APOLLINE MELLOT

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EXPERIENCES

Dementia Screening Challenge at Biomag 2022 — **Birmingham, United Kingdom**
Winner — *August 2022*
Winning solution in machine learning and MEG signal processing in order to screen dementia and mild cognitive impairment.

INRIA Saclay - MIND Team — **Palaiseau, France**
PhD candidate — *October 2021 - Now*
Machine learning and domain adaptation for enhancing the measure of brain health with MEG and EEG signals.

INRIA Saclay - MIND Team — **Palaiseau, France**
Internship — *March - August 2021*
Combining different modalities of brain imaging for age prediction with an opportunistic prediction-stacking approach.

CEA Saclay - NeuroSpin — **Saint-Aubin, France**
Internship — *March - August 2020*
Automation of brain folds identification in newborns and application to the study of the effects of prematurity on cortical folds.

IMEC Belgium — **Leuven, Belgium**
Internship — *May - August 2019*
Hyperspectral imaging sensor test and calibration engineer intern within the integrated imaging and vision solutions technical team.

EDUCATION

Master 2: Computational Neurosciences and Neuroengineering — **Université Paris-Saclay**
Orsay, France, — *2020 – 2021*
Subjects: Machine learning, Physiological basis of neuroscience, Neural basis of perception, Dynamical systems and computational neuroscience, Closed-loop neuroscience, Methods for measuring and stimulating neuronal activity.

Optical Engineering Degree — **Insitut d'Optique Graduate School**
Palaiseau, France, — *2017 – 2020*
Subjects: Signal and image processing, Machine Learning, Deep Learning, motion and 3D images, X / UV rays and applications, electromagnetism, biophotonics, physical and instrumental optics, optical systems design.

Biomedical studies — **IFSBM**
Villejuif, France, — *2017 – 2020*
Double degree to provide in-depth knowledge of the hospital environment and bio-industries.

Intensive studies in Maths and Physics — **Lycée Pothier**
Orléans, France, — *2015 – 2017*
2-year intensive programme to enter renowned Engineering schools focusing mainly on mathematics and physics.

PUBLICATIONS

A reusable benchmark of brain-age prediction from M/EEG resting-state signals
Denis A. Engemann, Apolline Mellot, Richard Höchenberger, Hubert Banville, David Sabbagh, Lukas Gemein, Tonio Ball, Alexandre Gramfort,
NeuroImage, Volume 262, 2022, 119521, ISSN 1053-8119,
https://doi.org/10.1016/j.neuroimage.2022.119521.

Novel SPD matrix representations considering cross-frequency coupling for EEG classification using Riemannian geometry
Maria Sayu Yamamoto, Apolline Mellot, Sylvain Chevallier, Fabien Lotte,
31st European Signal Processing Conference (EUSIPCO), 2023
https://hal.science/hal-04131609/.

Harmonizing and aligning M/EEG datasets with covariance-based techniques to enhance predictive regression modeling
Apolline Mellot, Antoine Collas, Pedro L. C. Rodrigues, Denis Engemann, Alexandre Gramfort,
Imaging Neuroscience, 2023
https://doi.org/10.1101/2023.04.27.538550.

Physics-informed and Unsupervised Riemannian Domain Adaptation for Machine Learning on Heterogeneous EEG Datasets
Apolline Mellot, Antoine Collas, Sylvain Chevallier, Denis Engemann, Alexandre Gramfort
32nd European Signal Processing Conference (EUSIPCO), 2024
https://arxiv.org/pdf/2403.15415

Geodesic Optimization for Predictive Shift Adaptation on EEG data
Apolline Mellot, Antoine Collas, Sylvain Chevallier, Alexandre Gramfort, Denis Engemann
Under review

COMPETENCES

- **French:** Native speaker.
- **English:** Proficient.
- **Spanish:** Elementary proficiency.
- **Computer languages:** Python, MATLAB, R, C, C++.
- **Version control:** git (https://github.com/apmellot)
- **Software:** scikit-learn, PyTorch, MNE, pyRiemann, Illustrator.

HOBBIES

- **Music:** Piano and music theory.
- **Sport:** Tennis, dance.