cloud-Native Development with OpenShift and Kubernetes Specialization
Red Hat 2023 2023
- Rust Fundamentals
Duke University 2024 2024
- Rust for DevOps
Duke University 2024 2024
- Rust for LLMOps (Large Language Model Operations)
Duke University 2024 2024
- DevOps, DataOps, MLOps
Duke University 2024 2024
- MLOps Tools: MLflow and Hugging Face
Duke University 2023 2023



Introduction to Large Language Models

Google Cloud



2023 2023



TOEIC Listening and Reading Test (Score 985/990)

ETS Global



2018 2018