# Francesco Morri

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## Education

**Sorbonne Université** Sep 2021 – Jul 2022
- M2 in Physics of Complex Systems (i-PCS)
- **Final Grade:** 16/20 (trés bien)

**Abdus Salam International Centre for Theoretical Physics (ICTP)** Feb 2022 – Mar 2022
- Spring College in the Physics of Complex Systems

**Politecnico di Torino** Sep 2020 – Oct 2022
- MSc in Physics of Complex Systems (International Track)
- **Final Grade:** 110/110 cum laude

**Università di Bologna** Oct 2017 – Sep 2020
- BSc in Physics
- **Final Grade:** 110/110

## Experience

**Visiting Student**, Polytechnique Montréal, Montréal, Canada Jul 2024 - Sep 2024
**Supervisors:** Quentin Cappart, Hanane Dagdougui
I worked on machine learning to enhance optimization algorithms.

**Visiting Student**, Polytechnique Montréal, Montréal, Canada Nov 2023
**Supervisor:** Quentin Cappart
I worked with Quentin Cappart on optimiazation algorithms for smart building, focusing on the NeurIPS Citylearn Challenge 2023 (which we won). The visit was part of the Galangal project, a collaboration of researchers from Lille, Montréal and Edinburgh.

**Research Intern**, Institut de Physique Théorique (IPHT), Saclay, France Mar 2022 - Jul 2022
**Supervisor:** Pierfrancesco Urbani
I studied simple algorithms to solve continuous constraints satisfaction problems close to their satisfiability transition, using statistical mechanics and spin glasses theory.

**Visiting Student**, SISSA & ICTP, Trieste, Italy Sep 2020 - Jan 2021
I attended courses with PhD students of both SISSA and ICTP as part of my first semester in the Master in Physics of Complex Systems (International Track)

## Publications

**Winning the 2023 CityLearn Challenge: A Community-Based Hierarchical Energy Systems Coordination Algorithm** 2024
***Authors:*** A. I. Garmendia, F. Morri, Q. Cappart, H. Le Cadre
27th European Conference on Artificial Intelligence (ECAI)

**Learning in Stackelberg Games with Application to Strategic Bidding in the Electricity Market** 2024
***Authors:*** F. Morri, H. Le Cadre, P. Gruet, L. Brotcorne
20th International Conference on the European Energy Market (EEM)

**On the Thermodynamic Interpretation of Deep Learning System** 2021
***Authors:*** R. Fioresi, F. Faglioni, F. Morri, L. Squadrani
Geometric Science of Information. GSI 2021. Lecture Notes in Computer Science, vol 12829. Springer

## Pre-prints

**Nonconvex Game and Multi Agent Reinforcement Learning for Zonal Ancillary Markets** 2025
***Authors:*** F. Morri, H. Le Cadre, P. Gruet, L. Brotcorne
Submitted to *Transactions on Control of Network Systems* in June 2025

**Learning in Conjectural Stackelberg Games** 2025
***Authors:*** F. Morri, H. Le Cadre, L. Brotcorne

## Talks and Presentations

**GAIW:** Learning in Conjectural Stackelberg Games - *F. Morri, H. Le Cadre, L. Brotcorne* 2025
7th Games, Agents, and Incentives Workshop, Detroit, USA

**ROADEF:** Learning in Conjectural Stackelberg Games - *F. Morri, H. Le Cadre, L. Brotcorne* 2025
26ème Congrés Annuel de la Société Francaise de Recherche Opérationelle et d'Aide à la Décision, Paris, France

**ISMP:** Learning in Multi-Leader Single-Follower Stackelberg Games - *F. Morri, H. Le Cadre, L. Brotcorne* 2025
25th International Symposium on Mathematical Programming, Montréal, Canada

**IMACS:** Multi-Agent Reinforcement Learning for Strategic Bidding in the Electricity Market - *F. Morri, H. Le Cadre, P. Gruet, L. Brotcorne* 2023
21st International Association for Mathematics and Computers in Simulation World Congress, Roma, Italy

**Fime Summer School on Big Data** & **Finance:** Multi-Agent Reinforcement Learning for Strategic Bidding in Two Stage Electricity Markets - *F. Morri, H. Le Cadre, P. Gruet, L. Brotcorne, Aussois, France* 2023

**LION17:** Multi-Agent Reinforcement Learning for Strategic Bidding in Two Stage Electricity Markets - *F. Morri, H. Le Cadre, P. Gruet, L. Brotcorne* 2023
17th Learning and Intelligent OptimizatioN Conference, Nice, France

## Teaching

**Object Oriented Programming**, *École Centrale de Lille, G1/G2* 2025
The goal of this course is to introduce the basic concepts of object oriented programming with Java. It is organized in 40h of lab sessions, where the students have to develop small projects following the teacher's instructions.
**Contribution:** I followed a class of 16 students, teaching the basics of the Java language and helping with coding exercise. I then participated in the oral exam at the end of the course.

## Technical Skills

**Coding:**

- **Experienced:** C++ (ROOT, GSL), Python (PyTorch, Numpy, Pandas, Matplotlib)
- **Familiar:** JavaScript
- **Basics:** Java, HTML, CSS

**Languages:**

- **Native:** Italian
- **Fluent:** English
- **Intermediate:** French