# Adrien Bolland
## PhD Student

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## About me

I am a PhD student in artificial intelligence at the university of Liège doing researches in deep reinforcement learning with applications to the renewable energy transition. More specifically, my work focuses on applications of deep reinforcement learning for energy trading as well as on the adaptation of these algorithms to solve joint design and control problems. I am open to discuss or collaborate on research projects.

## Education

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|---|---|---|
| Since 2020 | PhD student in reinforcement learning<br>*Advisor : Damien Ernst (dernst@uliege.be).* | University of Liège |
| 2018 - 2020 | Master student in electrical engineering in signal processing and intelligent robotics<br>*Summa Cum Laude* - 91 %. | University of Liège |
| 2015-2018 | Bachelor student in electrical engineering and computer science<br>*Magna Cum Laude* - 78 %. | University of Liège |

## Experience

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| 2019 | Internship in the Market Modeling & Market View department at Engie Belgium<br>Internship focusing on the forecasting of the electricity imbalance prices. | Engie Brussels |
| 2019 | Junior researcher at the Montefiore institute<br>Internship focusing on the study of deep RL solutions for trading on the intraday electricity market. | University of Liège |
| 2019 | Summer school on bandits and RL.<br>Summer school organized by Sequel and Inria. | University of Lille |
| 2017 - 2019 | Pupil-monitor.<br>Monitor in applied geometry, C-language,<br>electromagnetic energy conversion, and computer structures. | University of Liège |

## Publications

Recurrent networks, hidden states and beliefs in partially observable environments
Gaspard Lambrechts, Adrien Bolland, Damien Ernst
Transactions on Machine Learning Research, 2022

Jointly Learning Environments and Control Policies with Projected Stochastic Gradient Ascent
Adrien Bolland, Ioannis Boukas, Mathias Berger, Damien Ernst
Journal of Artificial Intelligence Research, 2022

Distributional Reinforcement Learning with Unconstrained Monotonic Neural Networks
Thibaut Théate, Antoine Wehenkel, Adrien Bolland, Gilles Louppe, Damien Ernst
arXiv preprint arXiv :2106.03228, 2021

Graph-Based Optimization Modeling Language : A Tutorial
Mathias Berger, Adrien Bolland, Bardhyl Miftari, Hatim Djelassi, Damien Ernst
preprint, 2021

A deep reinforcement learning framework for continuous intraday market bidding
Ioannis Boukas, Damien Ernst, Thibaut Théate, Adrien Bolland, Alexandre Huynen, Martin Buchwald, Christelle Wynants, Bertrand Cornélusse
Machine Learning, 2021

## Teaching

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| Numerical Optimization<br>Introductory course on conic programming and convex optimization algorithms. | University of Liège |
| Reinforcement Learning<br>Course introducing dynamic programming, bandit theory, and reinforcement learning. | University of Liège |
| Energy Markets<br>Introductory course on the organization of the energy markets in Europe. | University of Liège |

## Skills

Mathematics  Algebra, Analysis, Numerical analysis and optimization, and System theory.

Applied Mathematics  Deep Learning, Reinforcement Learning, Optimization, and Statistics.

Computer Science  Programming techniques, Data structures and Computer structures.

Physics  Global formation as an engineer with specialization in electromagnetism and electricity.

## Languages

French  Native proficiency.

Dutch  Bilingual proficiency.

English  Professional working proficiency.

## Interests

I like music and played piano during three years. I have played tennis and I do ice-skating in my free time.