Amaury Gouverneur

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Education

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

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 *2018 – 2020*
M.Sc. in Applied and Computational Mathematics. GPA 4.9/5.0
Minor: Computational Mathematics

École Polytechnique de Louvain, Louvain, Belgium *2015 – 2020*
M.Sc. in Mathematical Engineering. Summa cum laude: 17.38/20
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] R. Bongole, A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "Information-Theoretic Minimax Regret Bounds for Reinforcement Learning based on Duality". In: *Submitted to ICASSP* (2024).

[2] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "An Information-Theoretic Analysis of Thompson Sampling for Logistic Bandits". In: *Preprint under review* (2024).

[3] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "An Information-Theoretic Analysis of Thompson Sampling with Infinite Action Spaces". In: *Submitted to ICASSP* (2024).

[4] A. Gouverneur, B. Rodríguez-Gálvez, T. J. Oechtering, and M. Skoglund. "Chained Information-Theoretic bounds and Tight Regret Rate for Linear Bandit Problems". In: *Presented at ICML, FoRLaC workshop* (2024).

[5] 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).

[6] 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.

[7] 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.

[8] 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.

[9] 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 for users to price their phone and ease the collection process

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

Machine Learning and Data Science, EQ2415, KTH *2024 – 2024*

- Advanced course focusing on generative and discriminative machine learning methods
- Covered topics include Bayesian graphical models, variational Bayes, sparse representation and dictionary learning, deep neural networks, Boltzmann machines, and inference over networks
- Example applications include gene sequence analysis, face recognition, and financial data analysis.

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

- Specialization course for Ms.C.s in Electrical Engineering and Computer Science
- Led exercise sessions and supervised projects, graded homeworks and final exams
- Designed material for assignments, exams, and exercise sessions, covering HMM for sequence classification, training using EM 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

Programming skills

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

Languages

French (native speaker), English, Swedish (B2-C1), German (C1 in 2015)

Other Interests

Running (10km in 30'09, half marathon in 1h05), Biking, Chess

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