



R A P H A Ë L REYNOUARD

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ABOUT ME

I am a post-doctoral researcher at eawag, the Swiss Federal Institute of Aquatic Science and Technology. I develop, design and implement machine learning methods applied on hydrological systems. I completed my PhD at Reykjavik University (Iceland), focusing on machine learning techniques for Markov model learning, under the supervision of Anna Ingólfssdóttir and Giovanni Bacci. My research interests are machine learning, hydrology, model checking, markov models, statistical modeling.

EDUCATION

PhD in Computer Science **2020-2023**
Háskólinn í Reykjavík | Reykjavík, Iceland

- Field: Machine Learning & Model Checking
- Thesis topic: "Machine Learning from a Model Checking Perspective"
- Supervisor: Anna Ingólfssdóttir.
- PhD Thesis: [On learning stochastic models: from theory to practice](#)

BA & MSc in Computer Science **2015-2020**
Université Libre de Bruxelles | Brussels, Belgium

- Graduated with *Distinction*
- Thesis topic: "Learning of Non-Markovian Reward Functions"
- Supervisor: Jean-François Raskin.

PUBLICATIONS

R. Reynouard, A. Ingólfssdóttir, and G. Bacci (2023). "Jajapy: a learning library for stochastic models". In: *Quantitative Evaluation of Systems - 20th International Conference, QEST 2023, Antwerp, Belgium, September 18-23, 2023, Proceedings*. Ed. by Nils Jansen Mirco Tribastone. Lecture Notes in Computer Science. Springer.

Bacci, G., A. Ingólfssdóttir, K. G. Larsen, and **R. Reynouard** (2021). "Active Learning of Markov Decision Processes using Baum-Welch algorithm". In: *20th IEEE International Conference on Machine Learning and Applications, ICMLA 2021, Pasadena, CA, USA, December 13-16, 2021*. IEEE, pp. 1203-1208. DOI: 10.1109/ICMLA52953.2021.00195.

– (2023). "An MM Algorithm to Estimate Parameters in Continuous-time Markov Chains". In: *Quantitative Evaluation of Systems - 20th International Conference, QEST 2023, Antwerp, Belgium, September 18-23, 2023, Proceedings*. Ed. by Nils Jansen Mirco Tribastone. Lecture Notes in Computer Science. Springer.

Rens, G., J.-F. Raskin, **R. Reynouard**, and G. Marra (2021). "Online Learning of non-Markovian Reward Models". In: *Proceedings of the 13th International Conference on Agents and Artificial Intelligence, ICAART 2021, Volume 2, Online Streaming, February 4-6, 2021*. SCITEPRESS, pp. 74-86. DOI: 10.5220/0010212000740086.

TOOLS

Jajapy

since 2021

A Python learning library for Markov models

- Open source Python library
- Implementing several learning methods for stochastic models
- Compatible with the model checkers Storm and Prism
- Github: <https://github.com/Rapfff/jajapy>
- Documentation: <https://jajapy.readthedocs.io/en/latest/index.html>.

AWARDS

Babbage Prize

2020

- Each year, the Babbage Association awards the Babbage Prize to a student who has graduated from a Master's degree in Computer Science at ULB and who has distinguished himself as much by his commitment to the student community as by the excellence of his academic career.

MISCELLANEOUS

Mathematics tutoring

since 2016

- Tutoring in mathematics for middle and high school students
- More than 20 students.

Scout Leader

2016-2020

Belgium

- Scoutmaster of a Belgian group
- From 2018 to 2020, head of the boys' group (60-70 children).

SKILLS

● ● ● Python, \LaTeX

● ● ○ Linux, R, PyTorch



Arduino, Java

Languages

- French (Native)
- English (Full professional proficiency)
- Icelandic (Basic)

REFERENCES

Kim G. Larsen

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