# Odalric-Ambrym Maillard

## LIST OF PUBLICATIONS

(Nov. 2022)

Naming conventions It is virtually impossible to understand the contributing role to an article from the mere position in the author list alone. Indeed, the rules for ordering the authors vary from places to place, communities, from your role as a supervisor or not, plus various ad-hoc rules. Further in many cases, the alphabetical order is considered, mixed with academic positions, which gives little clue on the actual contributing role. In order to clarify my role as a contributor, I indicate below my name using various font styles in the following bibliography (other co-authors may have similar roles, I only use this convention for my name). These roles are:

- MAIN CONTRIBUTOR: Usually working on the main idea, bringing significant theoretical developments, write-up and/or experiments, etc. It is indicated with small-caps and bold font.
- **Key contributor**: Usually bringing a key idea, or key result/proof unlocking an issue, but not necessarily being the main author. It is indicated with bold font.
- Contributor: A standard contributor. It is indicated with standard font.

On top of that, this role can be combined with a <u>Key supervisor</u> role, that is a supervisor actively helping a student improve his of her work, bringing discussions, results, etc., in a fairly involved way. It is indicated with underlined font. This convention yields a total of six possible roles with their corresponding fonts.

### Notable publications (award, etc.)

- [1] Edouard Leurent, Denis Efimov, and <u>Odalric-Ambrym Maillard</u>. ROBUST-ADAPTIVE CONTROL OF LINEAR SYSTEMS: BEYOND QUADRATIC COSTS. In 34th Conference on Neural Information Processing Systems (NeurIPS), 2020. [Oral, 1% acceptance rate]
- [2] Mahsa Asadi, Mohammad Sadegh Talebi, Hippolyte Bourel, and <u>Odalric-Ambrym Maillard</u>. Model-based reinforcement learning exploiting state-action equivalence. In *Asian Conference on Machine Learning* (ACML), pages 204–219. PMLR, 2019. [Best student paper award]
- [3] ODALRIC-AMBRYM MAILLARD, Timothy A Mann, and Shie Mannor. How hard is my MDP?" THE DISTRIBUTION-NORM TO THE RESCUE". Advances in Neural Information Processing Systems (NIPS), volume 27, pages 1835–1843, 2014. [Oral, 3% acceptance rate]

#### Publications in international conferences with review committee

- [1] Fabien Pesquerel and Odalric-Ambrym Maillard. IMED-RL: REGRET OPTIMAL LEARNING OF ERGODIC MARKOV DECISION PROCESSES. In NeurIPS 2022 Thirty-sixth Conference on Neural Information Processing Systems, Thirty-sixth Conference on Neural Information Processing Systems, New-Orleans, United States, November 2022.
- [2] Hassan Saber, Pierre Ménard, and <u>Odalric-Ambrym Maillard</u>. <u>INDEXED MINIMUM EMPIRICAL DIVERGENCE FOR UNIMODAL BANDITS</u>. <u>In 35th International Conference on Neural Information Processing Systems (NeurIPS)</u>, Sydney, Australia, December 2021.
- [3] Dorian Baudry, Patrick Saux, and Odalric-Ambrym Maillard. FROM OPTIMALITY TO ROBUSTNESS:

  DIRICHLET SAMPLING STRATEGIES IN STOCHASTIC BANDITS. In 35th International Conference on Neural Information Processing Systems (NeurIPS), Sydney, Australia, December 2021.

- [4] Fabien Pesquerel, Hassan Saber, and Odalric-Ambrym Maillard. STOCHASTIC BANDITS WITH GROUPS OF SIMILAR ARMS. In NeurIPS 2021 Thirty-fifth Conference on Neural Information Processing Systems, Stochastic bandits with groups of similar arms, Sydney, Australia, December 2021.
- [5] Hassan Saber, Léo Saci, Odalric-Ambrym Maillard, and Audrey Durand. ROUTINE BANDITS: MIN-IMIZING REGRET ON RECURRING PROBLEMS. In Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), Bilbao, Spain, September 2021.
- [6] Dorian Baudry, Romain Gautron, Émilie Kaufmann and Odalric-Ambrym Maillard. OPTIMAL THOMPSON SAMPLING STRATEGIES FOR SUPPORT-AWARE CVAR BANDITS. In Proceedings of the 38th International Conference on Machine Learning (ICML). PMLR, 2021.
- [7] Mohammad Sadegh Talebi, Anders Jonsson, and Odalric-Ambrym Maillard. Improved Exploration IN Factored Average-Reward MDPs In International Conference on Artificial Intelligence and Statistics (AI&STATS), volume 130. PMLR, 2021.
- [8] Sayak Ray Chowdhury, Aditya Gopalan, and <u>Odalric-Ambrym Maillard</u>. Reinforcement learning in parametric mdps with exponential families. In *International Conference on Artificial Intelligence and Statistics* (AI&STATS), pages 1855–1863. PMLR, 2021.
- [9] Yannis Flet-Berliac, Reda Ouhamma, Odalric-Ambrym Maillard, and Philippe Preux. Learning Value FUNCTIONS IN DEEP POLICY GRADIENTS USING RESIDUAL VARIANCE. In International Conference on Learning Representations (ICLR), 2021.
- [10] Hippolyte Bourel, <u>Odalric-Ambrym Maillard</u>, and Mohammad Sadegh Talebi. <u>Tightening ex-</u> PLORATION IN UPPER CONFIDENCE REINFORCEMENT LEARNING. In *International Conference on Ma*chine Learning (ICML), pages 1056–1066. PMLR, 2020.
- [11] Réda Alami, <u>Odalric-Ambrym Maillard</u>, and Raphaël Féraud. RESTARTED BAYESIAN ONLINE CHANGE-POINT DETECTOR ACHIEVES OPTIMAL DETECTION DELAY. In *International Conference on Machine Learning* (ICML), pages 211–221. PMLR, 2020.
- [12] Edouard Leurent, Denis Efimov, and Odalric-Ambrym Maillard. ROBUST-ADAPTIVE CONTROL OF LINEAR SYSTEMS: BEYOND QUADRATIC COSTS. In 34th Conference on Neural Information Processing Systems (NeurIPS), 2020.
- [13] Edouard Leurent, Denis Efimov, and <u>Odalric-Ambrym Maillard</u>. ROBUST-ADAPTIVE INTERVAL PREDICTIVE CONTROL FOR LINEAR UNCERTAIN SYSTEMS. In 59th IEEE Conference on Decision and Control (CDC), pages 1429–1434. IEEE, 2020.
- [14] Edouard Leurent and Odalric-Ambrym Maillard. Monte-Carlo Graph Search: The Value of MERGING SIMILAR STATES. In Asian Conference on Machine Learning (ACML), pages 577–592. PMLR, 2020.
- [15] Edouard Leurent, Denis Efimov, and Odalric-Ambrym Maillard. ROBUST ESTIMATION, PREDICTION AND CONTROL WITH LINEAR DYNAMICS AND GENERIC COSTS. In 34th Conference on Neural Information Processing Systems (NeurIPS), 2020.
- [16] Mahsa Asadi, Mohammad Sadegh Talebi, Hippolyte Bourel, and <u>Odalric-Ambrym Maillard</u>.

  Model-based reinforcement learning exploiting state-action equivalence. In *Asian Conference on Machine Learning* (ACML), pages 204–219. PMLR, 2019.
- [17] Edouard Leurent and Odalric-Ambrym Maillard. PRACTICAL OPEN-LOOP OPTIMISTIC PLANNING. In Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD), pages 69–85. Springer, Cham, 2019.

- [18] **ODALRIC-AMBRYM MAILLARD.** SEQUENTIAL CHANGE-POINT DETECTION: LAPLACE CONCENTRATION OF SCAN STATISTICS AND NON-ASYMPTOTIC DELAY BOUNDS. In Algorithmic Learning Theory (ALT), pages 610–632. PMLR, 2019.
- [19] Subhojyoti Mukherjee and Odalric-Ambrym Maillard. Improved Changepoint Detection for Piecewise IID Bandits. In 22nd International Conference on Artificial Intelligence and Statistics (AI&STATS), 2019.
- [20] Ronald Ortner, Matteo Pirotta, Ronan Fruit, Alessandro Lazaric, and Odalric-Ambrym Maillard.

  REGRET BOUNDS FOR LEARNING STATE REPRESENTATIONS IN REINFORCEMENT LEARNING. In Advances in Neural Information Processing Systems (NIPS), volume 32, pages 12738–12748, 2019.
- [21] Mohammad Sadegh Talebi and Odalric-Ambrym Maillard. Learning multiple Markov Chains VIA ADAPTIVE ALLOCATION. In Advances in Neural Information Processing Systems (NIPS), Volume 32, 2019.
- [22] Nicolas Carrara, Edouard Leurent, Romain Laroche, Tanguy Urvoy, Odalric-Ambrym Maillard, and Olivier Pietquin. Budgeted reinforcement learning in continuous state space. In Advances in Neural Information Processing Systems (NIPS), Volume 32, 2019.
- [23] Mohammad Sadegh Talebi and Odalric-Ambrym Maillard. VARIANCE-AWARE REGRET BOUNDS FOR UNDISCOUNTED REINFORCEMENT LEARNING IN MDPS. In Algorithmic Learning Theory (ALT), pages 770–805. PMLR, 2018.
- [24] Réda Alami, Odalric-Ambrym Maillard, and Raphaël Féraud. MEMORY BANDITS: A BAYESIAN APPROACH FOR THE SWITCHING BANDIT PROBLEM. In 31st Conference on Neural Information Processing Systems (NIPS), 2017.
- [25] Borja Balle and **Odalric-Ambrym Maillard**. Spectral learning from a single trajectory under finite-state policies. In *International Conference on Machine Learning* (ICML), pages 361–370. PMLR, 2017.
- [26] Odalric-Ambrym Maillard. Boundary crossing for general exponential families. In International Conference on Algorithmic Learning Theory (ALT), pages 151–184. PMLR, 2017.
- [27] Jaouad Mourtada and Odalric-Ambrym Maillard. Efficient tracking of a growing number of experts. In International Conference on Algorithmic Learning Theory (ALT), pages 517–539. PMLR, 2017.
- [28] Akram Erraqabi, Michal Valko, Alexandra Carpentier, and **Odalric-Ambrym Maillard**. PLIABLE REJECTION SAMPLING. In *International Conference on Machine Learning* (ICML), pages 2121–2129. PMLR, 2016.
- [29] Akram Baransi, <u>Odalric-Ambrym Maillard</u>, and Shie Mannor. <u>Sub-Sampling for Multi-Armed Bandits</u>. In *Joint European Conference on Machine Learning and Knowledge Discovery in Databases* (ECML-PKDD), pages 115–131. Springer, Berlin, Heidelberg, 2014.
- [30] **ODALRIC-AMBRYM MAILLARD**, Timothy A Mann, and Shie Mannor. How hard is my MDP?" THE DISTRIBUTION-NORM TO THE RESCUE". In *Advances in Neural Information Processing Systems* (NIPS), pages 1835–1843, 2014.
- [31] **ODALRIC-AMBRYM MAILLARD** and Shie Mannor. LATENT BANDITS. In *International Conference on Machine Learning* (ICML), pages 136–144. PMLR, 2014.
- [32] Ronald Ortner, Odalric-Ambrym Maillard, and Daniil Ryabko. Selecting near-optimal approximate state representations in reinforcement learning. In *International Conference on Algorithmic Learning Theory* (ALT), pages 140–154. Springer, Cham, 2014.

- [33] Odalric-Ambrym Maillard. Robust risk-averse stochastic multi-armed bandits. In International Conference on Algorithmic Learning Theory (ALT), pages 218–233. Springer, Berlin, Heidelberg, 2013.
- [34] Odalric-Ambrym Maillard, Phuong Nguyen, Ronald Ortner, and Daniil Ryabko. OPTIMAL REGRET BOUNDS FOR SELECTING THE STATE REPRESENTATION IN REINFORCEMENT LEARNING. In International Conference on Machine Learning (ICML), pages 543–551. PMLR, 2013.
- [35] Phuong Nguyen, Odalric-Ambrym Maillard, Daniil Ryabko, and Ronald Ortner. Competing with An Infinite Set of Models in Reinforcement Learning. In Artificial Intelligence and Statistics (AI&STATS), pages 463–471. PMLR, 2013.
- [36] ODALRIC-AMBRYM MAILLARD. HIERARCHICAL OPTIMISTIC REGION SELECTION DRIVEN BY CURIOS-ITY. In Proceedings of the 25th International Conference on Neural Information Processing Systems (NIPS), volume 1, pages 1448–1456, 2012.
- [37] ODALRIC-AMBRYM MAILLARD and Alexandra Carpentier. ONLINE ALLOCATION AND HOMOGENEOUS PARTITIONING FOR PIECEWISE CONSTANT MEAN-APPROXIMATION. In Proceedings of the 25th International Conference on Neural Information Processing Systems (NIPS), volume 2, pages 1961–1969, 2012.
- [38] Alexandra Carpentier, **Odalric-Ambrym Maillard**, and Rémi Munos. Sparse recovery with Brownian Sensing. In *Advances in Neural Information Processing System* (NIPS), pages 1782–1790, 2011.
- [39] Odalric-Ambrym Maillard, Rémi Munos, et al. Adaptive bandits: Towards the best History-Dependent Strategy. In Proceedings of the Fourteenth International Conference on Artificial Intelligence and Statistics (AI&STATS); pages 570–578. JMLR Workshop and Conference Proceedings, 2011.
- [40] Odalric-Ambrym Maillard, Rémi Munos, and Gilles Stoltz. A finite-time analysis of multi-Armed Bandits problems with kullback-leibler divergences. In *Proceedings of the 24th annual* conference on learning theory (COLT), pages 497–514. JMLR Workshop and Conference Proceedings, 2011.
- [41] Mohammad Ghavamzadeh, Alessandro Lazaric, **Odalric-Ambrym Maillard**, and Rémi Munos. LSTD WITH RANDOM PROJECTIONS. In Advances in Neural Information Processing System (NIPS), pages 721–729, 2010.
- [42] **ODALRIC-AMBRYM MAILLARD** and Rémi Munos. ONLINE LEARNING IN ADVERSARIAL LIPSCHITZ ENVIRONMENTS. In *Joint european conference on machine learning and knowledge discovery in databases* (ECML-PKDD), pages 305–320. Springer, Berlin, Heidelberg, 2010.
- [43] **Odalric-Ambrym Maillard** and Rémi Munos. Scrambled objects for least-squares regression. In *Advances in Neural Information Processing System* (NIPS), pages 1549–1557, 2010.
- [44] Odalric-Ambrym Maillard, Rémi Munos, Alessandro Lazaric, and Mohammad Ghavamzadeh. FINITE-SAMPLE ANALYSIS OF BELLMAN RESIDUAL MINIMIZATION. In *Proceedings of 2nd Asian Conference on Machine Learning* (ACML), pages 299–314. JMLR Workshop and Conference Proceedings, 2010.
- [45] **ODALRIC-AMBRYM MAILLARD** and Rémi Munos. Compressed least-squares regression. In Advances in Neural Information Processing System (NIPS), 2009.
- [46] **ODALRIC-AMBRYM MAILLARD** and Nicolas Vayatis. Complexity versus agreement for many views. In *International Conference on Algorithmic Learning Theory* (ALT), pages 232–246. Springer, Berlin, Heidelberg, 2009.

#### Publications in international journals with review committee

- [1] Romain Gautron, Odalric-Ambrym Maillard, Philippe Preux, Marc Corbeels, and Régis Sabbadin. Reinforcement Learning for Crop Management. Computers and Electronics in Agriculture, 200:107182, July 2022.
- [2] Odalric-Ambrym Maillard. Local Dvoretzky-Kiefer-Wolfowitz confidence bands. Mathematical Methods of Statistics, 2022.
- [3] Lilian Besson, Emilie Kaufmann, Odalric-Ambrym Maillard, and Julien Seznec. Efficient Change-Point Detection for Tackling Piecewise-Stationary Bandits. *Journal of Machine Learning Research*, March 2022.
- [4] Odalric-Ambrym Maillard. Boundary crossing probabilities for general exponential families. Mathematical Methods of Statistics, 27(1):1–31, 2018.
- [5] Audrey Durand, Odalric-Ambrym Maillard and Joëlle Pineau. Streaming Kernel Regression WITH PROVABLY ADAPTIVE MEAN, VARIANCE, AND REGULARIZATION. The Journal of Machine Learning Research, 19(1):650–683, 2018.
- [6] Robin Allesiardo, Raphaël Féraud, and Odalric-Ambrym Maillard. The Non-Stationary Stochastic Multi-Armed Bandit Problem. In *International Journal of Data Science and Analytics*, 3(4):267–283, 2017.
- [7] Rémi Bardenet and **Odalric-Ambrym Maillard**. Concentration inequalities for sampling Without Replacement. Bernoulli, 21(3):1361–1385, 2015.
- [8] Olivier Cappé, Aurélien Garivier, **Odalric-Ambrym Maillard**, Rémi Munos and Gilles Stoltz. **Kullback-Leibler upper confidence bounds for optimal sequential allocation**. *The Annals of Statistics*, 41(3):1516–1541, 2013.
- [9] Odalric-Ambrym Maillard and Rémi Munos. Linear regression with random projections. The Journal of Machine Learning Research, 13:2735–2772, 2012.

## Manuscripts

- [1] Odalric-Ambrym Maillard. *Mathematics of statistical sequential decision making*. Habilitation thesis, Université de Lille, Sciences et Technologies, 2019.
- [2] Odalric-Ambrym Maillard. Apprentissage Séquentiel: Bandits, Statistique et Renforcement. PhD thesis, Université des Sciences et Technologie de Lille-Lille I, 2011.

## Publications without proceedings (workshops, etc.)

- [1] Patrick Saux and Odalric-Ambrym Maillard. RISK-AWARE LINEAR BANDITS WITH CONVEX LOSS. In European Workshop on Reinforcement Learning, Milan, Italy, September 2022.
- [2] Reda Ouhamma, Debabrota Basu, and Odalric-Ambrym Maillard. BILINEAR EXPONENTIAL FAMILY OF MDPs: Frequentist Regret Bound with Tractable Exploration & Planning. In EWRL 2022 European Workshop on Reinforcement Learning, Milan, Italy, September 2022.
- [3] Nicolas Carrara, Edouard Leurent, Romain Laroche, Tanguy Urvoy, Odalric-Ambrym Maillard, and Olivier Pietquin. Scaling up budgeted reinforcement learning. CoRR, abs/1903.01004, 2019.
- [4] ODALRIC-AMBRYM MAILLARD, Timothy Mann, Ronald Ortner, and Shie Mannor. ACTIVE ROLL-OUTS IN MDP WITH IRREVERSIBLE DYNAMICS. 2019.

- [5] Réda Alami, Odalric-Ambrym Maillard, and Raphaël Féraud. MEMORY BANDITS: TOWARDS THE SWITCHING BANDIT PROBLEM BEST RESOLUTION. In MLSS 2018-Machine Learning Summer School, 2018.
- [6] Mohammad Sadegh Talebi and Odalric-Ambrym Maillard. KL-UCRL REVISITED: VARIANCE-AWARE REGRET BOUND. 2018.
- [7] ODALRIC-AMBRYM MAILLARD. BASIC CONCENTRATION PROPERTIES OF REAL-VALUED DISTRIBUTIONS. 2017. https://hal.archives-ouvertes.fr/cel-01632228
- [8] Odalric-Ambrym Maillard. Self-normalization techniques for streaming confident regression. 2016.
- [9] **ODALRIC-AMBRYM MAILLARD** and Rémi Munos. BROWNIAN MOTIONS AND SCRAMBLED WAVELETS FOR LEAST-SQUARES REGRESSION. 2010.
- [10] **ODALRIC-AMBRYM MAILLARD**, Rémi Coulom, and Philippe Preux. Parallelization of the TD  $(\lambda)$  Learning algorithm. In The Seventh European Workshop on Reinforcement Learning, 2005.

## ArXiv publications (preprints, full-length articles, etc.)

- [1] Debabrota Basu, <u>Odalric-Ambrym Maillard</u>, and <u>Timothée Mathieu</u>. <u>Bandits Corrupted by Nature: Lower Bounds on Regret and Robust Optimistic Algorithm</u>, working paper or preprint, March 2022.
- [2] Dorian Baudry, Emilie Kaufmann, and Odalric-Ambrym Maillard. Sub-sampling for efficient NON-PARAMETRIC BANDIT EXPLORATION. arXiv preprint arXiv:2010.14323, 2020.
- [3] Lilian Besson, Emilie Kaufmann, **Odalric-Ambrym Maillard**, and Julien Seznec. Efficient Change-Point detection for tackling piecewise-stationary bandits. 2020.
- [4] Yannis Flet-Berliac, Reda Ouhamma, Odalric-Ambrym Maillard, and Philippe Preux. IS STANDARD DEVIATION THE NEW STANDARD? REVISITING THE CRITIC IN DEEP POLICY GRADIENTS. arXiv preprint arXiv:2010.04440, 2020.
- [5] Hassan Saber, Pierre Ménard, and Odalric-Ambrym Maillard. FORCED-EXPLORATION FREE STRATE-GIES FOR UNIMODAL BANDITS. arXiv preprint arXiv:2006.16569, 2020.
- [6] Hassan Saber, Pierre Ménard, and Odalric-Ambrym Maillard. OPTIMAL STRATEGIES FOR GRAPH-STRUCTURED BANDITS. arXiv preprint arXiv:2007.03224, 2020.
- [7] Edouard Leurent, Yann Blanco, Denis Efimov, and Odalric-Ambrym Maillard. Approximate robust control of uncertain dynamical systems. arXiv preprint arXiv:1903.00220, 2019.
- [8] Subhojyoti Mukherjee and Odalric-Ambrym Maillard. DISTRIBUTION-DEPENDENT AND TIME-UNIFORM BOUNDS FOR PIECEWISE IID BANDITS. arXiv preprint arXiv:1905.13159, 2019.
- [9] Robin Allesiardo, Raphaël Féraud, and Odalric-Ambrym Maillard. RANDOM SHUFFLING AND RESETS FOR THE NON-STATIONARY STOCHASTIC BANDIT PROBLEM. arXiv preprint arXiv:1609.02139, 2016.
- [10] Aditya Gopalan, **Odalric-Ambrym Maillard**, and Mohammadi Zaki. LOW-RANK BANDITS WITH LATENT MIXTURES. arXiv preprint arXiv:1609.01508, 2016.
- [11] Rémi Bardenet and **Odalric-Ambrym Maillard**. A note on replacing uniform subsampling by random projections in mcmc for linear regression of tall datasets. *arXiv* preprint, 2015.
- [12] **Odalric-Ambrym Maillard**, Rémi Munos, and Daniil Ryabko. Selecting the staterepresentation in reinforcement learning. arXiv preprint arXiv:1302.2552, 2013.

## Technical reports

[1] Romain Gautron, Emilio J. Padrón, Philippe Preux, Julien Bigot, Odalric-Ambrym Maillard, and David Emukpere. GYM-DSSAT: A CROP MODEL TURNED INTO A REINFORCEMENT LEARNING ENVIRONMENT. Research Report RR-9460, Inria Lille, July 2022.