

Experience

- 2022-2025 **PhD Thesis in Reinforcement Learning, CMAP, École Polytechnique.** Focus on the theoretical development of spatial hierarchies in MDPs for subtask discovery and model explanation, with applications to real-world problems. Supervised by Erwan Le Pennec, Hind Castel and Emmanuel Hyon. Key publications :
- *Progressive State Space Disaggregation for Infinite Horizon Dynamic Programming*, Forghieri, Castel, Le Pennec, and Hyon, ICAPS 2024, Banff, Canada.
 - *State Abstraction Discovery from Progressive Disaggregation Methods*, Forghieri, Castel, Le Pennec, and Hyon, EWRL 2024, Toulouse, France.
- Parallel activities :
- **Teaching Assistant, École Polytechnique** : Teaching in *Statistical Learning, Probabilities* courses with Eric Moulines, Gersende Fort, and Tabea Rebafka in the Engineering Degree program.
 - **Teaching Assistant, Université Paris Nanterre** : Teaching *Operational Research* courses with Claire Hanen and Emmanuel Hyon within the Bachelor of Science program.
- Mar. 2022 **Research Intern in Hierarchical Reinforcement Learning, Télécom SudParis.** Exploration of server energy and performance optimization under uncertainty using Hierarchical Reinforcement Learning, in collaboration with **Energy4Climate**. Supervised by Hind Castel, Erwan Le Pennec, and Emmanuel Hyon.
- Mar. 2021 **Research Intern in Combinatorial Optimization at Orange** Research in Combinatorial Optimization for Edge Computing and Network Orchestration in the 6G research context. *Service Placement under Affine Delay Constraint for computational resources management*, Carlinet, Forghieri and Perrot, ROADEF2022.
- Mar. 2020 **Machine Learning Intern at SNCF** Modelling and forecasting of delay propagation in the rail network using Boosted Decision Trees and Bayesian networks, enhancing scheduling and resource management.
- Sep. 2019 **Research Project in Market Forecast with École Polytechnique and LusiS (Trading Solutions)** Development of market forecast models using time series analysis, including LSTM, NLP on news headlines, and CNN. Improvement of trading strategies with predictive insights.

Education

- 2021 – 2022 **Master's Degree MVA (Mathematics, Vision, Learning), École Normale Supérieure Paris Saclay,**
Time Series Analysis, Deep and Reinforcement Learning, Object Recognition
- 2018 – 2021 **École Polytechnique, Engineer's Degree,**
Statistical Learning, Functional analysis, Algorithmic, Machine and Deep Learning

Skills

- Languages French (native), English (Fluent), German (Written)
- Programming Python (Jax, Pytorch, Tensorflow), Git, R, Java, C++