Mohamed Habib
Data Science Engineer

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⊙ Mohamed Habib
in Mohamed Habib
💼 Web Portfolio

EDUCATION

- **Engineering Degree in Statistics and Data Engineering** *2022 – 2025*
  École Supérieure Polytechnique (ESP), Mauritania

- **Exchange Semester in Data Science** *2024 – 2025*
  ESPRIT (École Supérieure Privée d'Ingénierie et de Technologies), Tunisia

- **Scientific Preparatory Classes – National Engineering Competition of Mauritania (CNIM)** *2020 – 2022*
  Institut Préparatoire aux Grandes Écoles d'Ingénieurs (IPGEI), Nouakchott Grade: Good

- **Scientific Baccalaureate** *2020*
  Lycée Islah Raiid, Nouakchott Grade: Good

EXPERIENCE

- **Terminal à conteneurs de Nouakchott (TCN)** *6 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.

PROJECTS

- **Educational Inequality and Illiteracy Analysis** *2023-2024*
  Machine Learning 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.

- **Conversion Rate Challenge** *2023-2024*
  Machine Learning Project

  – Development of a conversion rate predictive model for an anonymous website, followed by recommendations for the marketing team to optimize revenue.

- **Smart Agriculture Platform** *Oct. 2023 - Present*
  Agricultural data analysis platform serving farmers

  – 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.

- **Age and Gender Prediction from Voice Data** *April 2024*
  Deep Learning Project

- Development of a deep learning model based on LSTM to predict age from voice data. Data was collected and preprocessed to train the model for accurate prediction. Skills used: LSTM, GitHub, Deep Learning, Python, Git.

- **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.

- **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.

- **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 speaker

- **French:** DELF B2

- **English:** Intermediate

CERTIFICATIONS

- **Natural Language Processing with Classification and Vector Spaces**
  Certification link

- **Natural Language Processing with Probabilistic Models**
  Certification link

- **Natural Language Processing with Attention Models**
  Certification link

- **Natural Language Processing with Sequence Models**
  Certification link

- **Introduction to Microsoft Azure Cloud Services**
  Certification link

- **Microsoft Azure Services and Lifecycles**
  Certification link

- **DevOps: CI/CD with Maven, Jenkins, SonarQube, Nexus**
  Certification link