

# François P. Landes

Born on April 2, 1988 – French

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INFORMATION Tel: +33 6 99 30 17 20, Skype: francois\_landés  
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CURRENT POSITION **Maître de Conférences (assistant professor)** **2018 - current**  
Université Paris-Sud, Orsay, Laboratoire de Recherche en Informatique (LRI, CS Lab.).  
Team AO (Algorithms and Optimization).

## RESEARCH INTERESTS

- Development and applications of new Machine Learning approaches to solve fundamental physics problems (i.e. glasses): point sets & other isotropy- or permutation-preserving networks
- Understanding the dynamics of learning
- Statistical Physics: Glassy dynamics, supercooled liquids ;  
Out of equilibrium, disordered systems: dynamical phase transitions, avalanches
- Markov State Models building: density-based clustering, Robust PCCA

## PREVIOUS EXPERIENCES

**Postdoctoral Fellow, Simons collaboration “cracking the glass problem” 2016 - 2018**  
with Andrea J. Liu (UPenn, Pennsylvania), David R. Reichman (Columbia, New York), Giulio Biroli (CEA IPhT, France) and Olivier Dauchot (ESPCI, France).  
Physical location: Alternating between ENS/CEA, Paris and UPenn, Philadelphia, with short visits to Columbia, NYC.

**(Independent) Postdoctoral Fellow, ICTP, Trieste, Italy 2014-2016**  
Abdus Salaam International Center for Theoretical Physics.  
Section: “*Condensed Matter and Statistical Physics*”.

**Ph.D. Thesis, LPTMS, Université Paris-Sud, Orsay 2011-2014**  
Advisor: Alberto Rosso. (and active collaborations with E.A. Jagla)  
Subject: “*Viscoelastic Interfaces Driven in Disordered Media and Applications to Friction*”.  
Defended Sept. 2014, received the **Springer Theses Award for outstanding theses** of Univ. Paris-Sud., 2014.

**Two months internship at LPTMS, Orsay 2011**  
At Laboratoire de Physique Théorique et Modèles Statistiques (LPTMS), supervisor Alberto Rosso (January-February). Fractional Brownian Motion (fBm): Development of a numerical tool to build fBm and comparison with a related (non-stationary) process.

**Four months internship at Laboratoire MSC, Paris 2010**  
At MSC (Matière et Systèmes Complexes), Supervisor Frédéric van Wijland (April-July). Kipnis Marchioro Presutti (KMP) Heat Transfer model: Out-of-equilibrium, finite temperature model. Study of the Matrix Ansatz method. Found the stationary solution near-equilibrium at second order.

**Four months internship at the CSM group, Helsinki, Finland** **2009**  
At CSM (Complex Systems and Materials), supervisors Mikko Alava and Matti Peltömäki (April-July). Finding Groups in Directed Networks: by defining and minimizing a cost function.

EDUCATION **M.Sc. in Physics (M2), iCFP, ENS Ulm, Paris** **2010-2011**  
Specialization: “*Theoretical Physics*”. Graduated with honors.

**M.Sc. in Physics (M1), École Polytechnique, Palaiseau** **2009-2010**  
Specialization: “*Fundamental Interactions and Elementary Constituents*”, Excellence Scholarship.

**B.Sc. and M.Sc., Ensta ParisTech, Paris** **2007-2010**  
B.Sc. in General Engineering (L3) and M.Sc. in Applied Mathematics (M2).  
Third year specialization: “*Modelization and Simulations of Systems*”.

**“Classes Prépa”, Lycée Saint Louis, Paris** **2005-2007**  
Intensive courses for the preparation to the competitive exams for the *Grandes Écoles*.

SKILLS

**Computer tools**

- *fluent, everyday use (languages, packages):*  
CUDA C, C/C++, Python/Cython/Numba, LaTeX, Hoomd package.
- *fluent, everyday use (tools):*  
Linux’ bash, HPC clusters (PBS, Slurm), Inkscape, Mathematica.
- *Fair understanding:*  
Fortran, Maple, Matlab, HTML, GIMP, MPI.

**Other Languages**

- *French:* native.
- *English:* fluent (109/120 at the TOEFL in 2009).
- *Italian:* fair.
- *German, Spanish, Arabic:* a few notions.

**Driving Licence: “Permis B”**

TEACHING & RELATED ACTIVITIES **Various teaching at Univ. Paris Sud** **2018-current**  
Lecturing Mathematics for CS students (second year).  
Teaching introductory Machine Learning courses (2nd year, 4th year, 5th year students).

**PhD Support, UPenn (Philadelphia)** **2016-current**  
I am providing support to Sean Riddout, PhD student in Andrea Liu’s group. As we work on very related topics, we discuss together as often as needed. My availability to answer some questions is very helpful to him.

**PhD Support, ICTP-SISSA (Trieste)** **2015-2016**  
I co-supervised J.P. Jerico and Valerio Volpati (PhD students with M. Marsili) during our econophysics project (publication: “When does inequality freeze an economy?”).

**Advanced Stat. Phys., ICTP (Trieste)** **2014**

Contents: A few short exercise sessions/tutorials on Advanced Statistical Physics topics for the “Diploma Students” (*Masters program aimed at developing countries’ students*).

**Stat. Phys. and Scalar Waves, Univ. Paris-Sud (Orsay) 2012-2014**

“Monitorat de thèse”: Contents: Statistical Physics catch-up course (L3 level course for M1 students in the “Magistère de Physique d’Orsay”); Scalar Waves for freshmen (L2 PMCP); Practical work sessions (Doppler Effect) for freshmen (L2 PMCP).

**Python and C++ at IUT d’Orsay (Orsay) 2012**

“Monitorat de thèse”: Freshmen at IUT d’Orsay (2 years of professional formation). Contents: Python (for 1st year “DUT Mesures Physiques” students); C++ (for 1st year “IUT Informatique” students).

OTHER  
RESPONSI-  
BILITIES

Co-organization of the Weekly talk in the Simons Collaboration (Paris) (2017-2018).  
Member of the Lab’s Journal Club organizing committee (2013-2014).  
Delegate for the students at the Lab Council (2013-2014).  
Volunteer organizer of an artistic festival (2007-2008 and 2008-2009): Logistics.  
Member of the school’s theatre club (2007-2008).

SCIENTIFIC  
VISITS

**Continuous visits to Andrea Liu, Philadelphia, PA, USA 2016-2018  
and David Reichman, New York City, NY, USA**

UPenn and Columbia (various times)  
Ongoing collaboration on the dynamics of supercooled liquids and their connection to structure.

**Visit to Eugenio Lippiello, Napoli, Italy 2017**

Second univeristy of Caserta (October)  
Collaboration on minimal models for earthquakes description.

**Visit to Matteo Palassini, Barcelona, Spain 2015**

Departamento di Fisica Theorica in UBC (April).  
Collaboration on models of Electron Glasses.

**Visit to Eduardo A. Jagla, Bariloche, Argentina 2013**

Grupo de Teoría de Sólidos in Centro Atomico (October).  
Collaboration on Earthquake models.

**Visit to Eduardo A. Jagla, Bariloche, Argentina 2011**

Grupo de Teoría de Sólidos in Centro Atomico (November).  
Collaborations on Directed Percolation and Earthquake models.

IMPORTANT  
SEMINARS &  
CONFERENCE

*I do not include here the Lab’s seminars I gave in front of small audiences, in my own lab or during my visits to other groups.*

**StatPhys 26 (Lyon, France) July 2016**  
Poster: *Markov State Modeling of Sliding Friction*

**Statistical Physics of Materials (Aussois, France) June 2016**

Short Presentation: *Magnitude-Area relationship: failures and success of spring-block models*

**CECAM workshop – The flow of amorphous solids: from atomistic simulations to Earth Science applications** (Lyon, France) **June 2016**

Short Presentation: *Magnitude-Area relationship: failures and success of spring-block models*

**Workshop on Accelerated High-Performance Computing in Computational Sciences** (ICTP, Trieste, Italy) **May 2015**

Short Presentation: *(CUDA simulation of) Electron Glasses: slow dynamics of a long-range interacting system*

**Driven Disordered Systems 2014** (LiPhy, Grenoble, France) **Jun 2014**

Talk on: *Viscoelastic Interfaces Driven in Disordered Media and Applications to Friction.*

FUNDING,  
AWARDS &  
SCHOLARSHIPS

**Springer Theses Award** **2015**

Received the Springer Theses Award for outstanding theses of Univ. Paris-Sud. This prize is given to the top two best theses that were written in English and defended in Univ. Paris-Sud., Orsay in 2014.

**Visitor in Bariloche** **2011, 2013**

Part of two ECOS - Sud programs (Argentinian – European cooperation). Travel and daily costs covered.

**Ph.D. Funding** **2011-2014**

Grant from ED107: École Doctorale 107, *Physique Théorique de la région Parisienne.*

**ICAM conference** **2012**

Grant paying for the conference fees, travel costs and some daily expenses.

**Master of Science (iCFP)** **2010-2011**

Excellence scholarship at École Polytechnique: complete exemption from the fees.