François-Pierre Paty

PhD Student at ENSAE

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francoispierrepaty • French nationality

Education

PhD Student at ENSAE Paris — **Palaiseau, France**
- PhD under the supervision of Prof. Marco Cuturi (ENSAE, Google Brain) — *2018-2021*
- Grant from CREST

Université Paris-Sud — **Orsay, France**
Masters in Statistics and Machine Learning — *2017–2018*
Advanced courses in theoretical statistics and machine learning

ENSAE Paris — **Palaiseau, France**
Engineering Track — *2017–2018*
Specialized in statistics and data science

École polytechnique — **Palaiseau, France**
Engineering Track — *2014–2018*
Studied applied mathematics with focus on applied and theoretical statistics, probability and data analysis

Lycée Louis-le-Grand — **Paris, France**
Classe préparatoire aux Grandes Écoles — *2012–2014*
Intensive two-year university foundation course in mathematics and physics preparing for the nationwide competitive entrance examinations to the Grandes Ecoles

Professional experiences

Postdoctoral Researcher — **Palaiseau, France**
Centre de Recherche en Économie et STatistiques (CREST) — *Since Sept 2021*
Developing novel machine learning algorithms with applications in economics

Teaching Assistant — **ENSAE Paris**
Teaching maths and computer science for engineering students — *2018-2021*

Sparse recovery of time series — **Palaiseau, France**
Finance For Energy Market Research Centre and EDF R&D — *April 2017–August 2017*
Adapted sparse deconvolution techniques to missing data imputation for time series. Received *congratulations* from the Applied Mathematics department of École polytechnique. A patent has been registered by EDF

Modelling of raw material markets — **Palaiseau, France**
EDF R&D — *Sept 2016–March 2017*
Modelling of the long-term ore markets, in collaboration with EDF R&D

Scientific Publications

- **Regularized Optimal Transport is Ground Cost Adversarial**, F-P. Paty, M. Cuturi, in *International Conference on Machine Learning*, 2020
- **Regularity as Regularization: Smooth and Strongly Convex Brenier Potentials in Optimal Transport**, F-P. Paty, A. d'Aspremont, M. Cuturi, in *International Conference on Artificial Intelligence and Statistics*, 2020, **Notable paper award**
- **Subspace Robust Wasserstein Distances**, F-P. Paty, M. Cuturi, in *International Conference on Machine Learning*, 2019, **Oral presentation**

Awards and Distinctions

- Notable paper award *(top* 3 *out of* 423 *accepted papers)*, International Conference on Artificial Intelligence and Statistics, 2020
- Oral presentation *(top* 20% *of accepted papers)*, International Conference on Machine Learning, 2019
- Congratulations from the Applied Mathematics department of École polytechnique, 2017

Talks, Tutorials and Conference participation

Conferences

- **August 2020:** I gave an online talk at *AISTATS 2020*
- **July 2020:** I gave an online talk at *ICML 2020*
- **June 2019:** I gave a 20-minute oral presentation at *ICML 2019* in Long Beach

Seminars

- **March 2021:** I will give a talk at the *Image, Optimization and Probability seminar* at the Institut de Mathématiques de Bordeaux
- **March 2021:** I will give a talk at the *EDMH PhD students seminar* in Université Paris Sud
- **January 2020:** I gave a talk at the seminar day *Learning meets Astrophysics* in CEA Saclay
- **November 2019:** I gave a talk at the seminar *Stat·Eco·ML* in ENSAE Paris
- **November 2019:** I gave a talk at *Le Séminaire Palaisien* in INRIA Saclay

Summer Schools

- **August 2019:** I gave a tutorial about computational optimal transport during the *Machine Learning Summer School 2019* in Moscow
- **July 2019:** I gave a talk at *Saint-Flour Probability Summer School*

Conference and Workshop participation (non-speaker)

- **December 2019:** I presented a poster at *NeurIPS Optimal Transport and Machine Learning Workshop* in Vancouver
- **June 2019:** I participated in the workshop *People in Optimal Transportation and Applications* in Cortona
- **March 2019:** I presented a poster at the workshop *Optimization and Statistical Learning* in Les Houches

Service to the community

Conference Reviewer
AISTATS 2020, ICML 2020, NeurIPS 2020

Seminar Organizer **ENSAE Paris**
StatEcoML.github.io *2019-2020 and 2020-2021*
I co-organize the "Statistics, Econometrics, Machine Learning" (Stat·Eco·ML) seminar at ENSAE Paris

Teaching experience

Teacher Assistant **ENSAE Paris**

Since Sept 2018

- Maths (taught in French):
  - Topology and Analysis *(last-year Bachelor students)*, Fall 2018, Fall 2019, Fall 2020
  - Differentiable Optimization *(last-year Bachelor students)*, Spring 2019, Spring 2020, Spring 2021
  - Mathematical Statistics *(MSc. students)*, Fall 2018, Fall 2020
- Computer Science (taught in English):
  - Geometric Methods in Machine Learning *(MSc. students)*, Spring 2019
  - Stochastic Optimization and Automatic Differentiation for Machine Learning *(MSc. students)*, Spring 2019
  - Optimal Transport : Theory, Computations, Statistics and ML Applications *(MSc. students)*, Spring 2020
  - Deep Learning: Models and Optimization *(MSc. students)*, Spring 2020

Programming skills

Machine Learning: Python (JAX, sklearn)

Web: ReactJS, PHP, SQL

Languages

French: Mother tongue

English: Fluent

Italian: Fluent

Chinese: High intermediate (HSK4)