Ignacio Márquez Albés

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PROFILE

Mathematician with 9+ years of experience in academic research, technical writing, and university-level teaching.

Skilled at problem-solving, structured and logical thinking, and making complex ideas clear and accessible to diverse audiences. Experienced in mathematical coding, with a background in Fortran, MATLAB, and Python.

Currently exploring applications of these skills beyond academia, with a strong interest in data analysis and data science. Actively developing skills in SQL, Excel, and Tableau to complement my mathematical and coding background.

PROFESSIONAL EXPERIENCE

Postdoctoral fellow (july 2021 – december 2024)

dept. evol. diff. equations · institute of mathematics, czech academy of sciences (czech republic, jan. 2023 – dec. 2024)
dept. statistics, math. analysis and optimization · university of santiago de compostela (spain, july 2021 – dec. 2022)

- Secured funding for two independent research projects through well-structured, goal-oriented written proposals
- Developed and extended mathematical results to more complex frameworks by adapting known techniques and creating custom solutions where needed
- Translated complex results into clear, structured publications using LaTeX, with careful attention to logical flow, clarity, and precision
- Published 7 peer-reviewed articles and presented findings at 9 international seminars and conferences
- Contributed to an ongoing research dialogue through regular peer discussions, collaborative problem-solving, and idea sharing
- Spent one year as a visiting researcher abroad, strengthening institutional links and working with international collaborators on shared topics.

Mathematics teacher (february 2021 – june 2021)

dept. quantitative economy · university of santiago de compostela (spain)

- Led problem-solving sessions for undergraduate economics students, with a focus on real-world applications and logical reasoning
- Collaborated with faculty to align weekly exercises with lecture content and created clear, goal-oriented support materials for students
- Assessed coursework and hosted regular office hours to offer students personalized feedback and guidance

Predoctoral fellow (august 2017 – january 2021)

dept. statistics, mathematical analysis and optimization · university of santiago de compostela (spain)

- Conducted original research in differential equations, building strong analytical and problem-solving skills; resulting in 11 peer-reviewed publications and presentations at 8 international conferences
- Progressed from advisor-guided to fully independent research, culminating in a solo-authored publication
- Led weekly classes in mathematical analysis, helping students strengthen their problem-solving abilities and develop precise, logical thinking through a mix of guided practical and abstract exercises.
- Co-organized the *Research Initiation Seminar* over two academic years, coordinating session planning, moderation, and management of seminar proceedings
- Supported the *2018 International Conference on Nonlinear Analysis and Boundary Value Problems* assisting with proceedings editing, web content, and logistics

Research assistant (JANUARY 2016 – JULY 2017)

DEPT. MATHEMATICAL ANALYSIS · UNIVERSITY OF SANTIAGO DE COMPOSTELA (SPAIN)

- Prepared research articles for publication by converting handwritten notes into polished, well-structured LaTeX manuscripts
- Created visual materials for research papers using MATLAB, Mathematica, and Maple, including illustrative figures and graphs to support key concepts
- Managed internal communications for the research group, coordinating updates and sharing key information on behalf of the group lead

EDUCATION

Ph.D. degree in Mathematics, University of Santiago de Compostela

CUM LAUDE DISTINCTION · OUTSTANDING DOCTORATE AWARD · INTERNATIONAL DOCTORATE DISTINCTION

Master's degree in Teacher training in Mathematics, Valencian International University

Master's degree in Mathematics, University of Santiago de Compostela

Bachelor's degree in Mathematics, University of Santiago de Compostela

TECHNICAL BACKGROUND

- **Fortran** – Solid foundation from applied mathematics courses, focused on implementing numerical algorithms and logical structures
- **MATLAB** – Used extensively during undergraduate and master's studies to explore and solve applied mathematical problems, including differential equations and optimization tasks
- **Python** – Gaining confidence through small interactive scripts and games; emphasis on clean logic, modular design, and input handling
- **C++** – Actively learning through self-directed projects; focused on syntax, control structures, modular programming, and input validation
- **Microsoft Excel** – Comfortable with pivot tables, advanced functions, conditional formatting and data visualization
- **SQL** – Familiar with relational databases, query writing, joins and subqueries
- **LaTeX** – Advanced proficiency in technical typesetting for research articles, reports, and presentations

PROJECTS

Portfolio: github.com/ignaciomarquezalbes/coding-portfolio

Numerical Methods Toolkit – MATLAB

A set of scripts for solving ordinary differential equations (Euler methods, Runge–Kutta) and basic optimization problems (gradient descent, conjugate gradient). Focused on implementing algorithms from scratch, analyzing numerical behavior, and translating mathematical logic into code.

Interactive games – Python, C++

Developed small terminal-based games (Hangman, Rock-Paper-Scissors, Guess-the-Number) to practice control flow, modular design, and input validation. Emphasis on writing clean, readable code and building a solid foundation in programming logic.

LANGUAGES

- **Spanish**: native speaker
- **Galician**: native speaker
- **English**: fluent