

Mohamed Habib

Data Scientist

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 GitHub

 LinkedIn

 Portfolio

EXPERIENCE

• Terminal à conteneurs de Nouakchott (TCN)

Data Scientist – Full-time

Aug – Present

Nouakchott, Mauritania

- Data exploration, data analysis, and creation of interactive dashboards in Power BI.

• Terminal à conteneurs de Nouakchott (TCN)

Intern

5 months

Nouakchott, Mauritania

- Design and development of a web application for digital and automated maintenance management, using Django, PostgreSQL and Docker.

- * Centralization of real-time intervention reports with multi-role authentication (17 profiles).
- * Dynamic forms according to sections (Crane, Workshop, Facility).
- * Interactive dashboards for KPI monitoring via Bokeh.
- * Automated emailing system for post-shift reminders.

Integration of an AI layer for predictive maintenance:

- * Binary and multi-class classification models to predict and categorize failures.
- * Model tracking and versioning with MLflow.
- * Automation of retraining via Airflow.
- * CI/CD pipeline deployed with Jenkins on local server.

Banque Nationale de Mauritanie (BNM)

3 months

Intern

Nouakchott, Mauritania

- Development of a Django application to manage ATM transactions and track those to be cancelled due to network outages.
- Participation in the BNM_Data_Warehouse project, a web application to centralize and organize data via Django, facilitating analysis and decision-making.

EDUCATION

– Engineering Degree in Statistics and Data Engineering

2020 – 2025

École Supérieure Polytechnique (ESP), Mauritania

PROJECTS

– Transactional Fraud Detection

2025

Machine Learning Project

- * The project focused on a critical challenge: Transactional Fraud Detection. We implemented and compared several unsupervised machine learning models, including Isolation Forest, LOF, and a Deep Learning AutoEncoder, to identify complex and even unknown fraud patterns without needing pre-labeled data.

– Educational Inequality and Illiteracy Analysis

2023-2024

Data Analysis Project

- * Analysis of educational inequalities and illiteracy in Mauritania and creation of a logistic regression predictive model to assess illiteracy status based on characteristics such as gender, age, etc.

– Smart Agriculture Platform

Oct. 2023 - Present

Agricultural Technology Platform

- * Development of an integrated platform for agriculture: crop recommendation, production forecasting, pest control, real-time weather data. Use of innovative technologies such as AI and IoT to optimize yields and ensure sustainability.

– Fine-tuning an LLM for Sentiment Analysis

2025

NLP, Deep Learning

- * Fine-tuning of a language model (LLM) with **PEFT (Parameter-Efficient Fine-Tuning)** and **LoRA (Low-Rank Adaptation)** for sentiment analysis.
- * Implementation of training and evaluation pipelines with **Hugging Face Transformers**, **PyTorch**, **TRL** and **PEFT**.
- * Performance optimization by reducing computational cost while improving prediction accuracy.

– CI/CD Pipeline with Real-time Monitoring for Spring Application

November 2024

DevOps Project

* Creation and automation of a complete CI/CD pipeline: build, tests, deployment and monitoring.

* Tools used: Git, Jenkins, Maven, JUnit, Nexus, SonarQube, Docker, Prometheus, Grafana.

* Code quality improvement, alert automation and performance optimization.

– Recommendation System for Project Management

2025

AI, NLP, Graph Neural Networks

* Development of an intelligent information retrieval system for project managers, integrating **RAPID-GNN** and **RAG** for contextual knowledge access.

* Construction of a data processing pipeline including ingestion, preprocessing and indexing of unstructured information.

* Use of **Graph Neural Networks (GNNs)** to model relationships between entities and improve document retrieval accuracy.

* Implementation of **RAG (Retrieval-Augmented Generation)** for contextual content retrieval, optimized with **FAISS** and **Hugging Face Transformers**.

* Deployment of the application as a desktop interface with **Tkinter**.

TECHNICAL SKILLS

Programming Languages: R, Python, Java, Scala, SQL, Stata, MongoDB, HTML, CSS

Tools and Frameworks: Jupyter Notebook, Visual Studio, MySQL Workbench, Mlflow, Apache Airflow, Google Colab, Apache Spark, Apache Kafka, Jenkins, Nexus, SonarQube, Docker, Grafana, Prometheus

Development Frameworks: Django, Flask, Spring, Angular

Soft Skills: Teamwork, motivation

LANGUAGES

– **Arabic:** Native

– **French:** B2

– **English:** Intermediate

– **German:** Beginner

ACHIEVEMENTS

– First place in ESP Datathon for transactional fraud detection

CERTIFICATIONS

– **Natural Language Processing with Classification and Vector Spaces**

– **Natural Language Processing with Probabilistic Models**

– **Natural Language Processing with Attention Models**

– **Natural Language Processing with Sequence Models**

– **Introduction to Microsoft Azure Cloud Services**

– **Microsoft Azure Services and Lifecycles**

– **DevOps: CI/CD with Maven, Jenkins, SonarQube, Nexus**