

Álvaro Zorrilla Carriquí

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I am a proactive and responsible individual with a strong intellectual curiosity. I am motivated by tackling complex challenges and exploring interdisciplinary approaches that enhance my technical and analytical skills while allowing me to keep learning. Throughout my university studies, I have developed a solid problem-solving ability in fields such as mathematics, physics, and computer science. I have worked with programming languages including C++, Python, Fortran, R, MATLAB, and Mathematica, applying them to scientific computing, numerical analysis, data processing, and machine learning, as well as to the rigorous interpretation and presentation of results. Over the past year, I have participated in interdisciplinary projects—mainly in the field of Biomedicine—designing artificial intelligence models and analyzing large-scale data.

Education

University of Granada

Double Bachelor's Degree in Physics and Mathematics

GPA: 8.095/10

Bachelor's Thesis: *Interacting Fermionic Systems; from Few-Atom Optical Lattices to Bose-Einstein Condensates*

Granada, Spain

2018 – 2023

University of Granada

Master's Degree in Data Science and Computer Engineering

GPA: 9.02/10

Master's Thesis: *Diffusion Generative Models Applied to the Field of Medical Imaging* (Grade: 9.8/10). [Code Repository](#)

Granada, Spain

2023 – 2024

Experience

Pfizer–University of Granada–Andalusian Government Centre for Genomics and Oncological Research (GENYO)

Granada, Spain

2025 (6 months)

Researcher specialized in Data Science and Artificial Intelligence

Project: *PCA-MARK – Decision Support Tool for Treatment Selection in Prostate Cancer Patients*

Reference: PMPTA23/00025.

Funding: Spanish Ministry of Science, Innovation and Universities, Instituto de Salud Carlos III (ISCIII), and co-funded by the European Union (FEDER Funds).

Main responsibilities in the research group:

- Development and implementation of a bioinformatics pipeline for processing RNA-Seq data (FASTQ files) and generating gene expression count matrices.
- Design of a classification model based on machine learning techniques for stratifying prostate cancer patients according to their drug response, integrating genetic and clinical variables. This model is currently under patent process and being prepared for scientific publication ([project repository](#)).
- Application of explainable AI (XAI) techniques to interpret and analyze the behavior of the developed predictive models.
- Use of advanced statistical methods and machine learning/artificial intelligence algorithms in various complementary studies focused on patient stratification.

Self-employed

Private Tutor

Granada, Spain

2023 – 2025

Private tutoring in Mathematics, Physics, and Chemistry at university and high school levels

Conferences and Publications

European Human Genetics Conference	Milan, Italy
<i>Single-cell transcriptome analysis and inference by machine learning on prostate cancer fusion biopsy specimens identifies cancer-associated cells with diagnostic gene expression signatures</i>	2025
Fernando Marín-Benesiu, Verónica Arenas-Rodríguez, Sergio Cuenca-López, Álvaro Zorrilla-Carriquí, Beatriz Álvarez-González, Luis Javier Martínez-González, María Jesús Álvarez-Cubero.	

Competitions and Awards

University of Granada	Granada, Spain
Best Master's Thesis Award	2025
Awarded Best Master's Thesis by the School of Computer and Telecommunication Engineering, in the Master's in Computer Engineering category.	
University of Granada	Granada, Spain
Finalist – Datathon, IX Bioinformatics Conference	2025
Finalist in the Datathon for best master's project at the 9th Bioinformatics Conference.	
2nd Andalusian Artificial Intelligence Congress	Granada, Spain
Finalist – Best Master's Thesis	2024
Finalist for Best Master's Thesis in the field of Artificial Intelligence among Andalusian universities.	
UniversityHack Datathon	Madrid, Spain
Third Place and Winner	2024
Third place and winner of the 2024 edition of the UniversityHack Datathon organized by Cajamar. Link to 2024 edition	

Courses and Workshops

University of Granada	Granada, Spain
8th Bioinformatics Conference	2024
<ul style="list-style-type: none">■ Workshop: <i>An overview of the machine learning workflow for biological applications</i>■ Workshop: <i>Learn R for RNA expression analysis</i>■ Workshop: <i>Introduction to regression techniques with R</i>	
University of Granada, Google, and T-Systems	Granada, Spain
Data Engineering with Google Cloud	2023 – 2024
Coursera, IBM	Online
What is Data Science	2023
University of Granada (abiertaUGR)	Granada, Spain
MOOC: Machine Learning and Big Data for Bioinformatics	2022
Coursera, IBM	Online
Python for Data Science, AI & Development	2022

Languages

English	C1
ISE III – Trinity College London	2024
French	Intermediate (B1/B2)
No official certification	
Spanish	Native

Additional Information

During my work on the PCA-MARK project, I independently developed a classification algorithm to predict patients' response to pharmacological treatment based on genetic and clinical data. This algorithm is currently under patent application and being prepared for scientific publication. Additionally, I handled large-scale data and high-volume files, using high-performance computing (HPC) techniques. For this purpose, I worked with several programming languages and processing tools, including Bash, Python, and R.