



Abdu Sallouh

Wundtstraße 7, 01217, Dresden, Germany |
+49 152 59001424 | abdusalouh@gmail.com
abdu.codes | github.com/abduABS |
linkedin.com/in/abdusallouh

PROFILE

MSc student in Computational Modelling and Simulation at TU Dresden, with a first-author paper accepted at EMNLP 2026. My work spans large language models, computer vision, and reinforcement learning, grounded in rigorous evaluation methodology. I've built and shipped AI systems end to end, bringing an international background across the UAE and Germany to how I approach problems and collaboration.

SKILLS & INTERESTS

AI Focus Areas: Large Language Models, Natural Language Processing, Computer Vision, Machine Learning

ML/LLM: R, Python, PyTorch, HuggingFace, Scikit-learn, OpenCV

Engineering: Git, Docker, SQL (basic), CI/CD (foundational)

Languages: English (C1), German (B2+), Arabic (Mother Tongue)

RESEARCH

Does Modern Standard Arabic (MSA) Dominate Arabic Dialects in LLMs? A Representation-Level Analysis | EMNLP 2026 Main Conference (ACL), Accepted, Short Paper

October 2025 – Present | First author, with advisors Nicholas Popović and Michael Färber

- Adapted the GMM-based language-dominance framework of Shani and Basirat (2025) to a cross-dialectal setting, measuring representational separability (NMI) and directional dominance (token-level likelihood ratio) across 26 Arabic varieties.
- Tested five foundation models up to 8B parameters (BLOOM, mGPT, Qwen2.5-7B, Llama 3.1-8B, ArabianGPT-08B) on TU Dresden's Capella HPC cluster via JupyterHub, finding no evidence that MSA, or any dialect, acts as a dominant internal representation; validated via replication plus four robustness checks.

Master's Thesis: Probing Knowledge Materialization in Large Language Models | ScaDS.AI, Technical University of Dresden

May 2026 – November 2026 (in progress)

- Building an evaluation harness to measure whether LLM-generated outputs reflect genuine, reliable model knowledge, combining deterministic and model-based scoring across multiple dimensions.
- Testing consistency and self-consistency of extracted assertions across six paraphrased variations of each triple, applying the framework to knowledge materialization systems including GPTKB.

Closing the Rare-Species Detection Gap in UAE Camera Traps with Diffusion-Generated Data | ICICT 2026 Accepted Paper

September 2023 – February 2026 | First author, with 6 co-authors from American University of Sharjah and Emirates Nature-WWF

- Fine-tuned Stable Diffusion to generate synthetic training images for under-represented species in a long-tailed UAE camera-trap dataset, improving detection F1-scores by up to +0.36 for rare classes.

WORK EXPERIENCE

Research Assistant (WHK) | DaTNet (DatenTreuhand Kompetenznetzwerk) Dresden, Germany

March 2025 – June 2026

- Collected, organized, and presented research outputs from a BMBF-funded network studying data trust and governance models, primarily through redesigning and maintaining the organization's website.
- Moderated live workshops where network researchers presented their work on data sovereignty and regulatory frameworks to practitioners.

Digital Energy Intern | Schneider Electric *Dubai, UAE*

June 2023 – July 2023

- Built an end-to-end GenAI prototype, a GPT-based customer support chatbot, iterating through prompt engineering and systematic response evaluation to improve answer quality with each release.
- Won an internal innovation and security competition with the developed solution, and presented the final system directly to the regional VP.

IT Intern (Hybrid) | Dastech IT Solutions *Dubai, UAE*

July 2022 – September 2022

- Analyzed a small business's infrastructure needs and implemented a cloud-based solution using Microsoft Azure and Amazon Web Services (AWS), supporting its setup and deployment.

PROJECTS

Cicero: AI Public Speaking Coach | Final Year Project, American University of Sharjah

September 2023 – July 2024

- Built and deployed Cicero, an end-to-end multimodal GenAI application combining GPT-4, OpenCV, and speech processing, delivering automated public speaking feedback through a working web application.
- Designed pipelines for speech, facial expression, and transcript analysis to generate personalized user recommendations.
- Presented the finished system to stakeholders at a startup incubator.

Reinforcement Learning | 2D Car Game | Technical University of Dresden

April 2025 – August 2025

- Developed an autonomous 2D racing agent using the Proximal Policy Optimization (PPO) algorithm and Stable-Baselines3 to achieve efficient navigation and obstacle avoidance.

Computer Vision | Course Project

February 2024 – June 2024

- Implemented and benchmarked object detection architectures (Detectron2: TridentNet, RetinaNet, Mask R-CNN, YOLO, RT-DETR) on the ZeroWaste dataset, achieving an AP50 score of 47.

EDUCATION

Technical University of Dresden *Dresden, Germany*

October 2024 – Present

Master of Science in Computational Modelling and Simulation, Track in Visual Computing

Relevant Coursework: Machine Learning, Deep Neural Network Hardware, Computer Vision, Design Patterns & Frameworks, Advanced Problem Solving & Search

American University of Sharjah *Sharjah, UAE*

August 2020 – June 2024

Bachelor of Science in Computer Science, Minor in Data Science, GPA: 3.61/4.0

Relevant Coursework: Introduction to Data Mining (R), Foundations of Statistics for Data Science

Honors: Tau Beta Pi and IEEE-Eta Kappa Nu, engineering honor societies, inducted for top academic performance