Lluís Salvat Niell

lsalvat.github.io
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EDUCATION

MMathPhys Mathematics and Physics, University of Manchester   **Exp. 2025**
Integrated Master's Degree, Joint Honours Program. Specializing in Probability and Statistics and Theoretical Quantum Mechanics. Interruption of Study in 2022/23 Year to Conduct Research at Harvard.

Spanish Baccalaureate, Fundació Collserola   **2020**
Grade: 9.72/10. Optional Modules: Mathematics, Physics, Chemistry and Biology. Research Project: "The Retail Price Variability of Consumer Goods in Barcelona" (Grade: 10/10).

RESEARCH INTERESTS

Reinforcement Learning
Causal Inference
Machine Learning
Optimization
Prediction and Forecasting

RESEARCH EXPERIENCE

Undergraduate Researcher, University of Oxford   **Jul 2023 − Present**
Worked on short-lived correlation detection in US equities via random matrix theory and spectral clustering. Analyzed a NYSE equities minutely price dataset of 500+ equities over 14+ years with missing and outlier values.
Advisors: Mihai Cucuringu and Yutong Lu, Department of Statistics.

Undergraduate Researcher, Harvard University   **July 2023 − Present**
Designed, implemented, tested and simulated a novel RL algorithm to be used in a real HCT clinical trial. Combined hierarchical RL and posterior sampling to achieve superior performance than existing baselines.
Advisors: Susan Murphy and Shuangning Li, Department of Statistics.

Undergraduate Researcher, University of Manchester   **June 2022 − Oct 2022**
Worked on a literature review of the generalized hyperbolic distribution, specifically its distributional properties, parameter estimation methods and applications to financial modelling.
Advisor: Robert Gaunt, Department of Mathematics.

PUBLICATIONS

Shuangning Li, **Lluís Salvat Niell**, Sung Won Choi, Inbal Nahum-Shani, Guy Shani, Susan A. Murphy. *Dyadic Reinforcement Learning* [In preparation], 2023.

Lluís Salvat Niell, Adrian Fischer, Robert E. Gaunt. *The Generalized Hyperbolic Distribution: A Review* [In preparation], 2023.

AWARDS

Annual Literature Contest Winner, Fundació Collserola   **2019 & 2020**
Achieved first place in the poetry category every year of Baccalaureate.

Matrícula d'Honor (Distinction/Valedictorian), Fundació Collserola   **2020**
Awarded to students in the 95th percentile of academic performance.

Physics Entrance Scholarship, University of Manchester   **2020**
Awarded to students with results equivalent to A*A*A* at A-Level.

TEACHING **EXPERIENCE**	**Academic Tutor**, Self-Employed **Sept 2018 − Present** Helping students aged 10-18 with their schoolwork and examinations across a variety of subjects, including mathematics, physics, chemistry and biology. Received excellent feedback from all students.

RELEVANT COURSEWORK

MATH10111: Foundations of Pure Mathematics
MATH10121: Calculus and Vectors
MATH10212: Linear Algebra
MATH20111: Real Analysis
MATH20401: Partial Differential Equations and Vector Calculus
MATH29142: Complex Analysis
MATH20122: Metric Spaces

SKILLS

Programming Languages: Python, C++, R.
Python Libraries: Numpy, Pandas, Matplotlib, Scikit-Learn, PyTorch, TensorFlow.
Other: LaTeX, SQL.
Languages: English (C2, Grade A), French (A2), Spanish (Native), Catalan (Native).

INDUSTRY INTERNSHIPS

Trading and Technology, Mako Trading   **July 2022 − Present**
Gained practical experience in options pricing and market flow through simulated trading using the Volcube platform. Completed an assignment on volatility event estimation in real setting using probabilistic methods.

Machine Learning Engineering, Marlex Human Capital **Jan 2022 − July 2022**
Developed an NLP-based classification algorithm for CV scraping fine-tuning BERT models in PyTorch. Trained a Random Forest model to predict the required credit facility with a 97% accuracy with Bayesian optimization.

Selective Insight Programs, Jane Street and Citadel   **Sept 2021 & April 2022**
London Preview and Discover Citadel Europe. Networked with and attended talks by professionals across trading, quantitative research and engineering. Learned about high frequency market making, statistical arbitrage strategies and functional programming.

VOLUNTEER EXPERIENCE

Data Scientist, Fundació Girona-Est   **Oct 2021 − Present**
Working on setting up a centralised database to coordinate the activities of the organization, managing students' data and setting up administrator accounts for management. Conducting data analysis to inform executive decision-making.

LEGAL STATUS

European Union: Citizen (Spain).
United Kingdom: Pre-Settled Status (Right to Work).