Anthony **Bardou**

POSTDOCTORAL RESEARCHER IN MACHINE LEARNING

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Experience

École Polytechnique Fédérale de Lausanne
Lausanne, CH

POSTDOCTORAL RESEARCHER @ INDY LAB
Oct. 2023 - Now

- **Collaboration**: Prof. Patrick THIRAN
- Researched theoretical guarantees and applications of Bayesian optimization algorithms in several contexts.

Keywords: Online Learning, Decentralized Algorithm, Time-Varying Optimization, Bayesian Optimization

École Normale Supérieure de Lyon
Lyon, FR

RESEARCH INTERN @ LIP/DANTE
Apr. 2020 - Sep. 2020

- **Subject**: Machine Learning for the Spatial Reuse of Wi-Fi Networks.
- **Supervision**: Prof. Thomas BEGIN, Prof. Anthony BUSSON
- Problem addressed from a centralized, reinforcement learning pespective, evaluated with an homemade Wi-Fi network simulator.

Keywords: Online Learning, Multi-Armed Bandit, Spatial Reuse

Université Claude Bernard Lyon I
Lyon, FR

RESEARCH INTERN @ LIRIS/SyCoSMA AND ELICO
Dec. 2018 - Jun. 2019

- **Subject**: Automatic Characterization of Citation Intentions in Scientific Publications.
- **Supervision**: Prof. Frédéric ARMETTA, Prof. Marc BERTIN
- Researched and contributed to attention and embedding techniques adapted to citations.

Keywords: Natural Language Processing, Embedding, Attention, Deep Learning, PyTorch

Université de Perpignan Via Domitia
Perpignan, FR

UNDERGRADUATE RESEARCH INTERN @ LIRMM/DALI
Apr. 2018 - Jun. 2018

- **Subject**: Robustness of a Non Intrusive System Capable of Measuring the Human Respiratory Volume.
- **Supervision**: Assistant Prof. David PARELLO, Prof. Henri MÉRIC
- Produced a robustness analysis and performed a computational complexity reduction through combinatorial optimization.

Keywords: Combinatorial Optimization, Robustness Analysis, Image Processing

Education

École Normale Supérieure de Lyon
Lyon, FR

PhD IN MACHINE LEARNING AND WIRELESS NETWORKS
Oct. 2020 - Sep. 2023

- **Subject**: Online Learning for the Optimization of Wireless Networks and Beyond.
- **Supervision**: Prof. Thomas BEGIN
- **Award**: GDR RSD/ASF Best Ph.D. Thesis
- Researched zeroth-order optimization algorithms to optimize high-dimensional noisy black-box functions in a variety of applications, with a strong focus on wireless networks.

Université Claude Bernard Lyon I
Lyon, FR

M.S. IN DATA SCIENCE
Sep. 2018 - Sep. 2020

- Rank: 1 / 47
- Highest Honors

Université de Perpignan Via Domitia
Perpignan, FR

B.S. IN COMPUTER SCIENCE AND MATHEMATICS
Sep. 2015 - Jul. 2018

- Rank: 1 / 16
- Highest Honors

Skills

Data Science	Machine Learning, Data Mining, Big Data, Probabilistic Graphical Models
Applied Math.	Bayesian Inference, Optimization, Statistics, Performance Evaluation, Operations Research
Programming	Python, C/C++, Java, JavaScript
Languages	French, English, Spanish (notions), German (notions)

Publications

INTERNATIONAL CONFERENCES

ANTHONY BARDOU, PATRICK THIRAN, GIOVANNI RANIERI. This Too Shall Pass: Removing Stale Observations in Dynamic Bayesian Optimization. *Proc. NeurIPS'24. Vancouver, Canada. Dec. 2024.* ⊡

ANTHONY BARDOU, PATRICK THIRAN, THOMAS BEGIN. Relaxing the Additivity Constraints in Decentralized No-Regret High-Dimensional Bayesian Optimization. *Proc. ICLR'24. Vienna, Austria. May 2024.* ⊡

ANTHONY BARDOU, THOMAS BEGIN. INSPIRE: Distributed Bayesian Optimization for ImproviNg SPatIal REuse in Dense WLANs. *Proc. MSWiM'22. Montréal, Canada (QC). Oct. 2022. 10.1145/3551659.3559050.* ⊡ **BEST PAPER AWARD.**

ANTHONY BARDOU, THOMAS BEGIN, ANTHONY BUSSON. Improving the Spatial Reuse in IEEE 802.11ax WLANs: A Multi-Armed Bandit Approach. *Proc. MSWiM'21. Alicante, Spain. Nov. 2021. 10.1145/3479239.3485715.* ⊡

PEER-REVIEWED JOURNALS

SAMIR SI-MOHAMMED, **ANTHONY BARDOU**, THOMAS BEGIN, ISABELLE GUÉRIN-LASSOUS, PASCALE VICAT-BLANC. NS+ NDT: Smart Integration of Network Simulation in Network Digital Twin, Application to IoT Networks. *Future Generation Computer Systems. Mar. 2024.* ⊡

ANTHONY BARDOU, THOMAS BEGIN. Analysis of a decentralized Bayesian optimization algorithm for improving spatial reuse in dense WLANs. *Computer Communications, ACM MSWiM 2022 Special Issue. Jun. 2023. 10.1016/j.comcom.2023.06.004* ⊡

ANTHONY BARDOU, THOMAS BEGIN, ANTHONY BUSSON. Mitigating Starvation in Dense WLANs: A Multi-Armed Bandit Solution. *Ad Hoc Networks, Vol. 138. Jan. 2023. 10.1016/j.adhoc.2022.103015* ⊡

ANTHONY BARDOU, THOMAS BEGIN, ANTHONY BUSSON. Analysis of a Multi-Armed Bandit Solution for Improving the Spatial Reuse of New Generation WLANs. *Computer Communications, ACM MSWiM 2021 Special Issue, Pages 279-292. Sep. 2022. 10.1016/j.comcom.2022.07.015* ⊡

PH.D. THESIS

ANTHONY BARDOU. Online Learning for the Black-Box Optimization of Wireless Networks. *École Normale Supérieure de Lyon. France. Sep. 2023.* ⊡ **GDR RSD/ASF BEST PH.D. THESIS AWARD**.

Talks

Invited Speaker	INRIA Maracas, INSA Lyon	Jun. 2024	*Lyon, FR*
Invited Speaker	INDY, EPFL	May 2023	*Lausanne, CH*
Invited Speaker	INRIA Maracas, INSA Lyon	Jul. 2022	*Lyon, FR*
Invited Speaker	INRIA Ockham, ENS Lyon	Dec. 2021	*Lyon, FR*
Invited Speaker	INRIA Maracas, INSA Lyon	May 2021	*Lyon, FR*
Invited Speaker	PEVA for Networks	Nov. 2020	*Lyon, FR*
Invited Speaker	LIRMM, Univ. Perpignan	Jul. 2018	*Perpignan, FR*

Reviews

International Conference on Machine Learning	International Conference	*2025*
Uncertainty in Artificial Intelligence	International Conference	*2024*
Computer Networks	Elsevier Journal	*2024*
Annual Conference on Neural Information Processing Systems	International Conference	*Since 2023*
Computer Communication	Elsevier Journal	*Since 2023*
International Symposium on Information Theory	IEEE International Conference	*2023*

Teachings

Stochastic Modeling for Telecommunications	30 hrs	B.S. of Computer Science	Fall 2024	*EPFL (CH)*
Preparation to the *agrégation* of C.S.	32 hrs	M.S. of Computer Science	Spring 2023	*ENS Lyon (FR)*
Numerical Analysis	15 hrs	B.S. of Computer Science	Spring 2022	*UCBL (FR)*
Optimization	15 hrs	B.S. of Computer Science	Spring 2022	*UCBL (FR)*
Basics of Artificial Intelligence	12 hrs	M.S. of Computer Science	Fall 2021	*UCBL (FR)*
Optimization & Operations Research	18 hrs	M.S. of Computer Science	Fall 2021	*UCBL (FR)*

Supervision

Antoine MEREL	M.S. of Computer Science	École Polytechnique Fédérale de Lausanne (CH)	*Sep. 2024 - Jan. 2025*
Nahuel PLOMB VEUVE	B.S. of Computer Science	École Polytechnique Fédérale de Lausanne (CH)	*Sep. 2024 - Jan. 2025*
Emanuele MENGOLI	M.S. of Computer Science	École Polytechnique (FR)	*Apr. 2024 - Oct. 2024*
Giovanni RANIERI	B.S. of Computer Science	École Polytechnique Fédérale de Lausanne (CH)	*Feb. 2024 - Jun. 2024*
Hugo MARTEL	B.S. of Computer Science	École Normale Supérieure de Lyon (FR)	*Jun. 2023 - Jul. 2023*

Awards

Best Ph.D. Thesis

Toulouse, FR

GDR RÉSEAUX ET SYSTÈMES DISTRIBUÉS / ASSOCIATION ACM SIGOPS FRANCE

Mar. 2025

Top Reviewer

Vancouver, CA

THE 38TH ANNUAL CONFERENCE ON NEURAL INFORMATION PROCESSING SYSTEMS

Dec. 2024

Best Paper

Montréal, CA

THE 25TH INTERNATIONAL CONFERENCE ON MODELING, ANALYSIS AND SIMULATION OF WIRELESS AND MOBILE SYSTEMS

Nov. 2022

Mentions

Prix de thèse du GDR RSD : des travaux sur l'optimisation récompensés ⬈	Jan. 2025	*INS2I (CNRS)*
Lauréats du prix de thèse GDR RSD – Édition 2024 ⬈	Sep. 2024	*GDR RSD (CNRS)*
L'optimisation bayésienne au service des performances du WiFi ⬈	Apr. 2023	*INS2I (CNRS)*

Open-Source Repositories

W-DBO: Wasserstein Distance-Based Dynamic Bayesian Optimization	May 2024	*WDBO-ALGORITHM/wdbo_algo* ⬈
DuMBO: High-Dimensional, No-Regret Bayesian Optimization	Feb. 2023	*abardou/dumbo* ⬈