
Education

- Oct 2014 – present **PhD Student, Computer Science, Parietal Team, INRIA / CEA, Neurospin, Université Paris-Saclay, France.**
Graduation date: September 2017.
Supervisors: Bertrand THIRION and Gael VAROQUAUX
Title: Enhancement of functional brain connectome (connectivity / covariance matrices, etc.) analysis by the use of deformable models in the estimation of spatial decompositions of the brain images. More details on my blog at <http://dohmatob.github.io>.
- 2010 – 2011 **MSc. Cryptology and Information Security, University of Bordeaux 1.**
Pentesting telecom and VoIP-like protocols like SS7, SIGTRAN, SIP, GTP.
- 2009 – 2010 **Maîtrise ès Mathématiques, University of Bordeaux 1.**
On explicit constructions of “good” LDPC QECCs (Low-Density Parity-Check Quantum Error-Correcting Codes). Supervised by Gilles ZEMOR.
- 2005 – 2008 **BSc. Mathematics and Computer Science, University of Buea.**

Selected scientific publications

Summary from Google scholar: Total citations ≥ 169 ; total papers ≥ 15 ; h index ≥ 3 ; 110 index ≥ 3 .
Full information available at: <https://scholar.google.fr/citations?user=FDWgJY8AAAAJ&hl=fr>

- 2016
- *Learning brain regions via large-scale online structured sparse dictionary learning.* Advanced Neural Information Processing Systems – NIPS conference. <https://hal.inria.fr/hal-01369134v3>
 - *A simple algorithm for computing Nash-equilibria in incomplete information games.* NIPS OPT2016 workshop. <https://arxiv.org/abs/1507.07901>
- 2015
- *Local Q-Linear Convergence and Finite-time Active Set Identification of ADMM on a Class of Penalized Regression Problems.* ICASSP - 41st International Conference on Acoustics, Speech and Signal Processing (IEEE). <https://hal.archives-ouvertes.fr/hal-01265372/file/paper.pdf>
 - *Integrating Multi-modal Priors in Predictive Models for the Functional Characterization of Alzheimer’s Disease.* MICCAI – 18th International Conference on Medical Image Computing and Computer Assisted Intervention. <https://hal.archives-ouvertes.fr/hal-01174636/file/paper983.pdf>
- 2014
- *Region segmentation for sparse decompositions: better brain parcellations from rest fMRI.* <http://stmi2014.ece.cornell.edu/papers/STMI-P-9.pdf>
 - *Which fMRI clustering gives good brain parcellations?.* Frontiers in Neuroinformatics. <http://journal.frontiersin.org/Journal/10.3389/fnins.2014.00167/abstract>
 - *Benchmarking solvers for TV- ℓ_1 least-squares and logistic regression in brain imaging.* PRNI - Pattern Recognition in Neuro-Imaging (IEEE). <https://hal.inria.fr/hal-00991743>

- 2013 ○ *Extracting brain regions from rest fMRI with Total-Variation constrained dictionary learning*. MICCAI - 16th International Conference on Medical Image Computing and Computer Assisted Intervention. <http://hal.inria.fr/hal-00853242>

Scientific reviewing

- 2016 NIPS –Advanced Neural Information Processing Systems

Selected workshops & and Symposia

- 2017 ○ Attended two-week-long machine-learning summer school (MLSS) in Tuebingen, Germany.
- 2016 ○ Taught at Nilearn (machine learning in neuroimaging) workshop at Brain-Hack, Lausanne, Switzerland, in June.
○ Taught at Nilearn workshop at OHBM, Geneva, Switzerland, in June.
○ Taught at workshop on Python programming and machine learning, at Psychiatry department, RWTH, Aachen, Germany, in January.

Professional experience

- Oct 2014 – present **Part-time research engineer**, *Parietal Team – INRIA / CEA, Neurospin, Neurospin, Université Paris-Saclay, France*.
While preparing my PhD, a 6th of my time is spent programming and consulting.
- Oct 2012 – Oct 2014 **Research engineer**, *Parietal Team – INRIA / CEA, Neurospin, Neurospin, Université Paris-Saclay, France*.
software engineering; implementation of structured priors for brain data; optimization; preprocessing and statistical analysis of fMRI data; registration algorithms; machine learning on fMRI data. Some of the output of this project were contributions to the open-source projects <https://github.com/neurospin/pyprocess> and <http://nilearn.github.io>.
- Sep 2011 – Oct 2012 **Freelancer and Open-Source**, *Various employers*.
Simulations for CR (Cognitive Radio) research; Windows system programming (DLLs, user-space root-kits, etc.); implementation of Machine Learning algorithms
- Mar 2011 – Aug 2011 **Cryptology and Security intern**, *P1 Security, Paris, France*.
Implementation of an event-driven pentesting framework for telecom protocols

Languages

- Bilingual English (fluent), French (fluent)

Contributions to open-source software projects

- Data science & AI scikit-learn <http://scikit-learn.org/stable/>
Neuro-Imaging nilearn <http://nilearn.github.io>, nipy <http://nipy.org>, pyprocess <https://github.com/neurospin/pyprocess>
Complete list See complete list on my github profile at <https://github.com/dohmatob>

IT and computing skills

- See my github profile at <https://github.com/dohmatob>
- Programming Languages Python (including Numpy/Scipy, Matplotlib, Seaborn), bash, Latex, C++, Emacs, Matlab
- Data science & AI solid mastery of convex optimization, scikit-learn, pandas, keras

Neuro-imaging nilearn, SPM, FSL, ANTS, nipy, Mango
Software Engineering OOP, TDD, version control (git, github), continuous integration (travis, circle-ci), parallel computing (xargs, joblib)
Operating Systems GNU/Linux, Windows

Business experience

2016 Participated in “Doctoriales 2016 projet innovant” in which I collaborated with a team of 7 other participants to build a start-up in 24 hours.

Hackathon experience

2013 – present BrainHack Lausanne (2016); BrainHack Paris (2016); scikit-learn coding sprint Paris (2015); PyData Paris (2015); Google Hash Code Paris (2014); BrainHack Paris (2013)

Awards and scholarships

2014 Honourable Mention (2ND prize) awarded to the paper “*Benchmarking solvers for TV- ℓ_1 least-squares and logistic regression in brain imaging*” (<http://hal.inria.fr/hal-00991743>), presented at the 4th international workshop on Pattern Recognition in Neuro-imaging (PRNI 2014), Max-Planck Institute for Intelligent Systems, Tuebingen – Germany

2009 - 2011 Erasmus Mundus, ALGANT (*Algebra, Geometry, and Number Theory*), Université de Bordeaux 1

Interests

Research data science & AI, convex optimization, neuroscience, game theory
Hobbies programming, dancing, ping-pong, arcade games