ANAR AMIRLI

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SUMMARY

Experience in research and development of data science, machine learning, vision-language models and explainable AI

EMPLOYMENT

Research Assistant (Machine Learning)   Saarbrücken, Germany
IML, DFKI GmbH (Deutsches Forschungszentrum für KI)   *Mar 2023 – Aug 2025*

- Designed and developed a concept-based, **self-explainable vision model for skin cancer diagnosis**, surpassing baseline models (e.g., CBMs) by around 3% in performance.
- Leveraged **vision-language models** (e.g., CLIP, MedCLIP) to benchmark explainability on medical **imaging datasets**.
- Conducted **large-scale statistical analyses** to evaluate the consistency of explanations from self-explainable models.

Working Student (Data Science)   Saarbrücken, Germany
SSE, DFKI GmbH   *Nov 2021 – Sep 2022*

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

Research Assistant (Computer Vision)   *Singapore* (remote)
TESLAB, Nanyang Technological University   *Feb 2021 – May 2022*

- Developed **multimodal-to-image translation** framework with Generative AI models for topology optimisation of 2D/3D structures, achieving **91–99%** accuracy and enabling near real-time optimization.
- Conducted a comprehensive literature review on generative models, including diffusion models, VAEs, and GANs.

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

- Assisted in developing a **speech recognition system** used in flight training simulations at an aviation academy.
- Performed **feature engineering** for unstructured audio data (e.g., spectrograms, MFCCs) and trained **sequence models** (e.g., LSTMs, HMMs) on cockpit command samples.

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

- Designed and developed an ML model for ball **position estimation in football**, helping tracking cameras handle occlusions.
- Processed and analysed **large-scale data** of league games over multiple seasons, including **data cleaning, feature engineering,** and **visualization**.

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

- Developed multi-feature Android apps with backend integration (HTTP APIs to Java interfaces) and contributed to the mobile app development for Opal Transfer LTD.

EDUCATION

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

- Grade: 2.4 | Deutscher Akademischer Austauschdienst (DAAD) Full Graduate Scholarship

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

- Grade: 1.3 | Graduated with Honors | Government Scholarship for Academic Excellence

CERTIFICATES

High Level Computer Vision by MPI; **Optimization for Machine Learning** by CISPA; **Predictive Analytics with R** by DFKI; **Developing Machine Learning Solutions** by AWS; **Generative AI with Large Language Models** by AWS

SKILLS

- **Programming**: Python (PyTorch, TensorFlow, SciPy, Scikit-learn, OpenCV, Hugging Face), C++ (dlib), Java, MATLAB, R
- **Data**: 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 and Secure Coding, Linux

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

HOBBIES

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