Marçal Herraiz Bayó

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LinkedIn · Personal website ⬈
Barcelona, Spain

I am a Physics and Mathematics student at the University of Barcelona, currently in my fourth year of study. My interests encompass a wide range, from quantum mechanics and electrodynamics to differential geometry and dynamical systems. I am also interested in the usage of computational tools to solve complex problems within the fields of science and engineering.

EDUCATION

Present
Sep 2020

University of Barcelona
Bachelor of Science in Physics   Grade: 8.4/10
Bachelor of Science in Mathematics   Grade: 9.0/10
- I am part of the dual degree in Physics and Mathematics, an excellence program that selects some of the best technical students from Spain allowing them to pursue both bachelor's degrees simultaneously.

June 2020
Sep 2018

Mireia Center of Studies
Technological Baccalaureate
- GPA: 10/10. 1st-ranked student of the class.

EXPERIENCE

Present
Sep 2024

Barcelona Supercomputing Center – BSC
Visiting Student
- Pursuing my Physics bachelor's thesis on quantum computing, focusing on classical shadows.
- Working in the Quantic group.
- Supervisors: Prof. Bruno Julià, Sergi Masot, Berta Casas.

Sep 2024
July 2024

Institute for Research in Biomedicine – IRB
Research Intern
- Working in the Molecular Modelling and Bioinformatics group.
- Supervisors: Prof. Modesto Orozco.

Aug 2023
June 2023

Centre for Mathematical Research – CRM
Research Intern
- Worked on a research project centered around transcendental dynamics within the complex exponential family.
- Focused on the results obtained by Robert L. Devaney and Michal Krych for a specific parameter value of this family, giving a complete description of the dynamics in this set.
- Concluded the internship by giving a talk about these results.
- Supervisors: Dr. Núria Fagella, Dr. Xavier Jarque.

GRANTS AND HONOURS

Sep 2024
July 2024

Maths4Life Awardee   1,200 €
- Awarded one of the five grants offered by IRB Barcelona to conduct research at the intersection of mathematics and biomedicine.

Present
Sep 2021

Excellent Performance   1,100 €
- Recipient of the University of Barcelona's honor for exceptional academic performance during university studies.

Sep 2021 Sep 2020	**Honours in Baccalaureate** 1,700 € - Issued by Generalitat de Catalunya to those students with an excellent academic record during baccalaureate.
Oct 2019 Jan 2019	**Mad for Science Program** - Catalunya La Pedrera Foundation has developed the Mad for Science Program to open the doors of the leading research institutes to exceptional High School students. I participated in the physics course.

ADDITIONAL COURSES

July 2023 Apr 2023	**Python for Data Science and Machine Learning** – Udemy - Implemented various machine learning algorithms, including k-means clustering, linear and logistic regression, random forest and decision trees, SVMs, and neural networks. - Certificate of completion ⍈
Jan 2023	**Machine Learning with Python** – Coursera - Learned the fundamentals of machine learning and studied different algorithms, such as linear and logistic regression, SVM, KNN, and decision trees. - Certificate of completion ⍈
Dec 2022 June 2022	**100 Days of Code: The Complete Phyton Pro Bootcamp** – Udemy *Data Science, Automation, Game and Web Development, GUI Creation* - Developed proficiency in Python programming language through building 100 unique projects over 100 days, including automation scripts, web and app development, data science and machine learning models. - Certificate of completion ⍈

LANGUAGES

Spanish	Native Speaker
Catalan	Native Speaker
English	Advanced C1 Level

CODING SKILLS

Machine Learning	Data Visualization	NumPy
Python	Scikit-learn	SymPy
LaTeX	Pandas	C

VOLUNTEERING AND ACTIVITIES

- **Science Fellows**: initiative of the Catalunya la Pedrera Foundation to develop science communication activities such as expositions in museums and talks in high schools.
- **Problem Solving**: via books and online resources, solving problems is an activity that I perform, enjoy, and continue to learn on a daily basis.