

Matthias Pirlet

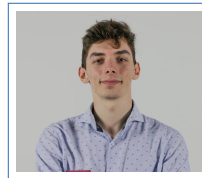
November 23rd 1999

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📁 mapirlet.github.io



Education

- 2024 - present **PhD student - AI for energy markets**, *University of Liège, Belgium*, Montefiore Institute, supervised by Prof. Damien Ernst.
Research on optimization and market modeling in power systems in collaboration with GMA's team from Engie. Focus on Bayesian and simulation-based inference (SBI) methods to tackle inverse problems in unit commitment and economic dispatch. Applications include decision support for traders, operators, and system planners.
- 2022 - Present **Master in Management, Specialization in General Management (Part-Time)**, *University of Liège, Belgium*.
- 2020 - 2022 **Master of Science in Data science and engineering**, *University of Liège, Belgium*.
Magna cum laude (with great praise)
- 2017 - 2020 **Bachelor in Engineering**, *University of Liège, Belgium*, Major in computer science, minor in electrical engineering.

Masters Thesis and Internship

- Thesis **Empirical analysis of tail measures using high-frequency data**, *Supervised by Prof. Julien Hambuckers*.
Empirical study of tail risk indicators such as realized quantiles and realized expected shortfall using order book data. Built time series preprocessing pipelines in Python and explored time aggregation schemes such as event time and volume clocks.
- Thesis **Drone Control through a Vocal Interface**, *Supervised by Prof. Gilles Louppe*.
Designed and implemented a model to control drones through spoken commands. Leveraged neural networks for speech-to-text and text-to-speech.
 - Award: "Best Master thesis in Data Science and Engineering" from Association des ingénieurs de Montéfiore (AIM).
 - Alstom Award (ALSTOM BELGIUM S.A.)
- Internship **Invoice Classification Using OCR and ML**, *Billy Tech Company*.
Built an OCR and document classification pipeline to automate the extraction of data from invoices and directly import them into an accounting software.

Professional Experiences

- 2023 - Present **Teaching Assistant – MLOps & Energy Markets**, *University of Liège, Belgium*.
Involved in teaching and lab sessions for two courses:
 - **Machine Learning Systems Design (MLOps)**: Built the course together with Thomas Vrancken from ML6. Covers: Cloud infrastructure, containerization with Docker, API implementation, ML pipelines, continuous integration (CI/CD), and production monitoring.
 - **Energy Markets and Regulation**: Topics include electricity markets (Forward/future, day-ahead, intraday, balancing), network security, carbon market, oil market, optimization in electricity market clearing, and the regulatory landscape. Various guest lectures from industry including producers, regulators, transmission operators, ...
- 2023 - 2024 **Research Engineer – Optimization and Decarbonization**, *University of Liège, Belgium*.
Contributed to an industrial decarbonization project with the Walloon region and industrial partners, designing optimal siting strategies for sustainable kerosene production from CO2 sources (e.g. steel, cement). Solved large-scale MILP problems using GBOML, a modeling language developed in Montefiore.

- 2022 - 2023 **Digital Signal Processing Engineer**, *BEA Sensors, Belgium*.
Developed signal processing and classification pipelines for sensor data. Used AI-based models for real-time signal interpretation.
- 2020 - 2022 **Student Instructor**, *University of Liège, Belgium*.
Taught lab sessions to 1st year bachelor students following the course INFO0061 (computer architecture) given by Prof. Bernard Boigelot and the course INFO0258 (Mathematics and physics programming laboratories 1) also given by Prof. Bernard Boigelot.
- 2020 - 2022 **Research student – Ocean Data Modeling**, *MAST, University of Liège*.
Built Python workflows to process oceanographic data from EMODnet and WOD. Focused on hypoxia detection.
- 2020 - 2021 **Young Entrepreneur**, *VentureLab, Belgium*.
Participated in the Startech program. Co-founded *Locase*, a startup working on a smart locator system for lost or stolen items.

Other Experiences

- 2020 - 2021 **Information Manager – Ski Inge Trip**, *Belgium*.
Managed communication with over 500 participants and coordinated with partner companies and sponsors. Also handled logistics and data organization for the event, which involved a total budget of €210,000.
- 2019 - 2020 **Organiser – Student Association**, *Belgium*.
Led the planning of several large-scale student events, including one gathering 10,000 attendees.

Languages

French Mother tongue
English Advanced

Publications

- 2024 **Pirlet M.**, Bolland A., Louppe G., Ernst D. *Cost Estimation in Unit Commitment Problems Using Simulation-Based Inference*. Accepted at the Workshop on Data-driven and Differentiable Simulations, Surrogates, and Solvers (D3S3) at NeurIPS 2024. arXiv:2409.03588. <https://arxiv.org/abs/2409.03588>