Mohamed Alhaskir

PhD Candidate in Medical AI | Machine Learning Researcher & Engineer

Machine learning researcher and engineer with experience developing robust, deployable AI systems for multimodal and biomedical data in high-stakes settings. My work spans model development, rigorous evaluation, open-source research software, and production deployment, with a particular focus on trustworthy AI: building systems that are reliable, reproducible, and suitable for real-world use. I am especially interested in multimodal models, empirical deep learning, and the engineering foundations of dependable, steerable AI systems.

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Research Interests: trustworthy AI, multimodal learning, empirical deep learning, scalable ML systems, robustness and evaluation.

SKILLS

Machine Learning	PyTorch, scikit-learn, deep learning, multimodal learning, time-series modeling, representation learning, algorithm design
Trustworthy AI & Evaluation	Robustness, reproducibility, auditability, evaluation in high-stakes settings, model monitoring
Multimodal & Data	Speech recognition, speaker diarization, LLM-integrated systems, biosignal processing (ECG, EEG, accelerometry), behavioral data, dataset curation and benchmarking
Software & Infrastructure	Python, MATLAB, Git, CUDA, HPC cluster environments, Docker, Weights & Biases, MLflow, open-source research code
Deployment	Production ML pipelines, monitoring infrastructure, reproducible workflows, model lifecycle management
Languages	Arabic (native), German (C2), English (C1), Spanish (B1)

RESEARCH EXPERIENCE

PhD Researcher, Institute of Medical Informatics, RWTH Aachen University 2022 – Present
Aachen, Germany

- MoniPy: Developed an open-source machine learning pipeline for wearable ECG-based seizure detection, using the project as a framework for trustworthy AI research with reproducible experimentation and rigorous multicenter clinical evaluation. github.com/rwth-imi/monipy
- HaMoJo: Built a multimodal ML system for pediatric simulation training, integrating end-to-end data pipelines, behavioral and speech-based signals, LLM-based scoring, and reproducible experiment workflows. github.com/Mohamed-Alhaskir/HaMoJo
- FORECAST LOS (AKTIN)t: Development and evaluation of machine learning systems for forecasting hospital resource utilization from emergency department routine data, focusing on capacity-related outcomes such as inpatient length of stay, with reproducible workflows and deployment-oriented evaluation.

Master's Researcher, Forschungszentrum Jülich (IBI-3) 2021 – 2022
Jülich, Germany

- Developed signal-processing algorithms for 3D microelectrode array data analysis and optimized the SpyKING CIRCUS spike-sorting pipeline for spike waveform variability characterization.

Research Intern, Charité Berlin — AG Klinische Neurotechnologie 2020 – 2021
Berlin, Germany

- Implemented signal acquisition and decoding algorithms for an OPM-MEG-based brain–computer interface system.

Research Intern, Molecular & Systemic Neurophysiology, RWTH Aachen 2021
Aachen, Germany

- Developed classification algorithms for neural decoding of wide-field calcium imaging data; collaborated across biology, physics, and engineering teams.

SELECTED PUBLICATIONS

Alhaskir, M., et al. *Trustworthy Artificial Intelligence: Seizure Detection by Wearables Following International Consensus Guidelines.* 2026. **[Under Review]**

Alhaskir, M., et al. *Automated Multimodal Feedback Generation for Pediatric Simulation Training (HaMoJo).* 2026. **[Under Review]**

Alhaskir, M., et al. *Reliable Detection of Focal Onset Impaired Awareness Seizures Using Wearable ECG.* Computer Methods and Programs in Biomedicine, 279, 2025.

Alhaskir, M., et al. *ECG Matching: Synchronizing ECG Datasets for Data Quality Comparisons.* Studies in Health Technology and Informatics, 2023.

Co-author. *The Role of Self-Supervised Pretraining in Differentially Private Medical Image Analysis.* arXiv preprint, 2026.

EDUCATION

PhD, Medical AI, RWTH Aachen University — 2022 – Present
Institute of Medical Informatics · Aachen, Germany

MSc, Biological Information Processing, RWTH Aachen University — 2019 – 2022
Major: Computational Neuroscience · Aachen, Germany

BSc, Biological Information Processing, RWTH Aachen University — 2016 – 2019
Aachen, Germany

AWARDS & ACTIVITIES

DAAD Prize for Outstanding International Students, RWTH Aachen, 2021

Co-Founder, NeuroTX Aachen e.V., 2020–2022

Developed a brain–computer interface prototype for electric wheelchair control; project funded by the RWTH Aachen Collective Incubator.