# Maximilien Dreveton

## Current position

2022– **Postdoctoral researcher in Computer Science**, *EPFL*, Lausanne, Switzerland.
Topics of interest : clustering, community detection, network science, statistical network analysis.
Supervisors : Matthias Grossglauser and Patrick Thiran

## Experience

2024 **Tutorial : Network clustering : 50 years and still going !**, *ACM Sigmetrics/IFIP Performance Conference*, Venice (Italy), with Daniel R. Figueiredo. Recording : `https://www.cos.ufrj.br/~daniel/netclu/`.

2019–2021 **Teaching : Statistical Analysis of Random Graphs**, *MSc Data Science & AI*, Université Nice - Côte d'Azur.

2016–2018 **High school Mathematic teacher**, Grenoble & Annecy, France.

2015 **Master Internship**, *International Center for Quantum Materials*, Beijing, China.
Master thesis : Spin pumping into Topological Insulators (Weyl semimetals) and 2D electron gas.

## Education background

2018–2022 **PhD in Computer Science**, *Inria Sophia-Antipolis*, Nice, France.
Graph clustering and semi-supervised learning of non-binary, temporal and geometric networks.
Supervisor : Konstantin Avrachenkov
Link to manuscript : `https://theses.hal.science/tel-03667090`
Defended on April 6th, 2022

2015–2016 **Agrégation de Mathématiques**, rank : 52 (out of 815).
*University Toulouse Paul Sabatier*, Toulouse. Option A : Probability and Statistics.
(Agrégation is the highest degree of teaching certification in France, Master level).

2012–2015 **Bachelor & Master**, *Ecole Normale Supérieure (ENS)*, Lyon.
Bachelor in Physics. Master in Statistical and Computational Physics, with a semester at *La Sapienza Università*, Roma (Italy) and a semester at *Vrije Universiteit*, Amsterdam (Netherlands).

## Books

2022 **Statistical Analysis of Networks**, *Konstantin Avrachenkov, Maximilien Dreveton*, Now publishers.

2019 **Leçons pour l'agrégation de mathématiques - Préparation à l'oral**, *Maximilien Dreveton, Joachim Lhabouz*, Ellipses, ISBN : 9782340030183.

## Journal & Conference Publications

2024 **Why the Metric Backbone Preserves Community Structure**, *Maximilien Dreveton, Charbel Chucri, Matthias Grossglauser, Patrick Thiran*, Advances in Neural Information Processing Systems (NeurIPS'24).

2024 **Universal Lower Bounds and Optimal Rates: Achieving Minimax Clustering Error in Sub-Exponential Mixture Models**, *Maximilien Dreveton, Alperen Gözeten, Matthias Grossglauser, Patrick Thiran*, Proceedings of Thirty-Seventh Conference on Learning Theory (COLT'24).

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2023 **Recovering Static and Time-Varying Communities Using Persistent Edges**, *Konstantin Avrachenkov, Maximilien Dreveton, Lasse Leskelä*, IEEE Transactions On Network Science And Engineering (TNSE).

2023 **Exact recovery and Bregman hard clustering of node-attributed Stochastic Block Model**, *Maximilien Dreveton, Felipe Fernandes, Daniel Figueiredo*, Advances in Neural Information Processing Systems (NeurIPS'23).

2021 **Recovering Communities in Temporal Networks Using Persistent Edges**, *Konstantin Avrachenkov, Maximilien Dreveton, Lasse Leskelä*, International Conference on Computational Data and Social Networks, 243-254, **best paper – runner up award**.

2021 **Higher-Order Spectral Clustering for Geometric Graphs**, *Konstantin Avrachenkov, Andrei Bobu, Maximilien Dreveton*, Journal of Fourier Analysis and Applications, 27(2), 1-29, **best presentation award at the French Regional Conference on Complex Systems (FRCCS) 2021** .

2020 **Almost exact recovery in noisy semi-supervised learning**, *Konstantin Avrachenkov, Maximilien Dreveton*, arXiv :2007.14717, Probability in the Engineering and Informational Sciences.

2019 **Almost Exact Recovery in Label Spreading**, *Konstantin Avrachenkov, Maximilien Dreveton*, International Workshop on Algorithms and Models for the Web-Graph, 30-43.

## Preprints

2023 **When Does Bottom-up Beat Top-down in Hierarchical Community Detection?**, *Maximilien Dreveton, Daichi Kuroda, Matthias Grossglauser, Patrick Thiran*, arXiv :2306.00833.

2020 **Community recovery in non-binary and temporal stochastic block models**, *Konstantin Avrachenkov, Maximilien Dreveton, Lasse Leskelä*, arXiv :2008.04790.

## Skills & Languages

French : mother tongue English : fluent Mandarin : basic

Coding : Python.

Maths : Statistics, probability theory, statistical network analysis (graph clustering, graph signal processing, random graph), machine learning (graph clustering, semi-supervised learning).

eMathster : Developed an Android app (in 2017 using Java), called eMathster, targeting french high school students who want to learn mathematics. No longer maintained.

IchO 2010 International Chemistry Olympiad (French pre-selection, ranked 9th out of 240).

## Other

Reviewer for several conferences, including NeurIPS (2024), ICLR (2025), AISTATS (2025), UAI (2024, 2025).