Emna Tounssi

Data Scientist and AI Engineer | Machine Learning, Deep Learning, Generative AI
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Profile

Data scientist and AI engineer with an engineering degree in modeling and data science (2026) and a strong mathematical background. I cover the full lifecycle of machine learning projects, from data exploration and preprocessing to model training, evaluation and deployment, on tabular data, images, time series, sensor signals, text and unstructured data. I also build generative AI applications: LLM agents, RAG and LLM evaluation.

Experience

AI Engineer Intern, final-year project, PwC Tunisia, Risk Services, Tunis | Feb 2026 – Jul 2026

- Designed and built a multi-agent LLM platform (LangGraph, 8 agents) that analyzes SAS, Python and R code of credit-risk models and generates their technical documentation.
- Built the evaluation protocol: deterministic checks plus an independent LLM judge; faithfulness score of 0.96 over 46 evaluations and 100% code coverage on 20 programs.
- Delivered a working proof of concept with a technical report; project defended with distinction.

Data Science Intern, Navitrends, remote | Jul 2025 – Aug 2025

- Full ML lifecycle on 1.83 GB of unlabeled web logs: exploration, cleaning, 11 engineered features per IP and 5-minute window, Isolation Forest compared with an autoencoder.
- Validated the model without ground truth (external labels plus injected anomalies): recall 1.00, precision 0.85, F1 0.92.
- Integrated the model into a near real-time monitoring application with automatic PDF alerts and responses under 200 ms.

Projects

Epileptic seizure detection from EEG signals (academic project, team of two) | 2025

- Multichannel sensor-signal pipeline on CHB-MIT (24 patients): time, frequency (PSD, wavelets) and entropy features, Boruta channel selection, one Random Forest per patient.
- Per-patient validation and threshold tuning on the F2-score: 31 of 32 seizures detected (recall 95.3%, precision 99.5%), detection latency 1.85 s.

Facial emotion recognition, computer vision (personal project) | 2026

- Audited FER2013 and removed 7,976 of 35,887 faulty images, including train/test duplicates that inflated scores; ResNet-18 reached 82.7% on the clean test set.
- Real-time inference on video with OpenCV face detection and a CNN classifier.

DataBot: AI agent for end-to-end data science (personal project) | 2026

- Web application (FastAPI backend, React frontend) around a LangGraph agent that runs data science workflows on databases and writes reports; Docker sandbox and about 330 automated tests.

Skills

Machine learning: classical ML and deep learning, statistics, feature engineering, model validation and testing, hyperparameter tuning, anomaly detection, time series, computer vision, NLP
Generative AI: LLM agents (LangGraph, LangChain), RAG (FAISS, embeddings), prompt engineering, LLM evaluation (LLM as a judge)
Languages and libraries: Python, SQL, PyTorch, TensorFlow/Keras, scikit-learn, OpenCV, NumPy, Pandas
Deployment and tools: FastAPI, Flask, React, Docker, Git, automated testing

Education

Engineering Degree in Modeling and Data Science (MINDS), National Engineering School of Tunis (ENIT) | 2023 – 2026
Bachelor's in Mathematics and Computer Science, Faculty of Sciences of Tunis | 2020 – 2023
Ranked first in my class.

Certifications

DataCamp: Deep Learning in Python with PyTorch, Oct 2026; AI Engineer for Data Scientists Associate, Dec 2025; Reinforcement Learning in Python, Nov 2025

Languages

Arabic (native), French (C1), English (B2)