

TOM DUPRELATOUR

PhD student

Télécom ParisTech, Université Paris-Saclay

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- I am a PhD student at Télécom ParisTech in France, advised by Alexandre Gramfort and Yves Grenier. I graduated from Ecole polytechnique in 2013 and EPFL in 2015. My work focuses on neural oscillations modeling, signal processing, and machine learning.

EDUCATION

- PhD** Télécom ParisTech, Paris, France
2015-2018? Thesis: *Non-linear auto-regressive models for cross-frequency coupling in neural time series*.
Advised by Alexandre Gramfort and Yves Grenier
- MS** École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
2013-2015 Master degree in Information Technology
- MS** École Polytechnique, Palaiseau, France
2010-2013 Engineer degree: Cross-curricular formation, with Mathematics, Physics and Informatics.
- CPGE** Lycée Saint Louis, Paris, France
2008-2010 A 2-year intensive undergraduate program for admission to France's top engineering schools.

EXPERIENCE

Positions

- TPT** Research developer, working on scikit-learn, an open source machine learning library in Python.
2015 (5 months) Development of new solvers for linear models, and non-negative matrix factorization.
Télécom ParisTech, Paris, France
- BSPP** Full time first responder, leading a first aiders unit.
2011 (7 months) *Paris Fire Brigade, Paris, France*

Internships

- DxO** Research intern, working on motion deblurring, i.e. blind deconvolution.
2014 (6 months) Literature review, prototyping on Matlab, state of the art improvement (not published).
DxO Labs, Boulogne-Billancourt, France
- IEF** Research intern, working on a calculus paradigm using stochastic binary signals.
2013 (3 months) Matlab simulations, and Cadence implementation with analog CMOS circuits.
Institut d'Électronique Fondamentale, Orsay, France

Teaching assistantships

- Data camp** One week data camp on practical data-science
Winter 2016 *Université Paris-Saclay (M2), Palaiseau, France*
- SIGMA202a** Linear time series
Winter 2016 *Télécom ParisTech (M1), Paris, France*
- PACT** Advisor for a year-long innovative team project
2016 - 2017 *Télécom ParisTech (L3), Paris, France*

COMPUTING

I am an active developer, maintainer, and contributor to several scientific packages in the Python community. See my GitHub profile (<http://github.com/tomdlt>) for more details.

Skills

- Experienced in Python, Cython, some knowledge in Matlab, Java, C++
- Experienced in a variety of tools, including LaTeX, MS Office, Adobe Photoshop

Software

- scikit-learn** 2015–Present I am a core developer of [scikit-learn](#), a popular package for performing machine learning in Python. I have contributed most notably in adding a stochastic average gradient (SAG) solver to linear models, and both a coordinate descent solver and a multiplicative update solver to non-negative matrix factorization (NMF).
- pactools** 2016–Present I am the author of [pactools](#), a Python package to analyze phase-amplitude-coupling (PAC) in neural time series.

LANGUAGES

- *French*: Native proficiency
- *English*: Professional working proficiency
- *Spanish*: Limited working proficiency

CONFERENCES

Talks

- September 2017 *Non-linear auto-regressive models for cross-frequency coupling in neural time series*
C3S 2017, Cologne
- June 2016 *Training with open-source*
PyData Paris 2016, Paris

Posters

- August 2018 *Non-linear auto-regressive models for cross-frequency coupling in neural time series*
BIOMAG 2018, Philadelphia
- April 2018 *Driver estimation in non-linear autoregressive models*
ICASSP 2018, Calgary
- December 2017 *Learning the morphology of brain signals using alpha-stable convolutional sparse coding*
NIPS 2017, Long Beach
- June 2017 *Parametric models of phase-amplitude coupling*
OHBM 2017, Vancouver
- March 2017 *Parametric estimation of spectrum driven by an exogenous signal*
ICASSP 2017, New Orleans
- February 2017 *Parametric models of phase-amplitude coupling in neural time series*
BASP workshop 2017, Villars-sur-Ollon

PUBLICATIONS

Under review

- [1] L. Grabot, T. W. Kononowicz, T. Dupré la Tour, A. Gramfort, V. Doyère, V. van Wassenhove. *Oscillatory multiplexing indexes precision*. eLife, 2018

Published

- [2] T. Dupré la Tour, Y. Grenier, A. Gramfort. *Driver estimation in non-linear autoregressive models*. ICASSP, 2018
- [3] T. Dupré la Tour, L. Tallot, L. Grabot, V. Doyère, V. van Wassenhove, Y. Grenier, A. Gramfort. *Non-linear auto-regressive models for cross-frequency coupling in neural time series*. PLOS Computational biology, 2017
- [4] M. Jas, T. Dupré la Tour, U. Simsekli, A. Gramfort. *Learning the morphology of brain signals using alpha-stable convolutional sparse coding*. NIPS, 2017
- [5] T. Dupré la Tour, Y. Grenier, A. Gramfort. *Parametric estimation of spectrum driven by an exogenous signal*. ICASSP, 4301–4305, 2017