Elvis Dohmatob

PhD student

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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 $\geq$ 169; 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 |

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 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	convex optimization, scikit-learn, pandas, keras, pytorch

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 (*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