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*

- Co-founded 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, covering among others hidden Markov models for classification of sequence of feature vectors, HMM training using expectation-maximization algorithm, and variational Bayes

Deep Neural Networks, EP232U, KTH *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 basis

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*

Programming skills

C, C++, Python, Matlab, Java, JavaScript, HTML, LaTeX

Languages

French (native speaker), English, Swedish (C1), German (C1)

Other Interests

Running, Coding, Cooking, Biking, Traveling

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