Sidi Mohamed Sid'El Moctar

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Bio

I am a Lecturer at the University of Technology of Compiègne. My research focuses on applying Machine and Deep Learning techniques to biomedical signal processing, particularly high-density surface electromyography (HD-sEMG) signals, for the analysis of muscle electrical activity and active aging.

Education

University of Technology of Compiègne *Compiègne, France*
PhD Computer Science *Dec 2021 - Mar 2025*
- Thesis title : High-Density Surface Electromyography and Machine Learning for Muscle Aging Assessment
- Advisors: Prof. Sofiane Boudaoud and Dr. Imad Rida

Università degli Studi Milano-Bicocca *Milan, Italy*
Summer School *Sep 2024*
- Mediterranean Machine Learning (M2L) summer school, organized by Google DeepMind researchers

University of Lille *Lille, France*
MS Data Science in Healthcare *2019 - 2021*
- Thesis title : Comparison between relational database and graph-oriented database for the contact tracing
- Advisor: Dr. Antoine Lamer

University of Lille *Lille, France*
BS Mathematics, Statistics & Business Intelligence *2018 - 2019*
- Thesis title : Comparison of exact and asymptotic confidence intervals for a proportion
- Advisor: Dr. Baba Thiam

Professional Experience

Jan 2025-Present	**Lecturer**, Université de technologie de Compiègne: Data Driven Representation Learning for Biomedical Data Classification
Dec 2021-Jan 2025	**PhD Candidate**, Université de technologie de Compiègne: High-Density Surface Electromyography and Machine Learning for Muscle Aging Assessment (Elected member of the BMBI laboratory council, representing doctoral students)
Sep 2022-present	**Graduate Teaching Assistant**, Université de technologie de Compiègne : Data Analysis, Statistics, Programming (Python, R, VBA, Excel)
Oct 2020-Sep 2021	**Data Analyst**, Oscar Lambret Center
Mar 2020-Aug 2020	**Data Scientist intern**, Lesaffre International

Publications

Accepted

S Moctar SM, Rida I, Boudaoud S. Comprehensive Review of Feature Extraction Techniques for sEMG Signal Classification: From Handcrafted Features to Deep Learning Approaches. Elsevier IRBM

S Moctar SM, Rida I, Kinugawa K, Boudaoud S. On exploring age difference using HD-sEMG signals during STS exercise. 49th congress of the Biomechanics Society 2024.

Nasrallah C, Ghiatt K, Diab A, Laforet J, **S Moctar SM**, Rida I, Kinugawa K, Boudaoud S. Spectral Selective Canonical Correlation Analysis to remove the Power Line Interference from HD-sEMG signals. 32nd European Signal Processing Conference (EUSIPCO) 2024.

S Moctar SM, Diab A, Rida I, Kinugawa K, Boudaoud S. Active aging prediction from muscle electrical activity using HD-sEMG signals and machine learning. IEEE 36th International Symposium on Computer-Based Medical Systems — CBMS 2023.

S Moctar SM, Rida I, Boudaoud S. Time-domain features for sEMG signal classification: A brief survey. JETSAN symposium 2023.

Under Review

S Moctar SM, Zhang H, Rida I, Kinugawa K, Boudaoud S. Gender Recognition with Aging Using HD-sEMG Signals, *Under Review - Multimedia Tools And Applications*

Zhang H, **S Moctar SM**, Boudaoud S, Rida I. Comprehensive Review of sEMG-IMU Sensor Fusion for Upper Limb Movements Pattern Recognition, *Under Review - Information Fusion*

S Moctar SM, Nasrallah C, Boudaoud S, Rida I. EMG-Based Diagnosis of ALS and Myopathy using 1D-CNN, *EMBC 2025*

Nasrallah C, **S Moctar SM**, Ghiatt K, Rida I, Ghezal M, Kinugawa K, Boudaoud S. Predicting Muscle Resilience Post Proximal Femur Surgery Using an LSTM Model on HD-sEMG Signals Operation, *EMBC 2025*

In Preparation

S Moctar SM, Rida I, Kinugawa K, Boudaoud S. Motor Functional Age Prediction Using Time-Frequency Representation of HD-sEMG Signals

Skills

Software Engineering	Python, R, SQL, Neo4j, Power BI, Excel
Libraries & Frameworks	Scikit-Learn, Pandas, Numpy, Scipy, Matplotlib, Plotly, TensorFlow, Keras, Dash, Shiny
System Administration	GNU/Linux, MacOS X , Git
Languages	English (Fluent), French (Native), Arabic (Native)

References

Sofiane Boudaoud	Professor, Université de technologie de Compiègne, sofiane.boudaoud@utc.fr
Imad Rida	Associate Professor, Université de technologie de Compiègne, imad.rida@utc.fr
Dan Istrate	Professor, Université de technologie de Compiègne, dan.istrate@utc.fr
Kiyoka Kinugawa	Professor of Medicine, Sorbonne Université, kiyoka.kinugawa@aphp.fr

Reviews

Journals :	Multimedia Tools and Applications, Bioengineering & Translational Medicine
Conferences :	IJCNN 2025, EMBC 2025, CIPR 2024, MLIS 2024, RTIP2R 2024