

Bartomeu Garau Verger

PhD student

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EMPLOYMENT HISTORY

Present September 2025	Predoctoral Contract UNIVERSITY OF THE BALEARIC ISLANDS • Palma, Spain Funded by an FPU-CAIB Grant.
August 2025 October 2024	Research Support Technician INSTITUTE OF APPLIED COMPUTING & COMMUNITY CODE • Palma, Spain <ul style="list-style-type: none">> Maintenance of the Institute's web presence and promotion> Organisation of scientific outreach conferences and seminars> Collaboration in different research activities
July 2022 September 2021	Research intern UNIVERSITAT DE LES ILLES BALEARS • Palma, Spain <ul style="list-style-type: none">> Undergraduate research intern> Development of algorithm for the minimization of energy functionals> Implementation of deep unfolding networks> Applications to image dehazing and denoising Supervised by Prof. Bartomeu Coll, Joan Duran, Catalina Sbert and Julia Navarro

PUBLICATIONS

JOURNAL ARTICLES

- > Pereira-Sánchez, I. et al. (2025). Super-resolution of Sentinel-2 images using a geometry-guided back-projection network with self-attention. *Submitted at ISPRS Journal of Photogrammetry and Remote Sensing*. arXiv preprint, arXiv:2508.04729

CONFERENCE PROCEEDINGS

- > Garau, B., Duran, J., & Sbert, C. (2025). Two Simple Unfolded Residual Networks for Single Image Dehazing. *Proceedings of the International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*, 3, 516-523. DOI : 10.5220/00131814000039120

RESEARCH PROJECTS

COMBINANDO TÉCNICAS DE MODELIZACIÓN Y APRENDIZAJE AUTOMÁTICO PARA EL PROCESAMIENTO Y ANÁLISIS MATEMÁTICO MULTI-IMAGEN (MOMALIP) 2024-PRESENT

Ref : PID2021-125711OB-I00

NATIONAL PROJECT • Ministerio de Ciencia e Innovación

Position : Team member

TEACHING

2025 - Present	Numerical Methods I UNIVERSITY OF THE BALEARIC ISLANDS • Palma, Spain B.Sc. in Mathematics
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EDUCATION

2024 - Present	Ph.D. in Information and Communication Theory UNIVERSITY OF THE BALEARIC ISLANDS • Palma, Spain Thesis title : <i>Integro-differential Equations for Image Processing</i> . Advisors : Catalina Sbert, Joan Duran
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2023-2024	Master's Degree in Advanced Mathematics and Mathematical Engineering UNIVERSITAT POLITÈCNICA DE CATALUNYA • Barcelona, Spain Focusing on the <i>Differential Equations</i> and <i>Modeling in Engineering and Biomedical Sciences</i> fields. Average : 9.21/10 Master's thesis : <i>Calderón-Zygmund estimates for the Poisson equation</i> (Mark : 9.5/10). Supervised by Clara Torres-Latorre and Xavier Ros-Oton.
2019-2023	Bachelor's Degree in Mathematics UNIVERSITAT DE LES ILLES BALEARS • Palma, Spain Average : 7.59/10 (Second ranked) Bachelor's thesis : <i>Variational models for underwater image enhancement</i> (Mark : 10/10). Supervised by Catalina Sbert.
2017 - 2019	Scientific Baccalaurate UNIVERSITAT POLITÈCNICA DE CATALUNYA • Barcelona, Spain COL·LEGI SANT ANTONI ABAT • Palma, Spain Average : 10/10 (First ranked) University Entrance Exam (PBAU) : 9.96/10, 13.86/14 (Second ranked)

CONFERENCES AND SEMINARS

NEW FRONTIERS IN HOMOGENIZATION AND FRACTIONAL CALCULUS CENTRE DE RECERCA MATEMÀTICA • Barcelona, Spain Assistance to the two-day workshop on Homogenization and Fractional Calculus. More information on the following link .	MARCH 2025
20TH INTERNATIONAL CONFERENCE ON COMPUTER VISION THEORY AND APPLICATIONS (VISAPP 2025) Oporto, Portugal Speaker on the VISAPP 2025 presenting the short paper <i>Two Simple Unfolded Residual Networks for Single Image Dehazing</i> . More information on the following link .	FEBRUARY 2025
HARMONIC MEASURE AND FREE BOUNDARY PROBLEMS BGSMATH GRADUATE SCHOOL • Barcelona, Spain Assistance to the course on Harmonic Measure and Free Boundary Problems. Duration : 20h. More information on the following link .	FALL 2023
BARCELONA ANALYSIS CONFERENCE (BAC24) BARCELONA ANALYSIS SEMINAR • Barcelona, Spain Assistance to the BAC24, a five-day Satellite Activity of the ECM 2024. More information on the following link .	JUNE 2024
ENGLISH IN MARGATE - STANDARD COURSE Margate, Kent, England Assistance to the English in Margate Course. Duration : 30h.	SUMMER 2018

PUBLIC TALKS

26/02/2025	Contributed talk : <i>Two Simple Unfolded Residual Networks for Single Image Dehazing</i> 20TH INTERNATIONAL JOINT CONFERENCE ON COMPUTER VISION, IMAGING AND COMPUTER GRAPHICS THEORY AND APPLICATIONS • Porto, Portugal
19/02/2025	Invited talk : <i>Two Simple Unfolded Residual Networks for Single Image Dehazing</i> INSTITUTE OF APPLIED COMPUTING & COMMUNITY CODE • Palma, Spain
23/10/2024	Invited talk : <i>Regularity Theory for Linear and Nonlinear Poisson-Type Equations</i> INSTITUTE OF APPLIED COMPUTING & COMMUNITY CODE • Palma, Spain

OUTREACH ACTIVITIES

STAND : “Mirant a través dels satèl·lits” AT THE EUROPEAN RESEARCHERS’ NIGHT

SEPTEMBER 2025

Led interactive outreach activities on Earth observation satellites, explaining how satellite data is transformed into knowledge for climate monitoring, environmental management, and societal applications.

SCIENCE FAIR : “Matemàtiques a les imatges : l’art de l’anamorfosi” AT CIÈNCIA PER A TOTHOM

MAY 2025

Creative workshop on anamorphic art, exploring optical distortion techniques and guiding participants in creating their own anamorphic drawings.

TALKS : “Els matemàtics tornen als seus instituts”


Sessions where the students of the B.Sc in Mathematics explain to high school students what higher level mathematics are and what we do in our Bachelor. Sessions given on 2023 and 2024 at Col·legi Sant Antoni Abat, Palma

TALKS : “T’ajudam a decidir”

Online sessions to inform high schools students about how the B.Sc. in Mathematics works and what we do there. Sessions given for the academic years 2021-22, 2022-23, 2023-24, 2024-25

PODCAST : “EL RACÓ DE HILBERT”

2022-2023

Co-founder, member and editor of *El racó de Hilbert* (during its first season), a podcast made by students from the B.Sc. in Mathematics at the University of the Balearic Islands, where we talk about mathematics, science, and a great variety of topics. Available at [Spotify](#) 

SCIENTIFIC GROUPS

Present December 2024	Mathematics, Imaging and Learning Member of the Mathematics, Imaging and Learning group from the Universitat de les Illes Balears.
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Present October 2024	Institute of Applied Computing & Community Code Member of the Institute of Applied Computing & Community Code
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POSITIONS OF RESPONSIBILITY




2023 2020	Student’s Representative UNIVERSITAT DE LES ILLES BALEARS • Palma, Spain Member of the Quality Assurance Commission of the Bachelor’s Degree in Mathematics as the students’ representative.
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2023 2019	Class Representative UNIVERSITAT DE LES ILLES BALEARS • Palma, Spain
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PROGRAMMING TOOLS

Python	Advanced (with emphasis on computer vision and deep learning tools)
Matlab	Intermediate (with emphasis on numerical methods for partial differential equations)
R	Intermediate
Git	Basic
LaTeX	Advanced

LANGUAGES

	Catalan : Native, C1
	Spanish : Native
	English : Professional knowledge, B2

SOFT SKILLS

Leadership • Creativity • Eye for details • Autonomy • Patience
• Ability to plan and organize