

Saad Driouech

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Profile Summary

Machine Learning Engineer combining research depth with hands-on LLM engineering. Published across NLP, TTS, and applied ML (5 peer-reviewed papers); also ships end-to-end AI systems: agentic pipelines (LangGraph), RAG (Qdrant), and automated curation workflows (n8n, Airflow). M.Sc. AI at FAU, grade 1.2 (Top 1%).

Experience

Fraunhofer IIS Nuremberg, Germany
Generative AI Research Engineer (Working Student) 03/2025 – Present

- Training diffusion-based generative models for GNSS signal reconstruction, iterating on architectures and loss functions to stabilise training and prevent mode collapse.
- Designed evaluation frameworks to measure robustness under noise and distribution shift; experimented with spectrogram and complex IQ data representations; tracked experiments with TensorBoard.

August-Wilhelm Scheer Institut Saarbrücken, Germany
Applied Machine Learning Engineer (Working Student) 12/2023 – 02/2025

- Built end-to-end ML pipelines for garment return prediction, achieving **86% balanced accuracy** on cold-start products; refactored preprocessing for a **5x speedup**.

Hightech Payment Systems Casablanca, Morocco
Development Engineer 06/2023 – 08/2023

- Enhanced PowerCARD payment switching platform for VISA/Mastercard compliance; worked with SQL, Docker, CI/CD pipelines, and Linux in a professional engineering environment.

Al Akhawayn University Ifrane, Morocco
Applied NLP Research Engineer (Part-time) 09/2022 – 05/2023

- Pre-trained transformer language models (52M–80M params) for low-resource Moroccan Darija; fine-tuned on text summarization (ROUGE-1 **19.25**, state-of-the-art), topic classification (**F1 0.84 / Acc 0.86**), and offensive language detection (**90% accuracy / 85% F1**).

Education

Friedrich-Alexander-Universität Erlangen-Nürnberg Erlangen, Germany
M.Sc. Artificial Intelligence 10/2023 – 05/2026

Grade: 1.2 (Top 1%). Thesis: Spatial Control Mechanisms for Scale-Wise Transformers (SWITTI).

Al Akhawayn University Ifrane, Morocco
B.Sc. Computer Science 09/2018 – 07/2022

GPA: 3.83 (Summa Cum Laude). Thesis: Darija TTS using FastSpeech 2 + HiFi-GAN (MOS 3.9), published at ICDTA 2025.

Personal Projects

ApplAI 2026

- Automated job application pipeline: n8n cron orchestration, FastAPI backend, Gemini 2.5 Flash scoring, Claude Sonnet for LaTeX CV/cover letter generation, Discord review gates, Notion dashboard, Docker Compose; security-first (JD sanitization, Ed25519 verification, parameterized SQL).

PaperLens 2026

- RAG search system: FastAPI, Qdrant, sentence-transformers, reranking, Groq (Llama-3.3-70b); custom retrieval quality evaluation metrics.

CurateAI 2026

- Automated AI news curation pipeline: Apache Airflow 2.x DAG (twice-daily), Tavily search, Claude scoring via Instructor, Discord bot with reaction-based HITL feedback loop that improves curation over time, Docker Compose.

Technical Skills

ML & DL: PyTorch, TensorFlow, Scikit-learn, XGBoost, Diffusion Models, Transformers

NLP & Speech: LLMs, TTS (FastSpeech 2, HiFi-GAN), Fine-tuning (LoRA/PEFT), Hugging Face, spaCy

LLM Systems: LangChain, LangGraph, LlamaIndex, RAG, Qdrant, FAISS, OpenAI/Anthropic/Groq APIs

Infra: Python, FastAPI, SQL, Docker, Airflow, Git, CI/CD, Linux

Languages: English (Fluent), French (Advanced), Arabic (Native), German (Learning)