

Mohamed Habib

Data Scientist

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🐙 GitHub

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👛 Portfolio

EXPERIENCE

- **Terminal à conteneurs de Nouakchott (TCN)** *Aug – Present*
Data Scientist – Full-time Nouakchott, Mauritania
 - Data exploration, data analysis, and creation of interactive dashboards in Power BI.
- **Terminal à conteneurs de Nouakchott (TCN)** *5 months*
Intern 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