Tom DupreLaTour

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Postdoc **UC Berkeley**, Berkeley, USA
2019-present Building machine learning models for neuroimaging.
Advised by Jack Gallant.

Education

PhD **Télécom Paris**, Paris, France
2015-2018 Thesis: "Non-linear models for neurophysiological time-series"
Advised by Alexandre Gramfort and Yves Grenier.
Best paper award - 1st prize in doctoral school (Université Paris-Saclay).
PhD thesis award - 1st prize in Signal, Image & Vision (Club EEA, GRETSI, GdR ISIS).
"This is technically the most advanced PhD thesis I have ever seen, and the second best doesn't even come close to it." (Guido Nolte - manuscript reviewer)

MS **École Polytechnique Fédérale de Lausanne**, Lausanne, Switzerland
2013-2015 Master degree in information technology: Machine learning, signal processing, image processing, distributed systems, wireless communications, etc.

MS **École Polytechnique**, Palaiseau, France
2010-2013 Engineer degree in *top* French "Grandes Ecoles": Cross-curricular formation, mathematics, physics, computer science. Major in electrical engineering.

CPGE **Lycée Saint Louis**, Paris, France
2008-2010 A 2-year intensive program for admission to French "Grandes Ecoles".
Linear algebra, calculus, physics.

Experience

Teaching assistant **Télécom ParisTech**, Paris, France
Teaching assistant in the following classes:
2016 - 2017 sigma202a - Linear time series (first year of master).
Data camp - One week on practical Data Science (second year of master).
PACT - Year-long innovative team project (last year of bachelor).

Research engineer **Télécom ParisTech**, Paris, France
Development of scikit-learn, a machine learning library in Python.
2015 Implementation of new solvers for linear models, and matrix factorization.
(5 months) *"Fastest inclusion in the core developers team." (Gael Varoquaux)*

Research intern **DxO Labs**, Boulogne-Billancourt, France
Research on blind deconvolution for motion deblurring in computer vision.
2014 *State of the art improvement (confidential).*
(6 months) *Research report used as a target reference by Pierre Vandergheynst (EPFL).*

Research intern **Institut d'Électronique Fondamentale**, Orsay, France
Research on a calculus paradigm using stochastic binary signals.
2013 Implementation in Matlab, and in Cadence with analog CMOS circuits.
(3 months) *Summa cum laude (Ecole polytechnique) for my research report (top 10%).*

First responder **Paris Fire Brigade**, Paris, France
Member of a first responders unit (full time).
2011 Decision making in critical situations (cardiac arrests, accidents, strokes, ...).
(7 months) *Took leadership of the team after four months.*

Services

Reviewer 2019-2020
Reviews for top machine learning conferences (NeurIPS/ICML/ICLR), and for open-source software journals (JMLR/JOSS/Scipy)
Reviewer award - Free registration for NeurIPS 2019.

Advisor Nov. 2019
Advices for new contributors in a scikit-learn hackathon, San Francisco, USA
Organized by "Women in machine learning and data science".

Languages

French Native proficiency

English Professional working proficiency

Spanish Limited working proficiency

Computing

I am an active developer, maintainer, and contributor to several scientific packages in the Python community. More details in my GitHub profile: https://github.com/tomdlt.

Skills

languages Python, Cython, Bash, (Matlab), (Java), (C++)

tools Git, LateX, MS Office, Adobe Photoshop

Open-source software

scikit-learn (Core developer) Python - General machine learning.

pactools (Main author) Python - Phase amplitude coupling in neural time series.

alphacsc (Main author) Python - Convolutional dictionary learning in time series.

himalaya (Main author) Python - Efficient multiple-target regression models.

pycortex (Maintainer) Python - Surface visualization of fMRI data.

Publications

[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 autoregressive 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

[7] **T. Dupré la Tour**, Y. Grenier, A. Gramfort.
Parametric models of phase-amplitude coupling in neural time series.
BASP workshop, 2017

Invited talks

Apr. 2021 *Convolutional sparse coding for electromagnetic brain signals.*
Noninvasive Mathematics 2021, Genoa, Italy (remote)

Mar. 2021 *Multi-penalty ridge regression for voxelwise encoding models.*
ENS seminar, Lyon, France (remote)

Mar. 2021 *Voxelwise encoding models.*
Cognitive Neuroscience Colloquium, Berkeley, United States (remote)

Aug. 2019 *Non-linear models for neurophysiological time-series.*
GRETSI 2019, Lille, France (remote)

Nov. 2018 *Scikit-learn Transformers, v0.20 and beyond.*
PyParis 2018, Paris, France

Jun. 2018 *Nearest neighbors in scikit-learn estimators, API challenges.*
PyData meetup, Paris, France

Sep. 2017 *Non-linear autoregressive models for cross-frequency coupling in neural time-series.*
C3S 2017, Cologne, Germany

Jun. 2016 *Training with open-source.*
PyData Paris 2016, Paris, France