Imen AYADI

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Education

Tunisian baccalaureate diploma in Math specialization   *Sfax, TUNISIA*

HIGHER SECONDARY CERTIFICATE   *June 2014*

- Ranked 1st at the national level, 19.76/20
- Got a grant of excellence from the Tunisian government to pursue university education

Lycée Louis-Le-Grand   *Paris, FRANCE*

PREPARATORY CLASSES with a major in MATH and PHYSICS (MPSI, MP*)   *2014-2017*

CentraleSupélec (Centralian Cursus)   *Paris, FRANCE*

ENGINEERING DEGREE   *2017-2022*

- Selected in the Research track (track of excellence) for 1st and 2nd year
- Graduated in the option "Applied Mathematics for Data Science" and the stream "Careers in Research": with the highest honor

ENS Paris-Saclay   *Paris, FRANCE*

MASTER DEGREE   *2020-2021*

- M2 MVA (Mathematics, Vision and Learning): with the highest honor

Technical Skills

Programming, Pyton, MatLab, R, VBA

Web Development, HTML, CSS, PHP

Computer-aided design Software, AutoCAD

Database, SQL, MongoDB, Neo4j

Languages

Arabic, mother tongue

French, bilingual

English, proficient C1 (Toefl score in 2019 : 100/120)

Spanish, intermediate B1

Professional Experience

RISEL Industries   *Sfax, TUNISIA*

OPERATOR INTERNSHIP   *July 2018 - August 2014*

CEREMADE (Université Paris-Dauphine)   *Paris, FRANCE*

1ST CAESURA INTERNSHIP   *September 2019 - February 2020*

- Study of the methods of optimization in Deep Learning

Mathematics Department of the King's College London   *London, UK*

2ND CAESURA INTERNSHIP   *March 2020 - September 2020*

- Epidemiological control

Tutoring   *Paris, FRANCE*

PRIVATE TUTOR   *September 2019 - June 2020*

- Mathematics and Physics tutor for high-school students
- Mathematics tutor for undergraduate students

- Computer labs on Matlab for first-year engineering students in Polytech Paris-Saclay
- Support tutorials on Probabilities for first-year engineering students in Polytech Paris-Saclay
- Tutorials on Statistics and Machine Learning for first-year engineering students in CentraleSupélec

L2S Lab (Université Paris-Saclay) *Paris, FRANCE*

Final-year Internship *May 2021 - September 2021*
- Robust Geometric Classification of EEG signals

L2S Lab (Université Paris-Saclay) *Paris, FRANCE*

PhD *November 2021 - November 2024*
- Robust Geometric Learning for electroencephalography

Research & Publication

Conference paper:

- I. Ayadi and G. Turinici, "Stochastic Runge-Kutta methods and adaptive SGD-G2 stochastic gradient descent," 2020 25th International Conference on Pattern Recognition (ICPR), 2021, pp. 8220-8227, doi: 10.1109/ICPR48806.2021.9412831.
- I. Ayadi, F. Bouchard and F. Pascal, "Elliptical Wishart Distribution: Maximum Likelihood Estimator from Information Geometry," ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Rhodes Island, Greece, 2023, pp. 1-5, doi: 10.1109/ICASSP49357.2023.10096222.
- I. Ayadi, F. Bouchard and F. Pascal, "t-WDA: A novel Discriminant Analysis applied to EEG classification," EUSIPCO 2023 - 2023 IEEE European Signal Processing Conference(EUSIPCO), Helsinki, Finland, 2023.
- I. Ayadi, F. Bouchard and F. Pascal, "Distribution matricielle t-Wishart: géométrie d'information, estimation et application pour la classification de signaux EEG," GRETSI 2023 - Colloque Sur Le Traitement Du Signal et Des Images, GRETSI - Groupe de Recherche en Traitement du Signal et des Images, Grenoble, 2023, pp. 777–780.

Talks:

- Demonstration on *Photovoltaic Panels* in the stand "un Chercheur, une Manip" of Palais De La Découverte on October,26th 2018 as a scientific vulgarization activity of the Research track of CentraleSupélec
- Short talk about *Robust Geometric Classification of EEG signals* in the 3rd Statistical Learning for Signal and Image Processing Workshop **SLSIP** (October 2021) in Germany
- Pitch about *Robust Geometric Classification of EEG signals* in the 1st UDOPIA Doctoral Student Day (December 2021) at Centralesupélec
- Presentation about *Variable importance with Permutation Approach and Conditional Sampling Approach* in the Artificial Intelligence for Signal and Image Processing **AI4SIP** Program (July 2022) at the Pascal institute
- Oral presentation of conference paper in **ICASSP** (June 2023)
- Oral presentation of conference paper in **GRETSI** (August 2023)
- Oral presentation of conference paper in **EUSIPCO** (September 2023)

Projects

Graduate & Undergraduate:

- Study of different approaches to out-of-distribution generalization (as the 3rd-year group project with Badr YOUBI IDRISSI, Pierre HOUDOUIN and Mohamed Amine HACHICHA), available on `https://github.com/IA3005/Out-of-distributions-generalization.git`:
    - Invariant risk minimization, domain adaptation, and adversarial information factorization as different methods to find an invariant representation in a framework of causal inference
- Discretization of stochastic differential equations driven by a Lévy process (project of the Research track in CentraleSupélec).