Guillaume Gautier

1st year PhD Student

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http://guilgautier.github.io

Education

2017 - now **PhD in Machine Learning**, *CRIStAL – SequeL & SigMA teams*, Lille, France.
Fast Sampling of Determinantal Point Processes. Supervisors: Michal Valko and Rémi Bardenet.

2015 - 2016 **M.Sc. in Applied Mathematics**, *ENS Paris Saclay*, Cachan, France.
Mathematics - Computer Vision - Machine Learning (MVA): Graphs in ML, MCMC Methods, Random Matrices, Convex Optimization, Probabilistic Graphical Models, Kernel Methods.

2014 - 2015 **M.Sc. in Applied Mathematics**, *Université Lille 1*, Lille, France.
Probability & Statistics: Stochastic Processes, Percolation, Itô.
Master Thesis: *Phase transition in the configuration graph*. Supervisor: Chi Tran.

2012 - 2015 **M.Sc. in Engineering**, *École Centrale de Lille*, Lille, France.
Data Analysis & Decision making: ML, Optimization, Statistical Estimation.

2010 - 2012 **Classes prépatatoires**, *Lycée du Parc*, Lyon, France.
Intensive preparatory courses in **Mathematics & Physics** for competitive entrance exams to French Grandes Écoles.

Internships

2016 – 6 mth **Research**, *CRIStAL – SigMA team*, Lille, France.
Determinantal Point Processes and matroids. Supervisor: Rémi Bardenet

2015 – 5 mth **Research**, *Lawrence Berkeley National Laboratory*, Berkeley, CA, USA.
Supervisor: Sylvain Costes.
- Image processing algorithm for human DNA breaks diagnosis (MATLAB– DIPimage),
- Image classification algorithm for fuzzy pictures (Python).

2014 – 4 mth **Engineering**, *R&D Arcelor Mittal – Iron Making*, Metz, France.
- Build and implement a measurement system for an industrial pilot,
- Data acquisition and analysis using Labview, MATLAB, R.

Teaching

2017 – Fall **Supervisions**, *2nd-year master class projects*, MVA – ENS Paris Saclay, France.
I supervised Juliette Millet and Sébastien Deschamps, and Quentin Chan Wai Nam for their respective class project in Graph in Machine Learning, course led by Michal Valko.
- The goal was to review Evans and Lambiotte's paper, *Line Graphs of Weighted Networks for Overlapping Communities*, and apply this edge-centric point of view to reveal overlapping communities in the application of their choice: few tomes of One Piece. GitHub page.
- The goal was to review Tremblay & al.'s paper, *Graph sampling with determinantal processes*, and implement the key algorithms to efficiently sample a graph signal for reconstruction purposes. GitHub page.

2017 – 34 hrs **Teaching Assistant**, *Analysis for Engineers and Signal Processing*, École Centrale de Lille.
- (14 hrs) Measure and integration theory tutorials, course led by Augustin Mouze.
- (20hrs) Signal Processing practical sessions, course led by Pierre Chainais.

2017 – 36 hrs **Teaching Assistant**, *Signal Processing*, École Centrale de Lille.
Signal Processing practical sessions, course led by Pierre Chainais.

2017 – Spring **Supervision**, *1st-year master project*, École Centrale de Lille.
I supervised Robin Quillivic, a 1st-year master student on a *Playful discovery of Point Processes*. The aim of this master project is to introduce students to the research environment and tools. At scientific level, the goal was to get him familiar with the main concepts of point processes (correlation functions, simulation strategies, etc.) and then see some applications of his interest in social science.

2016 – Fall **Supervision**, *2nd-year master class project*, MVA – ENS Paris Saclay, France.
I supervised Nicolas Jouvin and Victor Pellegrain for their class project in Graph in Machine Learning, course led by Michal Valko.
The goal was to review Evans and Lambiotte's paper, *Line Graphs of Weighted Networks for Overlapping Communities*, and apply this edge-centric point of view to reveal overlapping communities in the application of their choice: the first Harry Potter book.

Computer skills

Programming	Python, Julia, R, MATLAB
Documents	LaTeX, Microsoft Office
Sharing	Git, GitHub

Languages

French	Mother tongue
English	Fluent
German	Basic

Awards/Grants

2017 ICML's travel grant, Sydney, Australia.

Miscellaneous

- Basketball (12 years)
- Cycling
- Hiking
- Traveling

Publications

2017 Guillaume Gautier, Rémi Bardenet, and Michal Valko. "Zonotope hit-and-run for efficient sampling from projection DPPs". In: *International Conference on Machine Learning*.