

Marçal Herraiz Bayó

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Personal website ↗

Paris, France

EDUCATION

Present Sept. 2025	Université Paris Sciences et Lettres MSc in Mathematics	Paris, France
	<ul style="list-style-type: none">Joint master's between École Normale Supérieure and Université Paris Dauphine.All expenses covered by the FSMP Master Scholarship 2025.	
June 2025 Sept. 2020	University of Barcelona BSc in Mathematics	Barcelona, Spain GPA: 9.02/10
	<ul style="list-style-type: none">Excellent with honors in 12 subjects.Thesis on flat connections and principal bundles.	Grade: 10/10
June 2025 Sept. 2020	University of Barcelona BSc in Physics	Barcelona, Spain GPA: 8.79/10
	<ul style="list-style-type: none">Excellent with honors in 10 subjects.Thesis on classical shadows in quantum information. ↗	Grade: 9.7/10

WORK EXPERIENCE

Present July 2025	Westinghouse Nuclear <i>Simulation Modeling Engineer</i>	Madrid, Spain
	<ul style="list-style-type: none">Developing software for nuclear power plant simulations.Improving thermal–hydraulics models for accuracy and performance.Contributing to validation and documentation workflows.	

RESEARCH EXPERIENCE

June 2025 Nov. 2024	Barcelona Supercomputing Center – BSC <i>Visiting Student</i>	Barcelona, Spain
	<ul style="list-style-type: none">Developed a unified strategy to improve quantum measurement efficiency.Demonstrated significant performance gains in many-body quantum systems.Achieved high precision with fewer measurements than standard methods.Supervisors: Prof. Dr. Bruno Julià, Berta Casas, Sergi Masot.	
Feb. 2025 July 2024	Institute for Research in Biomedicine – IRB <i>Research Intern</i>	Barcelona, Spain
	<ul style="list-style-type: none">Modeled DNA flexibility using a coarse-grained approach.Optimized the model to account for DNA damage.Devised and implemented new methods to calculate DNA geometric properties.Supervisor: Prof. Dr. Modesto Orozco.	
Aug. 2023 June 2023	Center for Mathematical Research – CRM <i>Research Intern</i>	Barcelona, Spain
	<ul style="list-style-type: none">Studied transcendental dynamics within the complex exponential family.Supervisors: Prof. Dr. Núria Fagella, Prof. Dr. Xavier Jarque.	

HONORS AND AWARDS

	FSMP Master Scholarship	28,000 €
March 2025	• Awarded by the Fondation Sciences Mathématiques de Paris to fully fund my Master's studies at PSL.	
	Excellent Performance	1,900 €
Feb. 2025	• I was awarded “Excellent with Honors” in 16 subjects across the two Bachelor’s degrees at UB.	
Sept. 2021		
	Collaboration Scholarship	2,000 €
Nov. 2024	• Issued by the Spanish Ministry of Education, this scholarship is aimed at university students to conduct research in university departments.	
	CRM Internship Programme Award (declined)	500 €
Oct. 2024	• Awarded to bachelor students who want to do their Bachelor’s thesis advised by a researcher affiliated with the CRM.	
	Maths4Life Award	1,200 €
July 2024	• Awarded one of the five grants from IRB Barcelona’s Maths4Life programme to conduct research at the intersection of mathematics and biomedicine.	
	Honors in Baccalaureate	1,700 €
Sept. 2020	• Awarded to students with an excellent academic record during their baccalaureate. Full coverage of tuition fees for the first year of university.	
	Mad for Science Programme	
Oct. 2019	• Catalunya La Pedrera Foundation developed the Mad for Science Programme to open the doors of the leading research institutes to exceptional High School students. I participated in the Physics course.	
Jan. 2019		

INVITED TALKS

June 2025	Research Seminar at BSC	
	• Presented the outcomes of my research stay at BSC.	
Sept. 2024	Extraordinary BioMed Seminar – Maths4Life 2024	
	• In this seminar organized by IRB, I presented my research work undertaken as a summer intern.	
July 2023	Barcelona Introduction to Mathematical Research – BIMR 2023	
	• Presented the results of my summer internship at CRM to an expert audience.	

LANGUAGES

Spanish	Native Speaker
Catalan	Native Speaker
English	C1 Level
French	A2 Level

CODING SKILLS

Languages: Python, C, Fortran, R, Bash, Mathematica.
Libraries: Pandas, SciPy, NumPy, Scikit-learn, Seaborn.
Other: Experience with Unix/Linux, computational modeling, and version control.

ADDITIONAL COURSES

- **Python for Data Science and Machine Learning** – Udemy ↗
- **Machine Learning with Python** – Coursera ↗
- **100 Days of Code: The Complete Phyton Pro Bootcamp** – Udemy ↗