

Emilie Kaufmann

CNRS Junior Researcher, CRISAL

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Professional Experience

- oct. 2015 - **CNRS Junior Researcher (CRCN).**
Centre de Recherches en Informatique, Signal et Automatique de Lille (CRISAL), SequeL team.
- 2014 -2015 **Post-doctoral researcher at Inria.**
Project-team DYOGENE, under the supervision of Marc Lelarge.
- 2011 -2014 **PhD candidate and teaching assistant.**
Telecom ParisTech & Université Pierre et Marie Curie.

Studies

- 2011-2015 **PhD in Statistics, Telecom ParisTech.**
Analyse de stratégies bayésiennes et fréquentistes pour l'allocation séquentielle de ressources, under the supervisions of Olivier Cappé (LTCI, Telecom ParisTech), Aurélien Garivier (Université Paul Sabatier, Toulouse) and Rémi Munos (Inria Lille). **Prix de thèse Jacques Neveu 2014.**
- 2010-2011 **M.Sc. in Statistical Learning (Mathematics, Vision and Learning), ENS de Cachan.**
Obtained with highest honnors.
- 2009-2010 **Agrégation de Mathématiques, ENS de Cachan.**
Ranked 30/263.
- 2009 **Admission in third year at ENS de Cachan, Mathematics departement.**
- 2007-2009 **Bachelor, Master 1 in fundamental mathematics, Université de Strasbourg.**

Selected publications

- E. Kaufmann, W. Koolen and A. Garivier, *Sequential Test for the Lowest Mean: From Thompson to Murphy Sampling*. Advances in Neural Information Processing Systems (NIPS), 2018.
- L. Besson and E. Kaufmann. *Multi-Player Bandits Revisited*. International Conference on Algorithmic Learning Theory (ALT), 2018.
- E. Kaufmann and W. Koolen. *Monte-Carlo Tree Search by Best Arm*. Advances in Neural Processing Systems (NIPS), 2017.
- E. Kaufmann and A. Garivier, *Learning the distribution with largest mean: two bandit frameworks*. ESAIM: Proceedings and Surveys, Vol 60:114-131, 2017.
- E. Kaufmann, *On Bayesian Index Policies for Sequential Resource Allocation*. Annals of Statistics, Vol 46(2): 842-865, 2017.
- A. Gariver, E. Kaufmann and T. Lattimore, *On Explore-Then-Commit Strategies*. Advances in Neural Processing Systems (NIPS), 2016.
- A. Garivier and E. Kaufmann, *Optimal Best-Arm Identification with Fixed Confidence*. Proceedings of the 29th Conference on Learning Theory (COLT), 2016.
- E. Kaufmann, O. Cappé and A. Garivier, *On the Complexity of Best Arm Identification in Multi-Armed Bandit Models*. Accepted for publication in the Journal of Machine Learning Research (JMLR), 2015.
- E. Kaufmann and S. Kalyan Krishnan, *Information complexity in bandit subset selection*. Proceedings of the 26th Conference On Learning Theory (COLT), 2013.
- E. Kaufmann, N. Korda and R. Munos, *Thompson Sampling: An Asymptotically Optimal Finite-Time Analysis*. 23rd International Conference on Algorithmic Learning Theory (ALT), 2012.

The full list is available on my website.

Selected invited talks

- Conférence plénière, GRETSI, Lille, August 2019.
Quelques outils statistiques pour la prise de décision séquentielle.
- AAAI workshop on Reinforcement Learning for Games, Honolulu, January 2019.
Beyond Classical Bandit Tools for Monte-Carlo Tree Search.
- Paris Symposium on Game Theory, Paris, June 2018. *Bandit (for) Games.*
- Workshop on Modern Challenges for Learning Theory, Université de Montréal, April 2018.
- Workshop on Optimization and Decision-Making Under Uncertainty, Simons Institute, Berkeley, September 2016. *Revising the Exploration-Exploitation tradeoff in Bandit Models.*
- 1er Congrès de la Société Mathématique de France, Tours, June 2016.
Stratégies bayésiennes et fréquentistes dans un modèle de bandit

Students supervision

- PhD students
 - Omar Darwiches-Domingues (2018-), *Apprentissage par renforcement dans des environnements non-stationnaires*, with Michal Valko (Inria Lille). DELTA project.
 - Xuedong Shang (2017-), *Méthodes adaptatives pour l'optimisation dans un environnement stochastique*, with Michal Valko (Inria Lille). Financement spécifique normalien.
 - Lilian Besson (2016-November 2019), *Modèles de bandits pour l'Internet des Objets*, with Christophe Moy (CentraleSupélec Rennes). Financement spécifique normalien.
- Visiting PhD students
 - Rianne de Heide (April-July 2019), CWI Amsterdam.
 - Han Shao (October-November 2018), Chinese University of Hong-Kong.
 - Maryam Aziz (May-August 2016), Northeastern University (Boston).
- Master thesis
 - Cindy Trin (December-June 2019), Univ. Lille & Ecole Centrale de Lille.
 - Xuedong Shang (February-June 2017), with Michal Valko. ENS Rennes.

Teaching Activities

- 2017-2019 **Jury de mathématiques du concours d'entrée à l'ENS en section B/L.**
preparing the subject, grading, oral examinations.
- 2017- **Data Mining class, M1 Maths/Finances, Université de Lille, 36h.**
- 2017,2018 **Machine Learning class, M2 Maths/Finances, Université de Lille, 18h.**
- 2015-2017 **Practical session of Reinforcement Learning, ENS de Cachan, 8h.**

Responsabilities

- Collaborative projects
 - ANR project BOLD (PI: Vianney Perchet), with ENS Paris-Saclay, Université Paris-Nanterre, Inria Paris, Université de Toulouse. Starting in 2019.
 - CNRS/INSERM project Repos (*around drug repurposing*), with Andrée Delahaye-Duriez (INSERM, Paris). April-December 2019.
 - Chist Era DELTA (*Dynamically Evolving Long-Term Autonomy*), with Université de Liège, University Pompeu Fabra and University of Leoben. Since February 2018.
 - ANR BADASS (*BAnDits Against non-Stationarity and Structure*): ANR JCJC of Odalric-Ambrym Maillard. Since 2016.
 - Project PEPS BIO (*Bandits pour l'Internet des Objets*), with Lilian Besson and Christophe Moy. March-December 2016.
- Organization of events
 - Reinforcement Learning Summer School in Lille, 2019. <https://rlss.inria.fr/>.
 - Organization of the Sequel seminar during 3 years.
- Reviewing activity
 - Reviews for journals: JMLR, Automatica, Operation Research, IEEE Transactions on Information Theory, ACM, Theoretical Computer Science.
 - Programm committee member for COLT 2016, 2017, ALT 2019, 2020, JFPDA 2018, Women in Machine Learning (WiML) 2018. Reviewer for AISTATS, NeurIPS, ICML, COLT, ALT.