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

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

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 sciki		it-learn	Tensorflow		pytorch	
trax	pyod	transformers		huggingface		
pytor	ch-lightn	ing				

Computer Vision

OpenCV	torchvi	sion	Vision Transf	ormers
VGG16	YOLO Feature Matching		tesseract	
easy-ocr paddleOCR				

Natural Language Processing

	nltk	spaCy	Gensim	torchtext	langchain
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Data Wrangling

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

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 isonschema

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

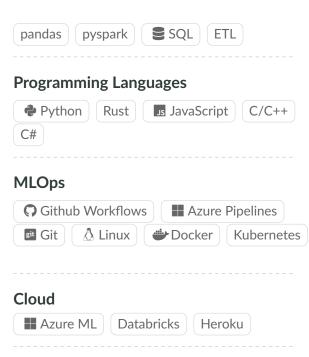
Spot-Language: Programming Language Detection

Classification Flask **NLP** Lime

January 2020

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

- 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.



Web Scraping

BeautifulSoup4 selenium requests

Web

HTML CSS Js JavaScript fastapi **I** flask Dash

LANGUAGES

Arabic **English** French German



CERTIFICATES

Machine Learning Engineering for Production (MLOps)

> **2022 2022** DeepLearning.AI

Natural Language Processing DeepLearning.Al **2024** 2024

Cloud-Native Development with Open-**Shift and Kubernetes Specialization** DeepLearning.AI

Rust Fundamentals

2023 2023

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 **2024 2024 Duke University**

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