Sola Achref

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SUMMARY

Data & Machine Learning Engineer with expertise in building scalable ML pipelines and deploying models to production. Driven by continuous learning, collaboration and team spirit

SKILLS

- **Programming:** Python, SQL, Java, JavaScript
- **Frameworks & Libraries:** React, Node.js, Express, Flask, Pygame
- **Databases:** PostgreSQL, MySQL, MongoDB
- **ML & AI:** Scikit-learn, PyTorch, TensorFlow, NLP, Random Forests, XGBoost
- **Cloud & DevOps:** AWS (S3,EC2), Azure, Docker, Kubernetes, Jenkins, Linux
- **Visualization:** Power BI, Matplotlib, Seaborn
- **Collaboration Tools:** Git, Jira, Agile/Scrum

PROFESSIONAL EXPERIENCE

Tunisian United Solution - Sousse | Machine Learning & Data Engineer Intern   Feb 2025 - Jun 2025

Project : Customer Churn Prediction & Segmentation System.

- Built a churn prediction system using **XGBoost** (92% accuracy) and segmented customers with **K-Means/K-Prototypes** (silhouette score 0.86).
- Automated **ETL workflows** with Apache **Airflow** pulling from OData endpoints and private APIs.
- Containerized ML pipeline with **Docker** for reproducible deployment on cloud-based **Linux** VMs.
- Integrated outputs into **ERP** systems via **REST APIs** and reduced churn risk by 15% during pilot phase.
- Developed interactive dashboards using Chart.js to visualize churn probabilities, cluster profiles, and customer trends for business stakeholders.

Lab-IT - Sousse | Data Engineer Intern   Jun 2024 - Aout 2024

Project : IoT Data Pipeline Automation for Analytics

- Designed and deployed scalable ELT pipelines using PySpark to process large volumes of IoT sensor data in batch mode.
- Loaded raw IoT data into **AWS S3** and transformed it inside **Redshift** for BI dashboards.
- Used Jenkins to schedule and orchestrate **PySpark** workflows, containerized with Docker for consistency across environments.
- Optimized existing pipeline by reducing batch data processing latency by 40%.

VISTO - Sousse | Data Science Intern   Jun 2023 - Jul 2023

Project : Predictive Maintenance – Manufacturing Analytics

Developed a predictive maintenance system to anticipate equipment failures and reduce downtime.

- Collected and integrated machine sensor and operational data from multiple sources.
- Cleaned, normalized, and engineered features to improve model performance using Python (**pandas, NumPy**).
- Conducted exploratory data analysis (**EDA**) to identify failure patterns and key predictive signals.
- Built and **fine-tuned** predictive models using **Random Forest** and **LSTM** for time-series failure prediction.
- Visualized predictive insights and failure probabilities through interactive dashboards

ACADEMIC PROJECTS

MLOps Workflow Automation
Developed an automated ML workflow for a products demand forecasting system to optimize inventory management

Orchestration: Built an automated ML pipeline that retrains and deploys models using Apache Airflow.

Containerization & Deployment: Containerization with Docker, and deployment to Azure Kubernetes Service

Key words: Airflow, Docker, Azure

Fuel Price Analytics Dashboard
Built a dynamic dashboard analyzing fuel price trends with 15 KPIs and 20 visualizations. Processed data to enable time- based insights and real-time monitoring.

Key words: PowerBIDesktop

Grammar and Spelling Correction Web App
Developed a grammar and spelling correction web app using a fine-tuned T5 model with the AdamW optimizer for improved accuracy.

Backend: developed with flask, handled real-time inference

Frontend: React based frontend ensured seamless user interaction and optimized performance.

Key words: Python, PyTorch, HuggingFace, Transformers, Flask, React

Car Price Gap Predictor
Built a machine learning model to predict price differences between new and used cars of the same brand and model with 92% accuracy. Scraped 30 features, cleaned and processed data, and used Random Forest for accurate predictions.

Key words: Python, Scrapy, playWright, Pandas, Scikit-learn, Random Forest

EDUCATION

Polytechnic School, Sousse   **Sep 2022 - Jul 2025**
- Engineering Degree in Computer Science

Higher Institute of Applied Sciences and Technology, Sousse   **Sep 2019 - Jul 2022**
- Bachelor's Degree in Computer Science

CERTIFICATIONS

- IT Specialist – Python | Certiport
- IT Specialist – Databases | Certiport
- Databricks Lakehouse Fundamentals | Databricks
- Oracle Cloud Infrastructure AI Foundations Associate | Oracle
- DELF – B2 | France Éducation International
- TOEIC – B2 | ETS (Educational Testing Service)

LANGUAGES

English - French - Arabic