Batiste Le Bars

Postdoc at Inria Lille and EPFL

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Education & Diplomas

2022	**Qualification** to teach as an Associate Professor (MCF) in sections 26 (applied mathematics) and 27 (computer science) of French universities
2017 – 2020	**Ph.D. in Applied Mathematics**, *Centre Borelli, ENS Paris-Saclay*.
Title	*Event detection and structure inference for graph vectors.*
Supervisor	Nicolas Vayatis, Argyris Kalogeratos.
Description	Development of a Learning method for graph inference in the context of Graph Signal Processing. Statistical approach for change-point detection in time-varying Markov Random Fields. Development of machine learning techniques for anomaly detection in communication networks. Application to Sigfox IoT network (CIFRE Ph.D.).
2015 – 2016	**Master 2**, *Mathematics, Vision, Learning (MVA)*, Ecole Normale Supérieur Paris-Saclay, Graduated with highest honors.
2014 – 2015	**Master 1**, *Applied Mathematics, Economics and Finance*, Université Paris 1 - Panthéon-Sorbonne, Graduated with highest honors, valedictorian.
2011 – 2014	**License**, *Applied Mathematics and Social Sciences*, Université Paris 1 - Panthéon-Sorbonne, Graduated with highest honors, valedictorian.

Professional experience

Oct 2021 – Today	**Postdoc**, *Magnet team*, Inria.
	○ Supervisor: Prof. Marc Tommasi (Lille university and Inria), Dr. Aurelien Bellet (Inria) and Prof. Anne-Marie Kermarrec (EPFL).
	○ Grant: Inria-Epfl international lab postdoctoral fellowship.
	○ Subject: Optimal graph topology for decentralized federated learning with non identically distributed samples.
Jan – Apr 2021	**Postdoc**, *Centre Borelli*, ENS Paris-Saclay.
2017 – 2020	**Ph.D. Candidate**, *Sigfox and Centre Borelli*, Paris and Cachan.
Apr – Sept. 2016	**Intern**, *Sigfox*, Paris.
	○ Geolocation techniques in the framework of Sigfox's ultra narrow band technology.
	○ Bibliographic review on machine learning methods for geolocation.

Teaching

Fall 2021	**Data analysis in Python**, *Teacher*, License 2 MIASHS, University of Lille.
Fall 2020	**Introduction to Statistical Learning Theory**, *Teacher assistant*, Master MVA, ENS Paris-Saclay, Prof: Nicolas Vayatis.
	Statistics, *Teacher assistant*, License 3 in Economics, Université Paris 2 - Panthéon-Assas, Prof: Lisa Morhaim.

Publications and Preprints

2022	**Refined Convergence and Topology Learning for Decentralized Optimization with Heterogeneous Data** .
	Le Bars, Batiste; Bellet, Aurélien; Tommasi, Marc; Lavoie, Erick; Kermarrec, Anne-Marie.
	ArXiv Preprint.
	Robust Kernel Density Estimation with Median-of-Means principle.
	Humbert, Pierre; Le Bars, Batiste and Minvielle, Ludovic.

In *International Conference on Machine Learning (ICML)*.

2021 **Learning Laplacian Matrix from Graph Signals with Sparse Spectral Representation**.

Humbert, Pierre; Le Bars, Batiste; Oudre, Laurent; Kalogeratos, Argyris; Vayatis, Nicolas.

In *Journal of Machine Learning Reasearch (JMLR) 2021*.

Learning the piece-wise constant graph structure of a varying Ising model.

2020 Le Bars, Batiste; Humbert, Pierre; Kalogeratos, Argyris and Vayatis, Nicolas.

In *International Conference on Machine Learning (ICML)*.

2019 **Learning Laplacian Matrix from Bandlimited Graph Signals**.

Le Bars, Batiste; Humbert, Pierre; Oudre, Laurent and Kalogeratos, Argyris.

In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*.

A Probabilistic Framework to Node-level Anomaly Detection in Communication Networks.

Le Bars, Batiste and Kalogeratos, Argyris.

In *International Conference on Computer Communications (INFOCOM)*.

Talks and presentations

2022 **Magnet seminar**, *Inria Lille*.

Contributions to graph learning and change point detection.

2020 **International Conference on Machine Learning (ICML)**, *Online*.

Learning the piece-wise constant graph structure of a varying Ising model.

French-German Summer School on Transfer Learning, *Online*.

Change-point detection in a time-varying Ising model.

2019 **MLMDA seminar**, *ENS Cachan*.

Learning Laplacian Matrix from Bandlimited Graph Signals.

IEEE International Conference on Computer Communications (INFO-COM), *Paris*, Best in-session presentation.

A Probabilistic framework to Node-level Anomaly Detection in Communication Networks.

2018 **MLMDA seminar**, *ENS Cachan*.

Node-level Anomaly Detection in Communication Networks.

Graph Signal Processing workshop, *Poster session, EPFL Lausanne*.

Node-level Anomaly Detection in Communication Networks.

2016 **LTCI lab seminar**, *Telecom Paris*.

Machine learning techniques for geolocating Sigfox devices.

Reviewing service

2021 **AISTATS**.
2020 **AISTATS**.

Computer skills

Programming Python, R, C/C++
Tools Git, LaTeX, Office

Languages

French Native speaker
English Fluent
Spanish Beginner
Japanese Beginner

Miscellaneous

Sports Climbing – Surfing – Skateboarding