Anar Amirli

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Date of Birth: June 1997
Nationality: Azerbaijani (eligible to work in the EU)
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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*

- Designed and implemented an **interpretable AI (XAI) model** using Graph Attention Networks for **skin cancer diagnosis**, achieving **~3%** higher accuracy than baseline models (e.g., CBMs) while providing clinical transparency with concept-based explanations, resulting in a research paper.
- Leveraged multimodal **foundation models** (e.g., CLIP, MedCLIP) to **benchmark and analyse** concept-based explainability for medical datasets, applicable to multimodal sentiment analysis with Document AI methods (e.g., OCR, layout parsing).
- Conducted **large-scale statistical analyses** to evaluate explanation-level reliability, stability, and model consistency, to assess the quality and fidelity of explanations and model predictions.
- Used tools: PyTorch, PyTorch Lightning, OpenCV, SciPy, Scikit-learn
- 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*

- Developed and deployed end-to-end ML pipelines (e.g., XGBoost, Isolation Forest, Autoencoders) for **anomaly** and **risk detection** in manufacturing lines at Schott AG, analogous to transaction monitoring in finance.
- **Enhanced** risk detection and localization accuracy with **post-hoc XAI** methods by **~13%**, improving model interpretability for compliance-level decision support, resulting in a research paper.
- Fine-tuned **transformer-based LLMs** (e.g., T5, BART) to **generate incident reports** from telemetry sensor data to assist early incident assessment with **automated alert generation** and **incident summarization**.
- Used tools: Hugging Face, TensorFlow, TensorBoard, Scikit-learn, XGBoost, Pytest, Docker, AWS
- Team Leader: Prof. Wolfgang Maaß

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

- Engineered and optimized **data-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, resulting in a paper.
- 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** for unstructured audio data (e.g., spectrograms, MFCCs) and trained **sequence models** (e.g., LSTMs, HMMs) 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 cleaning**, **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)