

# Marçal Herraiz Bayó

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Barcelona, Spain

I am a Physics and Mathematics student at the University of Barcelona, currently in the fourth year of study. I aspire to build a career in research, specifically within the field of mathematical physics. My interests encompass a wide range, from quantum mechanics and electrodynamics to differential geometry and dynamical systems.

## EDUCATION

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Jun 2025 Sep 2020	<b>Bachelor of Science in Physics + Bachelor of Science in Mathematics</b> <i>University of Barcelona</i> <ul style="list-style-type: none"><li>- Dual-degree program that offers twenty students annually the chance to pursue concurrent studies in physics and mathematics, resulting in two separate undergraduate degrees after five years, as opposed to the eight years required for individual study.</li><li>- Top 5% of the class.</li></ul>
Jun 2020 Sep 2018	<b>Technological Baccalaureate</b> <i>Mireia Center of Studies</i> <ul style="list-style-type: none"><li>- 1<sup>st</sup>-ranked student of the class.</li><li>- GPA: 4.0/4.0</li></ul>

## EXPERIENCE

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Jul 2023 Jun 2023	<b>Summer Research Intern</b> <i>Mathematics Research Center, CRM</i> <ul style="list-style-type: none"><li>- I had the opportunity to work on a research project centered around transcendental dynamics within the complex exponential family, focusing on the results obtained by Robert Devaney and Michael Krych for a specific parameter value of this family, giving a complete description of the dynamics in this set. I concluded the internship giving a talk about these results.</li><li>- Supervisors: Dr. Núria Fagella, Dr. Xavier Jarque.</li></ul>
Oct 2019 Jan 2019	<b>Mad for Physics Program</b> <i>Catalunya La Pedrera Foundation</i> <ul style="list-style-type: none"><li>- Program aimed at first year A-Level students, with special talent and interest in physics, as an introduction to physics research.</li><li>- Worked on the LHC's ATLAS detector, accelerator beam physics, observational cosmology, and quantum computing, among others.</li></ul>

## ADDITIONAL COURSES

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Jul 2023 Apr 2023	<b>Python for Data Science and Machine Learning</b> , Udemy <i>NumPy, Pandas, Matplotlib, Plotly, Seaborn, SciKit-Learn, TensorFlow</i> <ul style="list-style-type: none"><li>- Implemented various machine learning algorithms, including k-means clustering, linear and logistic regression, random forest and decision trees, support vector machines, and neural networks.</li><li>- Certificate of completion <a href="#">↗</a></li></ul>
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Jan 2023	<b>Machine Learning with Python</b> , Coursera <i>Regression, Evaluation Metrics, KNN, Decision Trees, SVM, k-means</i>
	<ul style="list-style-type: none"> <li>- Learned the fundamentals of machine learning and studied different algorithms, such as linear and logistic regression, support vector machines, k-nearest neighbors, and decision trees.</li> <li>- Certificate of completion <a href="#">↗</a></li> </ul>
Dec 2022 Jun 2022	<b>100 Days of Code: The Complete Python Pro Bootcamp</b> , Udemy <i>Data Science, Automation, Game and Web Development, GUI Creation</i>
	<ul style="list-style-type: none"> <li>- 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.</li> <li>- Certificate of completion <a href="#">↗</a></li> </ul>

## AWARDS AND ACHIEVEMENTS

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<i>Present</i> Sep 2021	<b>Excellent Performance</b> 1,100 €
	- Recipient of the University of Barcelona's honor for exceptional academic performance during university studies.
Sep 2021 Sep 2020	<b>Honours in Baccalaureate</b> 1,700 €
	- Issued by Generalitat de Catalunya to those students with an excellent academic record during baccalaureate.
Oct 2019 Jan 2019	<b>Mad for Science Program</b>
	- Catalunya La Pedrera Foundation has developed the Mad for Science Program to open the doors of the most relevant research institutes to the most excellent High School students. I participated in the physics course.

## LANGUAGES

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<b>Spanish</b>	Native Speaker
<b>Catalan</b>	Native Speaker
<b>English</b>	Advanced C1 Level
<b>German</b>	Elementary Level

## CODING SKILLS

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

## VOLUNTEERING AND ACTIVITIES

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- **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.