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Abdelrahman Faqieh

https://github.com/afaqieh
Bern, Switzerland

Education

M.Sc. in Artificial Intelligence in Medicine — Bern, Switzerland
University of Bern — *Sep 2024 – Sep 2026*

Coursework: Deep Learning, Machine Learning, Computer Vision, From NLP to LLMs, Modeling & Scaling of Generative AI Systems, Reinforcement Learning, Trustworthy AI, HPC & Cloud Computing, C++ Programming

B.Sc. in Biomedical Engineering — Istanbul, Turkey
Bahçeşehir University — *Sep 2020 – July 2024*

Coursework: Principles of AI, Linear Algebra, Differential Equations, Signals and Systems, Programming in Python & C, Biostatistics, Medical Imaging & MRI, Modeling and Simulation, Microcontrollers, Electronic Devices and Circuits

Work Experience

Machine Learning Researcher (Master's Thesis) — Zurich, Switzerland
AI Medical AG — *Mar 2026 – Present*

Developing and benchmarking state-of-the-art deep learning architectures for brain lesion segmentation in longitudinal MRI scans and integrating the selected architecture into the company's Jazz software to enable automated lesion detection and progression tracking across patient follow-up studies.

AI Intern — Bern, Switzerland
Institute of Tissue Medicine and Pathology — *Nov 2025 – Present*

Extended an existing vision-language framework by fine-tuning vision and language encoders on histopathology images and textual annotations, aligning their representations via contrastive loss for unsupervised downstream classification.

Software Engineer (Part-time) — Zurich, Switzerland
ARIS Space — *Jun 2025 – Dec 2025*

Developed a ROS 2 node in Python for 3D trajectory generation and geometric path planning for the Nautilus autonomous underwater glider, computing turn radii, pitch angles, and waypoints.

Biomedical Engineering Intern — Istanbul, Turkey
Medical Park Goztepe — *Jan 2024 – Feb 2024*

Diagnosed and repaired electrical circuits in medical devices to improve functionality and reliability. Monitored equipment performance and identified potential failures to ensure seamless operation.

Projects

- **Adaptive Metadata-Conditioned Diffusion for Synthetic Medical Image Generation**: Designed a three-stage pipeline for dermatology image generation using Stable Diffusion, combining a directly metadata-conditioned model with a prompt-engineered variant. Fine-tuned with LoRA and deployed an interactive inference demo on Hugging Face
- **Image Captioning with Transformers and DINOv2**: Developed six progressively improved models to generate captions for images. Used pretrained DINOv2 encoders and evolved decoders from RNNs to Transformers with cross-attention over spatial tokens. Evaluated with BLEU scores and visualized attention maps.
- **WiiFit Exercise Quality Detection With Machine Learning**: Designed and implemented a real-time machine learning pipeline for exercise quality assessment using WiiFit sensor data, including feature extraction, model training, and performance evaluation in a team-based setting.

Research Experience

- **Distributed Learning Systems Lab (University of Neuchatel)**: Conducting research on metadata-conditioned diffusion models for controllable image generation, leveraging structured (tabular) data for cross-modal conditioning.

Honors & Awards

- **Honors Graduate**: Graduated with Honors in Biomedical Engineering from Bahçeşehir University
- **Koç University Summer Academy**: Pass with Distinction in Life Sciences Course

Technical and Soft Skills

Programming Languages: Python, C++, C, Matlab, R

Libraries & Frameworks: Deep Learning: PyTorch, Scikit-Learn, Hugging Face (Diffusers, Transformers, PEFT, LangChain), timm — CV: OpenCV, Open3D, SimpleITK — NLP: spaCy, NLTK, Regex — C++: STL, OpenMesh, Eigen — Data: Pandas, NumPy, Matplotlib, Seaborn, API Integration, Selenium

Software & Tools: Git, Docker, Slurm, Weights & Biases, Metashape, Blender

Research & Communication: Scientific Writing, AI Ethics, Explainable AI (XAI)

Spoken Languages: English (Native), Arabic (Native), Turkish (B2), German (A2)