



## INTRODUCTION

Hey there, I'm Nils, a 21-year-old student in my fourth year of a bachelor's degree in Artificial Intelligence at UPC. Outside of my studies, I enjoy reading, playing tennis, climbing, and chess.

## EDUCATION

2022-2026	<b>Bachelor's in Artificial Intelligence</b> Universitat Politècnica de Catalunya
Winter semester 2025	<b>Erasmus in Germany</b> Karlsruhe Institute of Technology (KIT)
2016-2022	<b>ESO and Batxillerat (High School)</b> Escola Frederic Mistral-Tècnic Eulàlia

## REAL WORLD EXPERIENCE

Fall 2025	<b>Internship at Sparsity</b> <ul style="list-style-type: none"><li>Automated data collection for a graph-based tool to improve direct marketing and competitor analysis.</li><li>Used data analysis techniques to improve SEO and business-client alignment.</li></ul>
Spring 2025	<b>Collaboration with Telefónica</b> <ul style="list-style-type: none"><li>Researched the impact of diversity on AI agents performance with guidance from Telefónica.</li><li>Improved Gemini 2.5 Flash performance by over <b>3%</b> (87% → 90%) on the MedQA benchmark by using diverse agents with LangGraph.</li></ul>
Summer 2024	<b>Internship at Bac 10</b> <ul style="list-style-type: none"><li>Automated tax calculations to meet client-specific requirements and deadlines.</li><li>Improved system efficiency and maintainability by making the software architecture more robust.</li></ul>

## PROJECTS

### Predicting Chess Puzzle Elo Rating

- Predicted the Elo rating difficulty of a chess position leveraging advanced machine learning techniques.
- Took advantage of existing game engines like Stockfish, Leela and Maia to improve performance.

### Image Classification with MareNostrum 5

- Trained several Transformer based models on the full MAME dataset (>200 GB) and achieved 0.75 f1-score
- Used the MareNostrum V supercomputer and slurm to train the models on a very large dataset.

### Cirrhosis Patient Status Classification

- Worked with health data to classify the status of patients with cirrhosis.
- I trained several models including KNN, SVM, Decision Tree and Explainable Boosting Machine.

### Solving Atari Games with DQN

- Worked with the gymnasium library to create environments and implement several Reinforcement Learning algorithms such as DQN, DDPG, TD3, SAC, PPO.

# NILS DURAN

## CONTACT

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## SKILLS

### Programming Languages

Python  
SQL  
R  
C/C++  
MATLAB, Java, C#, VBA, Rust, Prolog...

### Technologies & other skills

Git  
Linux  
OOP and Software Architecture  
numpy, scikit-learn & other python libraries  
PowerBI, Tableau  
Spark  
LangChain / LangGraph  
PostgreSQL  
OpenMP, MPI, CUDA  
Pytorch, TensorFlow

## LANGUAGES

Catalan	Native
Spanish	Bilingual
English	C2
German	C1