

Anthony Bardou

PHD STUDENT IN MACHINE LEARNING AND WIRELESS NETWORKS

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Experience

École Polytechnique Fédérale de Lausanne

Lausanne, Switzerland

VISTING PHD STUDENT @ INDY LAB

Sep. 2022 - Dec. 2022

- **Supervision:** Patrick THIRAN
- Created a new decentralized Bayesian optimization algorithm with competitive performance on a variety of applications.

Keywords: Online Learning, Decentralized Algorithm, Bayesian Optimization

École Normale Supérieure de Lyon

Lyon, France

RESEARCH INTERN @ LIP/DANTE

Apr. 2020 - Sep. 2020

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

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

Université Claude Bernard Lyon I

Lyon, France

RESEARCH INTERN @ LIRIS/SyCoSMA AND ELICO

Dec. 2018 - Jun. 2019

- **Subject:** Automatic Characterization of Citation Intentions in Scientific Publications.
- **Supervision:** Frédéric ARMETTA, 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, France

UNDERGRADUATE RESEARCH INTERN @ LIRMM/DALI

Apr. 2018 - Jun. 2018

- **Subject:** Study the Robustness of a Non Intrusive System Capable of Measuring the Human Respiratory Volume.
- **Supervision:** David PARELLO, 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, France

PHD IN MACHINE LEARNING AND WIRELESS NETWORKS

Oct. 2020 - Now

- **Subject:** Reinforcement Learning for the Improvement of Wi-Fi 6
- **Supervision:** Thomas BEGIN
- Created innovative reinforcement learning methods to provide network protocols able to learn from past experience and improve the performance of WLANs.

Université Claude Bernard Lyon I

Lyon, France

M.S. IN DATA SCIENCE

Sep. 2018 - Sep. 2020

- Rank: 1 / 47
- Highest Honors

Université de Perpignan Via Domitia

Perpignan, France

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

Mathematics Probability Theory, Statistics, Operational Research, Optimization

Programming Python, C/C++, Java, JavaScript

Languages French, English, Spanish (notions), Japanese (notions)

Projects

Prediction of air pollution levels for the Lyon Metropole

- Predicted levels of pollution with meteorological data and road traffic data collected in real time through collaboration with the Grand Lyon.

Keywords: Machine Learning, Kafka, SparkML

Unsupervised identification of individuals through keyboard use

- Problem addressed from a static and unsupervised perspective.
- Developed a method for detecting different profiles in an unlabelled base of samples, for real-time matching of one of the profiles with a user typing freely on the keyboard.

Keywords: Clustering, Scikit-Learn

Simple ML-based Touchless User Interface

- Developed an agent able to capture, recognize in real-time simple human gestures and associate them with events.
- Useful to build Touchless User Interfaces, which allow the user to interact with the machine without touching it.

Keywords: Deep Learning, Computer Vision, Recurrent Neural Networks, LSTM, OpenCV, PyTorch

Publications

JOURNALS

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

INTERNATIONAL CONFERENCES

ANTHONY BARDOU, THOMAS BEGIN. INSPIRE: Distributed Bayesian Optimization for Improving SPAtial REuse in Dense WLANs. *Proceedings of the 25th ACM Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems. Montréal, Canada (QC).* Oct. 2022. 10.1145/3551659.3559050

ANTHONY BARDOU, THOMAS BEGIN, ANTHONY BUSSON. Improving the Spatial Reuse in IEEE 802.11ax WLANs: A Multi-Armed Bandit Approach. *Proceedings of the 24th ACM Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems. Alicante, Spain.* Nov. 2021. 10.1145/3479239.3485715

NATIONAL CONFERENCES

ANTHONY BARDOU, THOMAS BEGIN. INSPIRE : Optimisation Bayésienne Distribuée pour l'Amélioration de la Réutilisation Spatiale des WLANs Denses (Best Student Paper Award). *Proceedings of the 24th Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications. Saint-Rémy-Lès-Chevreuse, France.* Jun. 2022.

ANTHONY BARDOU, THOMAS BEGIN, ANTHONY BUSSON. Algorithme de Multi-Armed Bandit pour la Réutilisation Spatiale des WLANs : Réduire le nombre de Stations en Famille. *Proceedings of the 23th Congrès Annuel de la Société Française de Recherche Opérationnelle et d'Aide à la Décision. Lyon, France.* Feb. 2022.

Talks

Invited Speaker @ INRIA Ockham

Dec. 2021

Lyon, France

Invited Speaker @ INRIA Maracas

May 2021

Lyon, France

Invited Speaker @ Working Group on PEVA for Networks

Nov. 2020

Lyon, France

Invited Speaker @ LIRMM

Jul. 2018

Perpignan, France

Teaching Experience

Numerical Analysis

15 hours, B.S. of Computer Science, Spring 2022

Université Claude Bernard Lyon I

Optimization

15 hours, B.S. of Computer Science, Spring 2022

Université Claude Bernard Lyon I

Basics of Artificial Intelligence

12 hours, M.S. of Computer Science, Fall 2021

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Optimization & Operations Research

18 hours, M.S. of Computer Science, Fall 2021

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