Amaury Gouverneur

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Education

Stanford University, Stanford, CA *Jan 2024 – Jun 2024*
Visiting Student Researcher
Information Systems Laboratory (ISL), Electrical Engineering Department
Advisor: Prof. Benjamin Van Roy

KTH Royal Institute of Technology, Stockholm, Sweden *2020 – Exp. 2025*
Ph.D. in Electrical Engineering. GPA 4.0/4.0
Information Science and Engineering (ISE), Electrical Engineering Department
Advisors: Prof. Mikael Skoglund and Prof. Tobias Oechtering

KTH Royal Institute of Technology, Stockholm, Sweden *2018 – 2020*
M.Sc. in Applied and Computational Mathematics. GPA 4.0/4.0
Minor: Computational Mathematics

École Polytechnique de Louvain, Louvain, Belgium *2015 – 2020*
M.Sc. in Mathematical Engineering. GPA 4.0/4.0
Minor: Mathematics of Data Science and Machine Learning
B.Sc. in Electrical and Mathematical Engineering.

Research Interests

Reinforcement Learning: online learning, contextual bandits, Thompson-Sampling
Optimization: optimization under resource constraints, discrete optimization

Publications

[1] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "Chained Information-Theoretic bounds and Tight Regret Rate for Linear Bandit Problems". In: *arXiv preprint arXiv:2403.03361* (2024).

[2] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "Thompson Sampling Regret Bounds for Contextual Bandits with sub-Gaussian rewards". In: *presented at ISIT* (2023).

[3] A. Aspeel, A. Gouverneur, R. M. Jungers, and B. Macq. "Optimal Intermittent Particle Filter". In: *IEEE Transactions on Signal Processing* 70 (2022), pp. 2814–2825.

[4] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "An Information-Theoretic Analysis of Bayesian Reinforcement Learning". In: *2022 58th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*. IEEE. 2022, pp. 1–7.

[5] A. Aspeel, A. Gouverneur, R. M. Jungers, and B. Macq. "Optimal measurement budget allocation for particle filtering". In: *2020 IEEE International Conference on Image Processing (ICIP)*. IEEE. 2020, pp. 1–5.

[6] A. Gouverneur. "Optimal measurement times for particle filtering and its application in mobile tumor tracking". In: Master thesis. Prom.: Macq, Benoît. 2020.

Work and Research Experience

aSmartWorld, Project Engineer, Genval, Belgium *2019-2021*

- Worked on launching a startup specialized in collecting and refurbishing smartphones
- Developed an iOS application that allows users to evaluate the price of their smartphone and facilitates their collect

University of the Western Cape, Undergraduate researcher, Cape Town, SA *Summer 2018*

- Research project on prototyping an off-grid electrical battery for domestic use

Deloitte, Analyst, London, UK *Summer 2017*

- Summer intern in the *Strategy and Operations* Consulting department

Teaching Experience

Pattern Recognition and Machine Learning, EQ2341, KTH *2020 – 2024*

- Specialization course for Ms.C.s in Electrical Engineering and Computer Science (EECS)
- Led exercise sessions and supervised projects, graded homeworks and final exams
- Designed material for assignments, exams, and exercise sessions, in pattern recognition problems in Bayesian framework, hidden Markov models for classification of sequence of feature vectors, machine learning based HMM training using expectation-maximization algorithm, and approximate machine learning, such as variational Bayes

Deep Neural Networks, KTH, EP232U *Spring 2022*

- External industry course offered to Ericsson
- Introduction course about Deep Neural Networks and Generative Models
- Designed material for assignments and exercise sessions covering mathematical and probability requirements

Services

Reviewing Service:

- EUSIPCO (2022-2023)

Bachelor Thesis Supervision:

- Reza Qorbani and Kevin Pettersson, *Investigation of Information-Theoretic Bounds on Generalization Error*

Master Thesis Supervision:

- Zhen Tian, *Anomaly Detection in Application Logs*
- Guangze Shi, *Privacy leaks from deep linear networks, Information leak via shared gradients in federated learning systems*
- Daniel Pérez, *Improving Recommender Engines for Video Streaming Platforms with RNNs and Multivariate Data*

References

Mikael Skoglund, KTH (**Ph.D. Advisor**)
Associate professor; Head of the Division of Information Science and Engineering
✉ skoglund@kth.se

Tobias J. Oechtering, KTH (**Ph.D. Advisor**)
Associate professor
✉ oech@kth.se

Benjamin Van Roy, Stanford University
Associate professor
✉ bvr@stanford.edu