ANAR AMIRLI

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EDUCATION

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

- Graduated with **1.0 thesis grade** (best possible); recipient of the **DAAD Scholarship**
- Master's thesis: *Beyond Heatmaps: Graph-based Concept Reasoning for Interpretable Visual Models*
- Extracurriculars: Student Reading Group (AI governance & biopolitics), Modern Jazz Dance Club

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

- Graduated with **1.3 grade** and **Honors**; awarded the **Government Scholarship for Academic Excellence**
- Extracurriculars: ICT Robotics Team, TEDxQafqazUniversity

EXPERIENCE

AI Safety Saarland — Saarbrücken, Germany
Research Fellow — Intern — *Nov 2025 – present*

- Collaborating with interdisciplinary teams on interpretability, AI safety, and AI governance.
- Researching **evaluation and mitigation of social biases in vision-language models (VLMs)**.

IML, German Research Center for AI (DFKI GmbH) — Saarbrücken, Germany
Research Assistant & Thesis (Explainable AI / Medical Imaging) — *Mar 2023 – Aug 2025*

- Designed and developed a **self-explainable vision model for dermatological diagnosis**, surpassing CBM baselines by ~3%.
- **Evaluated and benchmarked VLMs** (e.g., CLIP, MedCLIP) to assess their interpretability in medical imaging.
- Performed **large-scale statistical analyses** to evaluate the reliability and consistency of self-explainable model explanations.

SSE, German Research Center for AI (DFKI GmbH) — Saarbrücken, Germany
Working Student (Machine Learning) — *Nov 2021 – Sep 2022*

- Developed and deployed a **self-supervised anomaly detection** system for manufacturing lines at Schott AG.
- Improved anomaly localization accuracy by **13%** using post-hoc explainability techniques.
- **Fine-tuned transformer-based LLMs** (e.g., T5, BART) to automatically generate incident report from anomalous sensor data.

TESLAB, Nanyang Technological University — *Singapore* (remote)
Research Assistant (2D/3D Computer Vision) — *Feb 2021 – May 2022*

- Developed a **multimodal generative framework** for 2D/3D topology optimization achieving 91–99% reconstruction accuracy.
- Implemented and compared **diffusion models**, **VAEs**, and **GANs** for generative modelling of 2D/3D structural design shapes.

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

- Assisted in developing a **speech recognition system** for flight training simulations at the national aviation academy.
- Engineered audio features (e.g., spectrograms, MFCCs) and trained LSTM/HMM models on cockpit command data.

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

- Designed and developed a ball position **estimation ML model** for football tracking systems.
- Processed **large-scale** match **data** over multiple seasons, performing **feature engineering**, and **visualization**.

NSPSOLUTIONS LLC — Baku, Azerbaijan
Software Developer — *Sep 2017 – Jun 2018*

- Contributed to the mobile app development for Opal Transfer LTD, responsible for backend integration (HTTP APIs to Java).

SKILLS

- **Machine Learning:** CNNs, GNNs, transformers, LLMs, VLMs, unsupervised learning, contrastive learning, active learning
- **Programming**: Python (PyTorch, TensorFlow, SciPy, Scikit-learn, OpenCV, Hugging Face), C++, Java, MATLAB, R
- **Data**: SQL, Spark, MySQL, MongoDB
- **MLOps & Tools:** MLflow, Docker, CI/CD, FastAPI, Flask, AWS, Airflow
- **Other Skills:** GPU Computing, Secure Coding, Linux, Ethical AI

- **Soft Skills:** Intercultural Competence, Teamwork & Collaboration, Adaptability, Problem-Solving, Critical Thinking, Creativity
- **Languages:** Azerbaijani (native), English (fluent), Turkish (fluent), German (intermediate)

CERTIFICATES

High Level Computer Vision (MPI); Optimization for Machine Learning (CISPA); Developing Machine Learning Solutions (AWS); Generative AI with Large Language Models (AWS)

PUBLICATIONS (Full 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

PROJECTS

Concept-Based Medical Image Classifier (major project — Link: [1])
Built a GAT + NMF concept discovery model for interpretable dermatology classification

Industrial Anomaly Detection (major project — Links: [2], [3], [4], [5], [6])
Developed autoencoder-based anomaly detection and fine-tuned LLMs for automated incident reporting

2D/3D Generative Design Models (major project — Links: [7], [8])
Implemented Generative AI models for multimodal topology optimisation

CNN Feature Visualisation (mini project — Link: [9])
Implemented gradient-based feature visualisation for deep CNNs

Human Activity Recognition (mini project — Link: [10])
Trained LSTM models for multivariate time-series classification

Information Retrieval Pipeline (mini project — Link: [11])
Built a TF-IDF + BM25 two-stage retrieval system

Ball Position Estimation (mini project — Link: [12])
Predicted football ball positions from optical tracking data

HOBBIES

Cooking (trained cook); Reading (biopolitics, structuralism, feminism); Pottery; Dancing; Table Tennis; Cycling