# François-Pierre Paty
## PhD Student at ENSAE

✉ francoispierre.paty@gmail.com  •  🌐 francoispierrepaty.github.io
🗘 francoispierrepaty  •  French nationality

## Research interests

Recent progress in computational optimal transport have opened the door for a wide range of applications in statistics and machine learning. My research focuses on making those tools more robust—to the curse of dimensionality, to noise, to outliers—in order to provide theoretically consistent and numerically efficient methods in machine learning applications.
**Keywords:** Optimal Transport, Statistics, Machine Learning.

## Education

**PhD Student at ENSAE Paris**                                **Palaiseau, France**
- PhD under the supervision of Prof. Marco Cuturi (ENSAE, Google Brain)      *Since Sept 2018*
- 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

## Publications

**Regularized Optimal Transport is Ground Cost Adversarial**                **ICML 2020**
*F-P. Paty, M. Cuturi*

**Regularity as Regularization: Smooth and Strongly Convex Brenier Potentials in Optimal Transport**        **AISTATS 2020**
*F-P. Paty, A. d'Aspremont, M. Cuturi*
(Notable Paper Award, top $3$ out of $423$ accepted papers)

**Subspace Robust Wasserstein Distances**                                **ICML 2019**
*F-P. Paty, M. Cuturi*
(20-minute oral, top $\sim 20\%$ of papers)

## Talks and Tutorials

- **August 2020:** I gave an online talk at *AISTATS 2020*
- **July 2020:** I gave an online talk at *ICML 2020*
- **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
- **August 2019:** I gave a tutorial during the *Machine Learning Summer School 2019* in Moscow
- **July 2019:** I gave a talk at *Saint-Flour Probability Summer School* in Saint-Flour, France
- **June 2019:** I gave a 20-minute oral presentation at *ICML 2019* in Long Beach

## Research internships

**Maximizing Wasserstein distances** **Palaiseau, France**
*ENSAE Paris* *April 2018–July 2018*
Master thesis under the supervision of Prof. Marco Cuturi, among the top 4 master thesis at ENSAE

**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.

**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.

## Teaching experience

**Teacher Assistant** **ENSAE Paris**
*Since Sept 2018*

- Topology and Analysis *(last-year Bachelor students)*
- Differentiable Optimization *(last-year Bachelor students)*
- Mathematical Statistics *(MSc. students)*
- Geometric Methods in Machine Learning *(MSc. students)*
- Stochastic Optimization and Automatic Differentiation for Machine Learning *(MSc. students)*
- Optimal Transport : Theory, Computations, Statistics and ML Applications *(MSc. students)*
- Deep Learning: Models and Optimization *(MSc. students)*

## Service to the community

**Conference Reviewer**
*AISTATS 2020, ICML 2020, NeurIPS 2020*

**Seminar Organizer**
*StatEcoML.github.io*
I co-organize the "Statistics, Econometrics, Machine Learning" seminar at ENSAE Paris

## Programming skills

**Advanced**: Python (numpy, pandas, sklearn, cupy)    **Notions**: ReactJS, PHP, SQL

## Languages

**French**: Mother tongue    **Italian**: Fluent
**English**: Fluent    **Chinese**: High intermediate: HSK4