Anar Amirli

Last updated in September 2025

Date of Birth: June 1997
Nationality: Azerbaijani (eligible to work in the EU)
Address: 66111, Saarbrücken, Germany
anar.amirli@gmail.com · anaramirli.com · github.com/anaramirli

Education

Universität des Saarlandes — Saarbrücken, Germany
M.Sc. Computer Science — *Oct 2019 – Aug 2025*

- Grade: 2.5 (in German scale) | DAAD (Deutscher Akademischer Austauschdienst) Full Graduate Scholarship

Baku Engineering University — Baku, Azerbaijan
B.Eng. Computer Engineering — *Sep 2014 – Jun 2019*

- Grade: 1.3 (in German scale) | Graduated with Honors | Government Scholarship for Academic Excellence

Selected Work Experience

Research Assistant & Master's Thesis (Machine Learning) — Saarbrücken, Germany
DFKI GmbH (German Research Center for Artificial Intelligence) — *Mar 2023 – Aug 2025*

- Thesis Title**:** "*Beyond Heatmaps: A Visual Concept-Based Explainable Model via Graph Attention Networks*"
- Developed a self-supervised **explainable AI (XAI) model** with Graph Attention Networks for **skin cancer diagnosis**, achieving **~3%** higher accuracy than baseline models (e.g., CBMs) built on foundation model embeddings while providing clinical interpretability through concept-based explanations.
- Conducted extensive research on multimodal foundation models (e.g., CLIP, MedCLIP) to benchmark and analyse concept-based explainability in **medical imaging.**
- Used tools: PyTorch, PyTorch Lightning, OpenCV
- Advisors: Prof. Antonio Krüger and Prof. Daniel Sonntag

Machine Learning Research Assistant — Saarbrücken, Germany
DFKI GmbH (German Research Center for Artificial Intelligence) — *Nov 2021 – Sep 2022*

- Built and deployed **end-to-end solutions** for **risk detection** in manufacturing lines at Schott AG, improving accident localization accuracy with **post-hoc XAI** methods by **~13%**.
- Fine-tuned **LLMs** (e.g., T5, BART) to **generate incident reports** from telemetry sensor data to assist early incident assessment.
- Used tools: Hugging Face, TensorFlow, TensorBoard, Pytest, Docker, AWS
- Team Leader: Prof. Wolfgang Maaß

Generative AI Research Assistant — [remote]
TESLAB, NTU Singapore — *Feb 2021 – May 2022*

- Built a **multimodal-to-image translation** framework with Generative AI models (e.g., GANs) for topology optimisation of 2D/3D structures, achieving **91–99%** accuracy, enabling near real-time optimisation.
- Integrated the framework into **a full pipeline** to replace heavy simulation models.
- Used tools: TensorFlow, Docker, Flask, FastAPI
- Supervisor: Dr. Bakytzhan Akhmetov

Machine Learning Intern — Baku, Azerbaijan
ATL Tech — *Jan 2019 – Jun 2019*

- Contributed to the development of a **speech recognition system** using for aviation training simulation.
- Performed **feature engineering** and preprocessing of unstructured audio data (e.g., spectrograms, MFCCs), training LSTM and Hidden Markov Models on cockpit command samples.
- Used tools: TensorFlow, SciPy, Scikit-learn
- Supervisor: Assoc. Prof. Samir Rustamov

Data Science & Machine Learning Intern — Ankara, Turkey
ImageLab, Middle East Technical University — *Jun 2018 – Sep 2018*

- Built a ML pipeline for ball-position estimation in football, to assist tracking camera accuracy during occlusion.
- Conducted data preparation, feature engineering, and visualisation for sports analytics and published a conference paper.

- Used tools: Keras, SciPy, Scikit-learn, Pandas, Plotly, Dash, Bokeh
- Supervisor: Assoc. Prof. Hande Alemdar

Skills

- **Machine Learning & AI:** VAEs, GANs, GNNs, CNNs, ViTs, VLTs, LLMs
- **Programming & Data:** Python, C++, Java, MATLAB, R, SQL, Spark, MySQL, MongoDB
- **MLOps & Tools:** MLflow, Docker, CI/CD, FastAPI, Flask, AWS, Airflow
- **Languages:** Azerbaijani (native), English (C1), Turkish (C1), German (B1)
- **Others:** GPU-accelerated programming, clean codding, Linux

Selected Publications (Scholar Link)

Unsupervised multi-sensor anomaly localization with explainable AI. Ameli, M., Pfanschilling, V., **Amirli, A.**, Maaß, W., Kersting, K. Artificial Intelligence Applications and Innovations. Springer, 2022. DOI: 10.1007/978-3-031-08333-4_41

Hobbies

- Reading in social theory (Structuralism, Biopolitics, Feminism)
- Doing pottery and ceramics
- Playing tar, electric guitar, and mixing vinyl records
- Road cycling, table tennis
- Cooking (used to work in a family restaurant)