Elvis Dohmatob

PhD student

Neurospin CEA, Bât 145
Point Courrier 156, 91191 Gif/Yvette, France.
✉ *elvis.dohmatob.inria.fr*
dohmatob.github.io
Date of birth: 27 April 1987

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 $\geq$ 130; total papers $\geq$ 15; h index $\geq$ 3; 110 index $\geq$ 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*). http://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 BrainHack, 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/pypreprocess 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, pypreprocess https://github.com/neurospin/pypreprocess

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, Maplotlib, Seaborn), bash, Latex, C++, Emacs, Matlab

Data science & AI solid mastery of convex optimization, scikit-learn, pandas, keras

Neuro-imaging nilearn, SPM, FSL, ANTS, nipype, 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 price) 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, Université de Bordeaux 1

Interests

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