

Umut Gökdemir

AI / MACHINE LEARNING ENGINEER

Regensburg, Germany | contact@umutgokdemir.com

[LinkedIn](#) | [GitHub](#) | [Portfolio](#)



PROFESSIONAL SUMMARY

Machine Learning Engineer building and evaluating AI/ML systems across NLP, semantic retrieval and agentic LLM workflows. Hands-on with Python, PyTorch, Hugging Face, FastAPI and LangGraph, from transformer fine-tuning to hybrid ranking and evidence-grounded evaluation. M.Sc. Computational Science with strong quantitative modelling and experimentation skills.

CORE SKILLS

Machine Learning: PyTorch, scikit-learn, XGBoost, pandas, NumPy, Deep Learning, Model Evaluation, Feature Engineering, PCA, K-means

NLP & Retrieval: Hugging Face Transformers, SentenceTransformers, Named Entity Recognition, Embeddings, Semantic Search, Hybrid Ranking

AI / LLM Systems: LangGraph, Agentic Workflows, LLM Evaluation, Evidence-Grounded AI, OpenAI, Gemini, Ollama

Engineering: Python, FastAPI, Pydantic, REST APIs, Streamlit, pytest, mypy, Ruff, GitHub Actions, Docker, Linux, AWS EC2, Git

PROFESSIONAL EXPERIENCE

Machine Learning Engineer Intern | **EnlightyAI** - Remote

May 2025 - Oct 2025

- Improved span-level micro-F1 from 0.44 to 0.75 by fine-tuning and evaluating five BERT/XLM-R variants for Turkish social-media named entity recognition.
- Improved training-data quality across 6,000 annotated tweets by refining preprocessing, annotation guidelines, validation and systematic prediction/error analysis; built a reproducible PyTorch/Hugging Face workflow on AWS EC2.
- Led an 8-person internship team, coordinating annotation, preprocessing, model training and evaluation through workload planning, weekly progress reviews and consolidated reporting.

Machine Learning Engineer Intern | **Functional Genomics Laboratory** - Regensburg, Germany

Mar 2024 - Jun 2024

- Reduced the analysis data footprint by approximately 40% by building a Python preprocessing workflow for high-dimensional DESI mass-spectrometry imaging data.
- Preserved 95% of explained variance with PCA before four-cluster K-means segmentation, mapped clusters back to spatial coordinates and validated molecular-density patterns across follow-up scans.

SELECTED PROJECTS

CareerMatch Agent - Explainable AI Job Search System | [GitHub](#)

Python, PyTorch/SentenceTransformers, LangGraph, FastAPI, Pydantic, LLMs, REST APIs, pytest, mypy, Ruff

- Built an end-to-end AI-assisted job-matching system that converts CV PDFs and natural-language preferences into ranked recommendations using FastAPI, LangGraph, SentenceTransformers and structured LLM workflows.
- Designed provider-agnostic OpenAI, Gemini and Ollama integration plus multi-provider job retrieval across Arbeitnow, Adzuna and Jooble, with runtime model/provider selection and bounded search replanning.
- Combined deterministic filtering, semantic/hybrid ranking and evidence-grounded LLM evaluation, added a Streamlit workflow, benchmark tooling for precision/recall/NDCG/MRR/latency and quality gates with pytest, mypy, Ruff and GitHub Actions.

Predictive Maintenance Machine Learning Pipeline | [GitHub](#)

Python, scikit-learn, XGBoost, cross-validation, PR-AUC/ROC-AUC, model interpretability

- Built a modular end-to-end classification pipeline on the 10,000-record AI4I dataset, comparing eight models and engineering domain-informed power, temperature-gap and mechanical-strain features.
- Selected a tuned Random Forest with 0.876 held-out Average Precision, 0.947 precision and 0.794 recall, detecting 54 of 68 failures with three false alarms.
- Used out-of-fold threshold selection, calibration, cost-sensitive evaluation, bootstrap confidence intervals, permutation importance, subgroup/error analysis and reproducible CLI artifact generation.

EDUCATION

M.Sc. Computational Science | **University of Regensburg** - Regensburg, Germany

2026

Focus: Machine learning, numerical methods, scientific computing and computational modelling.

B.Sc. Physics | **Middle East Technical University** - Ankara, Turkey

2021

LANGUAGES

German - A2 / Actively studying | **English** - C1 / Fluent | **Turkish** - Native