Tom DupreLaTour

Postdoc researcher

University of California, Berkeley

Nationality: French
+1 510 906 5030
tomdlt.github.io
tomdlt@berkeley.edu

- I am a postdoc researcher in Jack Gallant's lab at University of California, Berkeley. My work focuses on fMRI modeling, neural oscillations, signal processing, and machine learning.

Education

PhD 2015-2018
Télécom ParisTech, Paris, France
Thesis: *Non-linear models for neurophysiological time series.*
Advised by Alexandre Gramfort and Yves Grenier

MS 2013-2015
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
Master degree in Information Technology: Machine Learning, Signal Processing, Image Processing, Distributed Information Systems, Wireless Communications

MS 2010-2013
École Polytechnique, Palaiseau, France
Engineer degree in top engineering school: Cross-curricular formation with Mathematics, Physics and Computer Science, specialization in Electrical Engineering.

CPGE 2008-2010
Lycée Saint Louis, Paris, France
A 2-year intensive undergraduate program for admission to France's top engineering schools.
Linear Algebra, Calculus, Physics

Experience

Current position

Postdoc researcher 2018-present
University of California, Berkeley, Berkeley, United States
Working on fMRI voxelwise encoding models in Jack Gallant's lab.

Internships

Research engineer 2015 (5 months)
Télécom ParisTech, Paris, France
Working on scikit-learn, a machine learning library in Python.
Implementation of new solvers for linear models, and non-negative matrix factorization.

Research intern 2014 (6 months)
DxO Labs, Boulogne-Billancourt, France
Working on motion deblurring, i.e. blind deconvolution.
Matlab implementation, state of the art improvement (confidential).

Research intern 2013 (3 months)
Institut d'Électronique Fondamentale, Orsay, France
Working on a calculus paradigm using stochastic binary signals.
Matlab implementation, Cadence implementation with analog CMOS circuits.
Summa cum laude from Ecole polytechnique (top 10%).

First responder 2011 (7 months)
Paris Fire Brigade, Paris, France
Leading a first aiders unit (full time).
Decision making in critical situations (childbirth, cardiac arrests, strokes, ...).

Teaching assistantships

Data camp 2016 - 2017
Université Paris-Saclay, Palaiseau, France
One week data camp on practical data-science (second year of master).

SIGMA202a 2016 - 2017
Télécom ParisTech, Paris, France
Linear time series (first year of master).

PACT 2016 - 2017
Télécom ParisTech, Paris, France
Advisor for a year-long innovative team project (last year of bachelor).

updated March 2019

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 Python package for performing machine learning.

pactools 2016-Present — I am the author of pactools, a Python package to analyze phase-amplitude-coupling (PAC) in neural time series.

alphacsc 2017-Present — I am the author of alphascsc, a Python package to perform convolutional dictionary learning with time series.

Languages

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

Awards

Université Paris-Saclay STIC doctoral school November 2018 — Winner of the 2018 award (1st prize) for the best scientific production of the doctoral school, for my PLOS Computational Biology paper and my Python package *pactools.*

Ecole polytechnique September 2013 — Summa cum laude (top 10%) for my research internship on a CMOS stochastic calculus paradigm at Institut d'Électronique Fondamentale.

Publications

Published

[1] L. Grabot, T. W. Kononowicz, T. Dupré la Tour, A. Gramfort, V. Doyère, V. van Wassenhove.
The strength of alpha-beta oscillatory coupling predicts motor timing precision.
Journal of Neuroscience, 2019

[2] T. Dupré la Tour, T. Moreau, M. Jas, A. Gramfort.
Multivariate convolutional sparse coding for electromagnetic brain signals.
NeurIPS, 2018

[3] T. Dupré la Tour, Y. Grenier, A. Gramfort.
Driver estimation in non-linear autoregressive models.
ICASSP, 2018

[4] 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

[5] M. Jas, T. Dupré la Tour, U. Simsekli, A. Gramfort.
Learning the morphology of brain signals using alpha-stable convolutional sparse coding.
NeurIPS, 2017

[6] T. Dupré la Tour, Y. Grenier, A. Gramfort.
Parametric estimation of spectrum driven by an exogenous signal.
ICASSP, 2017

Conferences

Talks

June 2018 *Nearest neighbors in scikit-learn estimators, API challenges*
PyData meetup, Paris

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

December 2018 *Multivariate convolutional sparse coding for electromagnetic brain signals*
NeurIPS 2018, Montreal

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*
NeurIPS 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