Reda EL HAIL
Machine learning engineer

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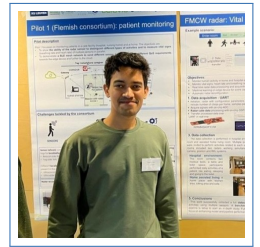
Education

2021–Now	**Phd degree**, *Machine learning*, Arenberg Doctoral school, KU Leuven, Belgium.
2019–2020	**Master degree**, *Mathematics and Image processing*, ISTIC, Rennes 1 university, France.
2016–2019	**Engineering diploma**, *Electrical Engineering*, Mohammadia school of engineers, Rabat,Morocco.

Work experience

2021 - Now — **Machine Learning for activity recognition**, *DTAI-FET, KU Leuven*, Geel Campus.

Radar data processing for human activity recognition (HAR) with machine learning.
- Designing and conducting data-collection campaigns for Proof-of-Concepts and ideas
  - Data cleaning, preprocessing and visualization using `Pandas`, `NumPy`, `SciPy`, `Scikit-learn`, and `Matplotlib`
  - Database management and setting-up streaming pipeline using `TensorFlow`'s dataset iterators
- Design and development of novel ideas and algorithms for activity recognition using Radar sensors
  - `CNN-LSTM` based model using `TensorFlow` library
  - In-training model and parameter visualization using `Tensorboard` tool
  - `CNN-LSTM` based Semi-supervised learning for Unsupervised Domain Adaptation using `TensorFlow` library
- Code-base management and version control using `GIT`
  - Experiment, parameters and metrics management using `MlFlow`
- Deploy in real-time trained models on edge devices (Cortex M7), perform model quantization and pruning (CMSIS-NN)
  - Define a CI/CD pipeline integrated with `Docker` and `GitHub` hooks for direct deployment on edge.
- Collaborating with industrial partners (*Imec, Televic, Commeto, Sentigrate*) to align their requirements and needs with research goals

March to September 2020 — **Machine learning on time series** , *INTERDIGITAL R&D*, Cesson Sevigne France.

Human activity recognition (HAR) using rang profile maps with machine learning.
- Feature extraction and classification using classification methods (SVM, LDA, KNN)
- Classification using convolutional neural networks, recurrent neural networks and auto encoders with SVM.
- Implementation in real time on a Raspberry Pi.

(Matlab, Python,scikit-learn,Tensorflow)

Feb to June 2019 — **Internship, Rotary motors monitoring**, *OCP Group*, Casablanca Morocco.
- Conception of a user interface to supervise vibration signals of rotary motors.
- Extraction of the characteristics of signals to make default detection using inherent frequencies and machine learning algorithm. Implementation on a CompactRio controller.(LabView, Python)

Skills

Tech tools	Docker, Git, Github Workflows, SQL, Google Cloud Platform (Vertex AI)
Python	Scikit-learn, Tensorflow, Keras, Numpy, Plotly, Pandas, Matplotlib, Seaborn, OpenCv,MlFlow, Optuna

Publications

Publication	*Radar Based Human Activity Recognition: from Classification to Detection.* Joint International Scientific Conferences on AI and Machine Learning (BNAIC/BeNeLearn 2024).

Languages

Arabic: Native   English: Fluent   French: Fluent

Hobbies

Walking, Reading and Traveling