Juliette Achddou

Associate Prof

23 November 1992

Paris, France

+33610080685

[firstname].[name]@gmail.com

About me

I am a young associate professor in Maths/CS. My research focuses on Machine Learning, with a particular is centered around sequential decision making and bandit theory. I received my Ph.D from ENS Paris in 2022, under the guidance of Prof. Olivier Cappé and Prof. Aurélien Garivier. Later, I have worked with Olivier Cappé in ENS Paris and Nicolò Cesa-Bianchi in Università degli Studi di Milano, respectively on sequential zeroth-order optimization, and on private and multitask online learning.

Languages

French: mothertongue

English, Italian: fluent

German: good level

Coding Skills

Every-day use: Python(numpy, sklearn, seaborn...), Latex

Others: Spark/Hadoop, SQL, Java, C, HTML

Hobbies

Swimming, Soccer and Judo
Learning Languages
Reading, Cinema

Interests

I am interested in Machine Learning and in particular in Sequential Decision Making. So far I have mainly studied bandits (in relationship with auctions), online learning, and zeroth-order optimization. Through my work on these subjects, I have accumulated some knowledge of partial monitoring. My current interests besides the latter topics are fairness and privacy, which I would like to study more in depth in the setting of sequential decision making. Understanding how my research applies in the real world (see e.g. my work on marketing) is important for me.

Experience

2024-now — Associate Professor — Scool, CRIStAL Lille

I am an Assistant Professor at Université de Lille in France. As a researcher, I am part of the CRIStAL laboratory and belong to the Scool unit. I teach Math/CS-related courses at Polytech Lille.

2023-2024 — Postdoc Position — Laila lab, Università degli Studi di Milano

Postdoc Position as part of a European project ELSA (European Lighthouse for Secure and Safe AI). Goal: contributing to a work package on Federated Learning preserving Differential Privacy, with a particular emphasis on online and multitask learning.
Collaborator: Nicolò Cesa-Bianchi

10-12 2022 — Postdoc position — DI ENS, Paris

3-month postdoc position (from october to december): Work on linearly constrained zeroth-order optimization applied to sequential resource allocation. Two models have been considered: that of blind resource allocation and that of resource allocation with semi-bandit feedback.
Collaborator: Olivier Cappé

2019-2022 — Ph.D. Preparation (Industrial Thesis) — DI ENS Paris, Numberly

In the environment of Numberly (company specialised in marketing technology), preparation of a Ph.D on sequential and derivative-free optimization applied to Real Time Bidding, under the supervision of Olivier Cappé and Aurélien Garivier.
Research. General motivation: to learn how to sequentially optimize parameters of an advertisement campaign in Real-Time Bidding, a particular market for online advertisements in which advertising slots are sold via auctions. Design and analysis of various online-learning algorithms in order to optimize continuous parameters of such advertisement campaigns, like the bid, but also the budget allocation. The models used for the bidding task were versions of continuously-armed bandits with structured feedback, or, in other words, examples of continuous partial monitoring models. The task of budget allocation across subcampaigns was modeled as a linearly constrained sequential optimization problem. Design and analysis of direct search methods for this task. Defence: 22/06/22.
Data Science. 50% of my working-time was dedicated to data analysis and data science at Numberly (with tasks similar to those of the previous contract) and working on innovating projects. Interesting example of the latter: sequentially optimization of displayed banners, seen as combinations of textual and visual elements.

2018 — Data Scientist — Numberly, Paris

Data analysis and data science. Collaboration with media traders to optimize their campaigns by analyzing past performance indicators, producing ad-hoc reports by aggregating log-level data, maintaining existing algorithms (by adapting them to new technologies for example). Preliminary work on bidding algorithms for Real Time Bidding.

2017 — Internship in Research in Machine Learning — Potsdam Universität

Analysis of Adaptive Rejection Sampling algorithms, under the supervision of Gilles Blanchard and Alexandra Carpentier. Study of diverse sampling algorithms and design of near optimal algorithm in the class of adaptive rejection samplers.

Education

2017/2018 Digital major (master's degree ending the double degree) HEC Paris
Program built around e-commerce, CRM and data science projects conducted in collaboration with students in web development and design.

2016/2017 Master's Degree in Data Science École Polytechnique
Main topics: Machine Learning, Optimization, Statistical Learning Theory, Big Data Frameworks, Kernel Methods, Deep Learning...

2015/2016 Business School (as part of a double degree) HEC Paris
The double degree consists of a normal academic progression in engineering supplemented with a master program in business at HEC.
The first year at HEC consists in a common block year, which combines key management courses: Finance, Marketing, Accounting.

2013-2015 Engineering School Télécom-ParisTech
Main topics: Machine Learning, Data Mining, and applications centered on solving Big Data problems with mathematical tools.

Publications

ALT 2019 A minimax near-optimal algorithm for adaptive rejection sampling
ALT 2021 Efficient Algorithms for Stochastic Repeated Second-price Auctions
ACML 2021 Fast Rate Learning in Stochastic First Price Bidding
Ph.D 2022 Zeroth-Order Optimization for Real-Time Bidding: A Mathematical Perspective
AISTATS 2024 Multitask Online Learning: Listen to the Neighborhood Buzz
TMLR 2024 Regret Analysis of the Stochastic Direct Search Method for Blind Resource Allocation