

APOLLINE MELLOT

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EXPERIENCES

- **INRIA Saclay - MIND Team** **Palaiseau, France**
PhD candidate with Alexandre Gramfort, Denis Engemann and Sylvain Chevallier Oct 2021 - Nov 2024
Machine learning and domain adaptation for enhancing the measure of brain health with MEG and EEG signals.
- **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**
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>.

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>.

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), Helsinki, Finland, 2023
<https://hal.science/hal-04131609/>.

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), Lyon, France, 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
Accepted at NeurIPS as Spotlight, Vancouver, Canada, 2024
<https://arxiv.org/pdf/2407.03878>

SOFTWARE

SKADA : Scikit Adaptation (version 0.3.0)

Gnassounou T., Kachaiev O., Flamarly R., Collas A., Lalou Y., de Mathelin A., Gramfort A., Bueno R., Michel F., Mellot A., Loison V., Odonnat A., Moreau T. (2024).
URL: <https://scikit-adaptation.github.io/>

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, NumPy, SciPy PyTorch, MNE, pyRiemann, Illustrator.