César Carvajal de la Haza

Mathematician, Statistician and Physicist

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Qualification Summary

Mathematics, Statistics and Physics graduate. Strong foundation in **quantum mechanics, theoretical physics, and statistical methods**. Passionate about **problem-solving, coding, and data analysis**, with practical experience in Python, R, and mathematical modeling. Interested in **quantum computing, artificial intelligence and the space**. Committed to contributing to scientific progress and technological advancements.

Education

Bachelor's Degree in Physics, 240 ECTS (2021 - 2025) *(GPA: 8.1/10)*
National University of Distance Education (UNED), Spain

- Strong interest in Quantum Physics, Optics and Theoretical Physics.
- Honors in Classical Mechanics, Vibrations and Waves, Quantum Physics II, and Dynamical Systems.
- **Final Year Project**: Quantum Mechanics and the study of **Entanglement Entropy and Geometry**, implementing simulations in **Python** to analyze quantum systems.

Double Bachelor's Degree in Mathematics and Statistics, 342 ECTS (2016 - 2021)
University of Seville, Spain

- **B.Sc. in Mathematics** *(GPA: 8.0/10)*: Strong foundation in **calculus, algebra, and differential equations.**
- **B.Sc. in Statistics** *(GPA: 8.3/10)*: Expertise in **probability, statistical inference, and data analysis.**
- Experience in R, Python, Haskell, Matlab for mathematical modeling and data analysis.
- **Developed a strong interest in coding and problem-solving**, actively participating in programming language.

Work & Experience

GNSS Trainee | GNSS Academy (January 2025 to July 2025)

- Intensive 6-month program focusing on **Global Navigation Satellite Systems (GNSS).**
- Developed a **Sensor Fusion GNSS+IMU simulator** using **Python and Linux.**
- Simulated satellite orbits and GNSS measurements with realistic errors.
- Gained solid understanding of GNSS architecture and satellite-based positioning.
- Introduced to advanced positioning techniques such as RTK, PPP, and DGNSS.
- Got interested in Orbital Dynamics.

QA Automation Engineer | Deloitte (April 2022 to November 2022)

- Developed automated tests using **Selenium and Java**, improving testing efficiency.
- Helped implement an automation framework with **Selenium**, **Cucumber**, and **Jenkins**.
- Collaborated with cross-functional teams in an **international** environment.

Personal Teacher (Several years)

- Tutored students in **Mathematics, Physics**, Chemistry and Technical Drawing improving their academic performance.
- Focus on clarity, logic and problem-solving.

Research and Academic/Personal Projects

Learning Linux, C/C++ and Bash (ongoing)

- Started learning **Linux** basics, **Bash** scripting, and **C/C++** programming.
- Completed small exercises to practice scripting, file handling, and simple programs.
- Gaining foundational skills in automation and scripting using Bash.

Entanglement Entropy in Quantum Systems (2024 - 2025)

- I have studied entanglement entropy and its dependence on system geometry in order to test the limits of the Area Law.
- I have implemented simulations and numerical calculations using **Python.**
- **Code available on GitHub**: https://github.com/cesardelahaza.

Survey Design and Statistical Analysis (Course 2019/20)

- Participated in the 2019/20 User Satisfaction Study of the IT Service at the University of Seville.
- Contributed to survey design, data collection, data analysis, and final report preparation.
- Applied statistical methods in R and Excel for data analysis.

Problem-Solving and Coding Challenges (2016 - 2018)

- Worked on coding problems on Exercitium and Kattis to develop problem-solving and algorithmic skills.

Technical Skills

- **Programming Languages:** Python, R, Haskell, Matlab, SQL (basic), C (basic), Bash (basic).
- **Tools & Platforms:** Linux, Git, VSCode, Jupyter, Latex.
- **Data Analysis & Modeling:** Applied statistics, mathematical modeling, machine learning, optimization.
- **Applied Mathematics:** Algebra, optimization, differential equations, and cryptography

Extracurricular Activities & Volunteering

LGTB+ Advocacy & Awareness (2017-2019)

- Active member of **Colectivo LGTB+ Pedro Zerolo** at the Faculty of Mathematics, University of Seville,
- Participated in **awareness campaigns and outreach activities** in topics related to the LGBT+ community

Animal Welfare Volunteering (Teenage years)

- Provided weekly care for rescued dogs, ensuring **clean living spaces, socialization, and exercise**,
- Created **adoption advertisements** and participated in awareness campaigns about responsible pet ownership

Languages

Spanish (Native)
English (C1 - Proficient)
French (Basic, in process)

More About Me

- **Interests:** Passionate about **Quantum Physics, Artificial Intelligence, and Data Visualization.**
- **Hobbies:** Walking my dog, doing **Crossfit**, and writing. Also passionate about **learning new languages.**
- **Beyond Work:** Always open to **new challenges**, whether in a book, a coding problem, or any sport activity.