

Zakaria Narjis

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Experience

Machine Learning Engineer — full-time May 2025 – Present
Institut für Neuro- und Bioinformatik, University of Lübeck

- Developing clinical NLP solutions for causal relation extraction; Fine-tuning open-source LLMs (LoRA/QLoRA), architecting a KG-RAG pipeline with UMLS integration, co-designing annotation workflows with domain experts, and building scalable post-processing and evaluation pipelines.
- Developing generative diffusion models to synthesize realistic iSCAT nanoparticle microscopy images for data augmentation.

ML Research Engineer — Master's Thesis Oct. 2024 – Apr. 2025
Institut für Neuro- und Bioinformatik, University of Lübeck

- Developed end-to-end deep learning pipelines for nanoparticle segmentation and size estimation from iSCAT microscopy in collaboration with Harvard University; benchmarked SAM, Mask R-CNN, CellViT, UNet; achieved 76% F1 / 81% Dice on held-out test set.

Machine Learning Engineer — intern Apr. 2024 – Sep. 2024
Institut für Neuro- und Bioinformatik, University of Lübeck

- Built and deployed an end-to-end RL-based image enhancement system achieving state-of-the-art results on MIT-Adobe FiveK (26.75 dB PSNR, 0.85 SSIM); shipped as a live [demo app](#) on Hugging Face Spaces.

ML Research Engineer — part-time Aug. 2023 – Mar. 2025
Institut für Technische Informatik, University of Lübeck

- Designed deep RL algorithms for adaptive beamforming in mmWave/THz MIMO systems; results published in *IEEE Transactions on Communications* — ieeexplore.ieee.org/document/11296930

Education

M.Sc. Robotics and Autonomous Systems Apr. 2023 – Apr. 2025
University of Lübeck, Germany

M.Eng. Electrical & Energy Systems Engineering Sep. 2015 – Jul. 2021
École Nationale Supérieure d'Arts et Métiers, Casablanca

Projects

AI Portfolio Chatbot zakaria-narjis.com

- Built and deployed a personal portfolio featuring a RAG chatbot with prompt injection protection and topic-scoped guardrails.

NutriMind: Diet Recommendation web app [demo app](#)

- Built an end-to-end diet recommendation app with 20,000+ unique users and 250+ GitHub stars.

ModularRL: An Open-Source Reinforcement Learning Library modularl.readthedocs.io

- Built and maintain an open-source modular RL library for rapid prototyping with full documentation.

Skills

NLP & LLMs: Transformers, Fine-tuning (LoRA / QLoRA), RAG, Knowledge Graphs, NER, LangChain, LlamaIndex, FAISS, Hugging Face, ONNX, vLLM.

ML / DL Frameworks: PyTorch, TensorFlow, Scikit-Learn, OpenCV, Weights & Biases, MLflow.

MLOps & Deployment: Docker, FastAPI, Streamlit, AWS, GitHub Actions, CI/CD, Portainer.

Programming: Python, SQL, C/C++ | **Infrastructure:** Linux, NVIDIA DGX, Git.

Languages: English (professional), French (bilingual), German (B1, actively improving), Arabic (native).