
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
Topic: The object of this thesis is to invent data-driven techniques for learning inter-subject functional variability, the ultimate goal being the enhancement of human brain functional connectome charting. This at the intersection of machine learning (dictionary learning, robust estimation, etc.), convex optimization, and neuroscience. 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 ≥ 125 ; 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– 2016

Workshops & and Symposia

- 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)

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 price) awarded to the paper “*Benchmarking solvers for $TV-\ell_1$ 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, Université de Bordeaux 1

Interests

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