

## Professional experience

August 2024 – **Research Scientist (ISFP)**, *Magnet team*, Inria Lille  
2023 – 2024 **Postdoc**, *Argo team*, Inria Paris  
2021 – 2023 **Postdoc**, *Magnet team*, Inria Lille  
Winter 2021 **Postdoc**, *Centre Borelli*, ENS Paris-Saclay  
2017 – 2020 **Ph.D. Candidate**, *Sigfox and Centre Borelli*, Paris and Cachan  
Apr - Sep 2016 **Intern**, *Sigfox*, Paris, 6 months

## 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*.  
Supervisors Nicolas Vayatis, Argyris Kalogeratos.  
2015 – 2016 **Master 2**, *Mathematics, Vision, Learning (MVA)*, Ecole Normale Supérieure 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

## Teaching

Fall 2024-2025 **Data Science**, *Teacher assistant*, Master 1 Machine Learning, University of Lille  
Fall 2021-2022 **Data analysis in Python**, *Teacher*, License 2 MIAHS, 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

2025 **Adaptive Collaboration for Online Personalized Distributed Learning with Heterogeneous Clients**  
Philippenko, Constantin; Le Bars, Batiste; Scaman, Kevin; Massoulié, Laurent.  
*Preprint*.  
**Generalization under Byzantine & Poisoning Attacks: Tight Stability Bounds in Robust Distributed Learning**  
Boudou, Thomas; Le Bars, Batiste; Gupta, Nirupam; Bellet, Aurélien.  
*Preprint*.  
**TAMIS: Tailored Membership Inference Attacks on Synthetic Data**  
Andrey, Paul; Le Bars, Batiste; Tommasi, Marc.  
In *European Conference on Machine Learning (ECML-PKDD)*.

## On Volume Minimization in Conformal Regression

Le Bars, Batiste; Humbert, Pierre.

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

## 2024 Marginal and Training-Conditional Guarantees in One-Shot Federated Conformal Prediction

Humbert, Pierre; Le Bars, Batiste; Bellet, Aurélien; Arlot, Sylvain.

*Preprint*.

## Improved Stability and Generalization Guarantees of the Decentralized SGD Algorithm

Le Bars, Batiste; Bellet, Aurélien; Tommasi, Marc; Scaman, Kevin; Neglia, Giovanni.

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

## Minimax Excess Risk of First-Order Methods for Statistical Learning with Data-Dependent Oracles

Scaman, Kevin; Even, Mathieu; Le Bars, Batiste; Massoulié, Laurent.

In *International Conference on Artificial Intelligence and Statistics (AISTATS)*.

## 2023 One-Shot Federated Conformal Prediction

Humbert, Pierre; Le Bars, Batiste; Bellet, Aurélien and Arlot, Sylvain.

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

## Refined Convergence and Topology Learning for Decentralized SGD with Heterogeneous Data

Le Bars, Batiste; Bellet, Aurélien; Tommasi, Marc; Lavoie, Erick; Kermarrec, Anne-Marie.

In *International Conference on Artificial Intelligence and Statistics (AISTATS)*.

## 2022 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 Research (JMLR) 2021*.

## 2020 Learning the piece-wise constant graph structure of a varying Ising model

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)*.

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## Supervision

**PhD Student** Thomas Boudou. Private and Byzantine-Robust Federated Learning. Co-supervised with A. Bellet and N. Gupta.

**Master intern** Khaled Larbi (M2 MVA-Ensae). Inférence du modèle d'Ising sous contrainte de confidentialité différentielle locale. 2022.

Ismail Labiad (3rd year Ecole polytechnique). Fairness in fully decentralized federated learning. 2023.

Mathis Allard (M2 Data Science - Univ. Lille). Online graph inference for decentralized learning with Heterogeneous data. 2023.

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## Selected talks and presentations

**On Volume Minimization in Conformal Regression**, *PreMedical seminar (Inria Montpellier), ICML (Vancouver, Poster), Journées de Statistiques (Marseille)*

**Generalization of D-SGD: A Stability Analysis**, *FedMalin seminar (Online), ICML (Vienne, Poster), Statistics Seminar of the Laboratoire de Mathématiques d'Orsay (LMO), AI Action Summit (Ecole Polytechnique, Poster)*

**Federated Conformal Prediction: Marginal and Training-Conditional Validity**, *PreMedical seminar (Inria Montpellier), JDS (Bordeaux), Probability and Statistics Seminar (LAMA laboratory, Gustave Eiffel University), MAGNET Seminar (Inria Lille), Owkin (Paris)*

**One-shot Federated Conformal Prediction**, *FedMalin plenary meeting (Inria Sophia-Antipolis), ARGO seminar (Inria Paris), CAp (Strasbourg)*

**Impact and choice of the topology for decentralized federated learning**, *FedMalin seminar (Online)*

**Refined Convergence and Topology Learning for Decentralized SGD with Heterogeneous Data**, *MILES seminar (Dauphine university), ARGO seminar (Inria Paris), Workshop Inria-EPFL, Learning and Optimization in Luminy (CIRM, Poster), Conférence en Apprentissage (CAp, Vannes)*

**Robust Kernel Density Estimation with Median-of-Means principle**, *ICML (Baltimore), Poster*

**Contributions to graph learning and change point detection**, *MAGNET Seminar (Inria Lille)*

**Change-point detection in a time-varying Ising model**, *ICML (Online), French-German Summer School on Transfer Learning (Online)*

**Learning Laplacian Matrix from Bandlimited Graph Signals**, *MLMDA seminar (ENS Cachan)*

**A Probabilistic framework to Node-level Anomaly Detection in Communication Networks**, *INFOCOM (Paris)*

**Node-level Anomaly Detection in Communication Networks**, *MLMDA seminar (ENS Cachan), Graph Signal Processing workshop (EPFL, Lausanne, Poster)*

**Machine learning techniques for geolocating Sigfox devices**, *LTCI lab seminar (Telecom Paris)*

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## Reviewing service

**CAp 2023, 2024, NeurIPS 2025, ICML 2023, 2024, AISTATS 2020, 2021, 2022, 2023, 2024, 2025, IEEE Transactions on Signal and Information Processing over Networks 2022, 2023, SIAM Journal of Optimization 2024, 2025, TMLR 2024, JMLR 2024, Electronic Journal of Statistics (EJS) 2025.**

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## Computer skills

Programming Python, R  
Tools Git, L<sup>A</sup>T<sub>E</sub>X, Office

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## Languages

French Native speaker  
English Fluent

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## Miscellaneous

Sports Climbing – Running – Surfing