

RESEARCH PROFILE

Applied mathematician working on optimization and modeling for physical and climate systems: variational and optimal-control methods for maritime weather routing, scientific machine learning for physical models, and statistical models of climate risk. Postdoctoral researcher and adjunct professor at IE University since 2023. Over 100 citations on Google Scholar.

ACADEMIC POSITIONS

Postdoctoral Researcher & Adjunct Professor <i>IE School of Science and Technology, IE University</i>	Sep 2023 – Present <i>Madrid & Segovia, Spain</i>
Member of the IE Research Datalab and the IE Insurance and Tech Lab.	
Predoctoral Researcher <i>University of Cádiz</i>	Sep 2019 – Aug 2022 <i>Cádiz, Spain</i>
Visiting Researcher (intermittent stays) <i>Dept. of Mathematics and Statistics, Dalhousie University (host: Prof. R. Milson)</i>	2022 – 2024 <i>Halifax, Canada</i>
10 Jul – 12 Oct 2022, 28 Jul – 28 Aug 2023 and 12 Apr – 7 May 2024, working on maritime weather routing.	

OTHER POSITIONS

COO (technical contributor) <i>Canonical Green, maritime routing software</i>	Apr 2023 – Present <i>Madrid, Spain</i>
Data Scientist <i>Komorebi AI</i>	Sep 2022 – Apr 2023 <i>Madrid, Spain</i>
Junior Data Scientist <i>Foqum</i>	Jan 2019 – Jun 2019 <i>Madrid, Spain</i>

EDUCATION

PhD in Computer Engineering (Cum Laude) <i>University of Cádiz</i>	Sep 2019 – Jul 2023 <i>Cádiz, Spain</i>
Thesis: <i>Applications of Machine Learning and Data Science to the Blue Economy.</i>	
MSc in Statistical and Computational Information Processing <i>Universidad Politécnica de Madrid</i>	Sep 2018 – Jul 2019 <i>Madrid, Spain</i>
Degree in Physics <i>Complutense University of Madrid</i>	Sep 2014 – Jul 2018 <i>Madrid, Spain</i>

RESEARCH FUNDING

KAN4Met: Kolmogorov–Arnold Networks with applications in weather forecasting <i>Agencia Estatal de Investigación, PID2024-155187OB-I00</i>	Jul 2025 – Present <i>Team member</i>
PI: D. Gómez-Ullate. Implementing Kolmogorov–Arnold Networks for weather forecasting and its use in maritime routing.	
Climate Change Effects on Life and Health Insurance <i>IE Insurance and Tech Lab × Vienna Insurance Group (industry contract)</i>	2025 – Present <i>Lead of Phase 2</i>

- Phase 1 (2025/26), research team member: climate and mortality, with distributed lag non-linear models and climate-adjusted life tables.
- Phase 2 (2026/27), lead: EU rollout, model extensions and scientific publication. Approved by the VIG board in May 2026.

Green Navigator: maritime routing with real-time oceanographic and weather data

Dec 2023

Missions València 2030 innovation grants, València City Council (beneficiary: Canonical Green) Pitched the project as COO of Canonical

- **EUR 93,362.84** awarded; ranked first by the evaluation jury. Execution period extended by 9 months in May 2025.

Weather Navigation

Dec 2022 – Nov 2024

Agencia Estatal de Investigación (TED 2021), TED2021-129455B-I00

Team member

- *Optimization of maritime routes with real-time oceanographic and meteorological data.* **EUR 101,200** (direct costs). PI: D. Gómez-Ullate. Optimization algorithms for weather routing; main editor of weathernavigation.com.

Smart Shipping

Sep 2022 – Jun 2025

BBVA Foundation, Research Projects in Mathematics 2021

Team member

- *Mathematical optimization for a more efficient, safer and decarbonized maritime transport* (IE University and University of Cádiz). PI: D. Gómez-Ullate. Evolutionary, graph-based and variational algorithms for ship weather routing.

PUBLICATIONS

- **D. Precioso**, F. Suárez, J. Jiménez de la Jara, R. Ballester-Ripoll, D. Gómez-Ullate. BERS: Locally Optimal Continuous Algorithm for Maritime Weather Routing with Just-in-Time Arrival. arXiv:2605.31533, 2026. *Under review at Ocean Engineering (second round, minor revision)*.
- M. Marcos-Pérez, J. Jiménez de la Jara, **D. Precioso**, A. Muñoz, M. V. Redondo-Neble, D. Gómez-Ullate. New analysis in the preliminary design for LNG and LPG ships. *Marine Structures* 104, 2025 (Q1).
- J. Jiménez de la Jara, **D. Precioso**, L. Bu, M. V. Redondo-Neble, R. Milson, R. Ballester-Ripoll, D. Gómez-Ullate. HADAD: Hexagonal A-Star with Differential Algorithm Designed for weather routing. *Ocean Engineering* 319, 120050, 2025 (Q1).
- **D. Precioso**, R. Milson, L. Bu, Y. Menchions, D. Gómez-Ullate. Hybrid search method for Zermelo's navigation problem. *Computational and Applied Mathematics* 43, 250, 2024 (Q2).
- M. Navarro-García, **D. Precioso**, K. Gavira-O'Neill, A. Torres-Barrán, D. Gordo, V. Gallego, D. Gómez-Ullate. Aggregation dynamics of tropical tunas around drifting floating objects based on large-scale echo-sounder data. *Marine Ecology Progress Series* 715, 129–143, 2023 (Q1).
- I. Barbeito, **D. Precioso**, M. J. Sierra, S. Vegas-Azcárate, S. Fernández Balbuena, B. Vitoriano, D. Gómez-Ullate, R. Cao, S. Monge, and the Study Group for Non-Pharmaceutical Interventions in Spain. Effectiveness of non-pharmaceutical interventions in nine fields of activity to decrease SARS-CoV-2 transmission (Spain, September 2020 – May 2021). *Frontiers in Public Health* 11, 2023 (Q1).
- **D. Precioso**, D. Gómez-Ullate. Thresholding methods in non-intrusive load monitoring. *The Journal of Supercomputing* 79, 14039–14062, 2023 (Q2).
- Á. Ruiz-Zafrá, **D. Precioso**, B. Salvador, S. P. Lubián-López, J. Jiménez de la Jara, I. Benavente-Fernández, J. Pigueiras-del-Real, D. Gómez-Ullate, L. Cervera-Gontard. NeoCam: An edge-cloud platform for non-invasive real-time monitoring in neonatal intensive care units. *IEEE Journal of Biomedical and Health Informatics* 27(6), 2614–2624, 2023 (Q1).
- **D. Precioso**, M. Navarro-García, K. Gavira-O'Neill, A. Torres-Barrán, D. Gordo, V. Gallego, D. Gómez-Ullate. TUN-AI: Tuna biomass estimation with Machine Learning models trained on oceanography and echosounder FAD data. *Fisheries Research* 250, 2022 (Q2).

PATENTS AND OPEN RESOURCES

- **NeoCam**, non-invasive neonatal monitoring system. Utility model, Spain, 2023. Co-inventor.
- **Weather Routing Bench 1.0**: first open benchmark for maritime weather routing.
- **SWOPP3 Phase 2** benchmark on CodaBench (2026), 8 participating teams.

TEACHING (IE UNIVERSITY)

Computer Programming I

2023 – Present

Bachelor in Applied Mathematics

- Student evaluations (overall / professor): 2025/26 4.73 / 4.87 (15 of 25 responses); 2024/25 4.25 / 4.31 (16 of 26); 2023/24 4.33 / 4.21 (14 of 15).

Applied Math Lab

2024 – Present

Bachelor in Applied Mathematics

Coding Lab

2024/25

Bachelor in Applied Mathematics

- Student evaluation 2024/25: 4.25/5 overall; 4.40/5 professor (5 of 13 responses).

Time Series Analysis

2024/25

Bachelor in Philosophy, Politics, Law and Economics + Business Administration (PPLE-DBA)

- Student evaluation 2024/25: 4.73/5 overall; 4.80/5 professor (5 of 8 responses).
- Public course materials: [Python Course](#) and [Applied Math Lab](#).

SUPERVISION

- Master's thesis, co-director: *Técnicas de interpolación de campo magnético con Machine Learning en observatorios espaciales de ondas gravitatorias*. University of Cádiz, Research Master in Systems and Computing Engineering. Defended 16 December 2024, grade Sobresaliente.
- Bachelor's Capstone projects, IE University: 2 students, Sep 2026 – Jul 2027 (in progress).
- Mentor in IE Sustainability Datathons and hackathons.

AWARDS AND RECOGNITION

- Missions València 2030: EUR 93,362.84, ranked first by the jury (2023).
- Pitched Green Navigation at [the European Parliament](#) through The Arch programme (2023).
- Prototypes for Humanity, Dubai (2024): selected among 100 innovations from more than 2,000 submissions.
- 2nd prize, [OpenCV AI Competition 2021](#) (NeoCam), among more than 1,400 teams.

TALKS AND SERVICE

- Organizing committee, Climate Change and Insurance Conference 2026 (CCI26), IE University, Segovia and Madrid, 2–4 September 2026.
- Launched the SWOPP3 Phase 2 benchmark and presented BERS, SWOPP3 workshop, RISE/SSPA, Gothenburg, June 2026.
- Presentations to the VIG steering committee (2025–2026) and to the VIG board, Vienna (May 2026).
- Talk, Climate Change and Insurance 2025, ICMS, Edinburgh.
- Guest on *The Conversation Weekly* (2025) on maritime decarbonization.
- Editor and designer of the IE Research Datalab website.

SKILLS AND LANGUAGES

Programming	: Python (expert), R, MATLAB, SQL
Scientific ML	: PyTorch, JAX, TensorFlow, scikit-learn
Tools	: LaTeX, Git and CI/CD, Flask
Languages	: Spanish (native), English (C1)