OMAR ABU LAYLA

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Personal Portfolio: https://omarabulayla.github.io/omarabulayla/

Research Assistant | Machine Learning & Deep Learning

Research Assistant in biomedical signal processing and deep learning, with focus on EMG-based speech recognition. Experienced in developing robust feature representations (time-frequency and wavelet-based methods) and neural architectures (RNNs, Transformers) for cross-subject biosignal classification. Co-author of research submitted to IEEE conferences and journals.

EDUCATION

GERMAN JORDANIAN UNIVERSITY — **Amman, Jordan**
Bachelor of Science in Biomedical Engineering — **Graduated: November 2023**

HOCHSCHULE OFFENBURG — **Offenburg, Germany**
Exchange Semester — **October 2022 – February 2023**

PROFESSIONAL EXPERIENCE

German Jordanian University (GJU) — **Amman, Jordan**
Research Assistant — **November 2025 – Present**
Artificial Intelligence Applications and Human Biomechanics for Enhanced Medical Diagnosis and Rehabilitation

- Implemented machine learning and deep learning models for analysing biomedical and time-series data.
- Trained, and evaluated neural network architectures for classification.
- Performed data preprocessing using standard academic research workflows.
- Co-authored research manuscripts for peer-reviewed publication, including experimental design, data analysis, and technical writing.

GULF DRUG LLC — **Dubai, UAE**
Projects and Solutions Engineer (Biomedical Engineer) — **November 2023 – November 2024**

- Selected OT equipment for UAE/international projects, ensuring compliance with client needs
- Prepared technical and financial proposals for large-scale surgical projects
- Executed theatre setups through strategic equipment planning

ALCON — **Grosswallstadt, Germany**
Quality Management Intern in AS&T (Analytical Science and Technology Team) — **March 2023 – August 2023**

- Automated testing of ~20K lab samples via Python scripts integrated with lab devices
- Analyzed data using Python/Excel, optimizing device performance with 90% success
- Ensured cloud storage, compliance, and technical alignment in cross-functional reporting

SKILLS

Technical Skills

- Programming & Data Analysis: Python (NumPy, pandas, matplotlib, seaborn), SQL (PostgreSQL), data preprocessing and statistical analysis
- Machine Learning & Deep Learning: scikit-learn, TensorFlow, Keras; model training, validation, hyperparameter tuning, and performance evaluation
- Sequence & Language Models: Transformers, retrieval-augmented methods
- Software & Research Tools: Flask, RESTful APIs, GitHub, Google Colab, VS Code, Jupyter Notebook
- Other tools: MATLAB, Simulink, LABVIEW, MS Office

Soft Skills

- Strong Communication & Teaching Ability
- Deadline-Oriented & Resilient Under Pressure
- Fast Learning & Adaptability
- Team Collaboration & Task Multitasking

Languages

- Arabic (Native)
- English (Fluent)
- German (Upper Intermediate)

Publications and Conferences

- J. Matouq, **O. Abulayla**, R. N. Khushaba, and A. Al-Jumaily, "*Sentence-level Speech Recognition Performance for EMG and Audio+EMG Fusion"*, IEEE Engineering in Medicine and Biology Conference (EMBC), 2026 (Submitted)
- R. N. Khushaba, **O. Abulayla**, J. Matouq, and A. Al-Jumaily, "*A Robust Wavelet Scattering Front-End for Cross-Subject EMG-Based Speech Recognition*", IEEE Engineering in Medicine and Biology Conference (EMBC), 2026 (Submitted)
- J. Matouq, O. **Abulayla** and R. N. Khushaba, "*Benchmarking MFSC and Wavelet Scattering Feature Representations for EMG-Based Speech Recognition*", (in preparation for submission to an IEEE Transactions journal, 2026)