Zakaria Narjis

Germany — Open to Relocation (International) | zakaria.narjis.97@gmail.com | github.com/zakaria-narjis
linkedin.com/in/zakaria-narjis | zakaria-narjis.com | **EU Blue Card**

Experience

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

- Developed an end-to-end biomedical NLP pipeline for NER, UMLS entity linking, coreference resolution, and LLM-driven causal relation extraction, with results structured as a provenance-aware Neo4j knowledge graph.
- Fine-tuned open-source LLMs (Gemma, LLaMA, Qwen) with LoRA/QLoRA, achieving +21% F1 improvement for NER and relation extraction; built post-processing pipelines for data quality and coreference resolution.
- Developed generative diffusion models to synthesize realistic iSCAT nanoparticle microscopy images for data augmentation, improving downstream segmentation performance.

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.
- Trained and evaluated SAM, Mask R-CNN, CellViT, and UNet; achieved 76% F1 / 81% Dice on the held-out test set.

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

- Built and deployed an RL-based image enhancement system achieving state-of-the-art results among RL methods on MIT-Adobe FiveK (26.75 dB PSNR, 0.85 SSIM); 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 optimization in mmWave/THz MIMO systems; evaluated deep learning methods for modulation classification.
- Published *Fast and Efficient Reinforcement Learning of Beam Codebooks in mmWave and THz MIMO Systems*, 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

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, Celery, Redis, AWS, GitHub Actions, CI/CD.

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

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