

# Jerome-Alexis Chevalier

PH. D. IN MACHINE LEARNING

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## Summary

I recently obtained a PhD degree in machine learning working on the statistical control of sparse models in high dimension with application in neuro-imaging. Earlier, I worked in quantitative finance for more than two years and this is how I first learnt about machine learning. Quickly, I decided to specialize in machine learning since I am passionate by probability, statistics and coding. Now, I am looking for a position where I can work on projects that require an expertise in machine learning solutions. I also enjoy looking for new algorithms or improve existing ones.

## Education

### Telecom ParisTech and Inria Paris-Saclay

PHD CANDIDATE: STATISTICAL CONTROL OF SPARSE MODELS IN HIGH DIMENSION

Paris

2017 - 2021

- Worked on several models for high dimensional inference (Desparsified Lasso, Multi-Split, Corrected Ridge, Residual Bootstrap)
- Worked on clustering and ensembling techniques suited for statistical inference
- Developed an algorithm (Ensemble of Clustered Desparsified Lasso) adapted for the statistical inference on neuro-imaging problems
- Developed a Python package for high dimensional inference: HiDimStat available at <https://ja-che.github.io/hidimstat/>
- Compared algorithms using several neuro-imaging datasets (HCP, IBC, Haxby, Oasis, Neurovault)
- Wrote several research articles in English for machine learning conferences and journals
- Followed several machine learning courses: optimization (40h), deep learning (40h)

### Universite Paris Diderot, Paris 7

MASTER OF SCIENCE: STATISTICS, PROBABILITY AND DATA SCIENCE (M2MO, EX-DEA LAURE ELIE)

Paris

2016 - 2017

- Machine Learning, Datamining, Probability, Statistics, Stochastic Calculus, Python, C++

### Essec Business School

ADVANCED MASTER: FINANCIAL TECHNIQUES

Paris

2013 - 2014

### ENSEIRB-MATMECA

MASTER OF ENGINEERING: MATHEMATICAL MODELING AND MECHANICS

Bordeaux

2010 - 2013

### Lycee Michel Montaigne

PREPARATORY CLASS: MATHEMATICS AND PHYSICS

Bordeaux

2008 - 2010

## Publications

**MICCAI 2018:** Chevalier, J.A., Salmon, J., Thirion, B.: Statistical inference with ensemble of clustered desparsified lasso

**IPMI 2019:** Chevalier, J.A., Nguyen, B., Thirion, B.: ECKO: Ensemble of clustered knockoffs for robust multivariate inference on MRI data

**ICML 2020:** Nguyen, B., Chevalier, J.A., Thirion, B., Arlot, S.: Aggregation of Multiple Knockoffs

**NeurIPS 2020:** Chevalier, Gramfort, Salmon, Thirion: Statistical control for spatio-temporal MEG/EEG source imaging with d-MTLasso

**NeuroImage Journal 2021:** Chevalier, Nguyen, Varoquaux, Salmon, Thirion: Decoding with confidence: Statistical control on decoder maps

**Submitted to a statistical journal:** Chevalier, Nguyen, Thirion, Salmon: Spatially relaxed inference on high-dimensional linear models

## Experience

### Inria Paris-Saclay

PHD CANDIDATE: STATISTICAL CONTROL OF SPARSE MODELS IN HIGH DIMENSION

Paris

Sep. 2018 - Sep. 2019

- Coding mission: contributed to Nilearn and Nistats machine learning libraries for neuro-imaging in Python

### Amundi Alternative Investments

QUANTITATIVE ANALYST IN ALTERNATIVE INVESTMENTS

London

Aug. 2015 - Aug. 2016

- Developed and maintained quantitative tools to optimize the fund selection
- Contributed to the monthly allocation strategy outlooks working closely with three teams (Equity, Fixed Income, Macro)

### BNP Paribas Investments Partners - THEAM

FUND MANAGER

Paris

Nov. 2014 - Jun. 2015

- Managed a range of CPPI lifecycle funds (AuM Eur 1 billion)
- Implemented the investment process including the risky asset allocation and the interest rate hedging

### Oddo & Cie - Oddo Asset Management

QUANTITATIVE INVESTMENT ANALYST

Paris

Apr. 2014 - Oct. 2014

- Built investment style indexes and smart beta strategies to monitor market trends and develop new funds

## Skills

**Languages:** French (native), English (fluent), Spanish (intermediate)

**Programming languages and Softwares:** Python (Scikit-Learn, Numpy, Scipy, Matplotlib), R, C++, Latex, Git, Atom