

Guillermo Prol-Castelo

CONTACT

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EXPERIENCE

Barcelona Supercomputing Center | PhD Student | 2022–today
Machine Learning for Biomedical Research and Computational Biology Groups
Life Sciences Department

Ludwig–Maximilians Universität | Research Assistant | 2021–2022
Soft–Condensed Matter; Department of Physics

Institute for Bioengineering of Catalonia | Internship | 2018, 2019
Mechanics of Development and Disease Group (2019)
Nanoprobes and Nanoswitches Group (2018)

EDUCATION

Ph.D. in Biomedicine. Bioinformatics. – ongoing [defense expected by November, 2026]
Universitat Pompeu Fabra

M.Sc. in Bioinformatics and Biostatistics – 2022
Universitat Oberta de Catalunya

M.Sc. in Multidisciplinary Research in Experimental Sciences – 2021
Universitat Pompeu Fabra

B.Sc. in Engineering Physics – 2019
Universitat Politècnica de Catalunya – 2019

PUBLICATIONS

Interpretable Forecasting of Kidney Cancer Progression via Generative AI and Symbolic Reasoning
bioRxiv, 2026. DOI: 10.64898/2026.08.23.746526

Deep representation learning for temporal inference in cancer omics: a systematic literature review
Briefings in Bioinformatics , 2026. DOI: 10.1093/bib/bbag147 (First Author)

Explainable Generative AI Uncovers a Molecular Continuum in Medulloblastoma with Implications for Rare Cancer Subtyping and Treatment Equity
bioRxiv, 2024. DOI: 10.1101/2024.12.30.630738 (First Author)

Validation of diagnostic and prognostic biomarkers, including Molecular Risk Stratification (MRS), in hepatoblastoma: a patient trial cohort study
(Submitted). Collaboration with Institut Germans Trias i Pujol (IGTP)

La inteligencia artificial en biomedicina: oportunidades y desafíos [in Spanish]
AmbioCiencias, 2022. DOI: 10.18002/ambioc.i20.7484 (First Author; scientific outreach)

3D Quantification of Viral Transduction Efficiency in Living Human Retinal Organoids
Small Methods, 2026. DOI: 10.1002/smt.202401050 (acknowledged as software contributor)

TEACHING

Machine Learning Course – 2025

One-week course addressed to the Life Sciences Department at BSC –

<https://github.com/bsc-life/ml4br-ml-course>

Bojos per la Supercomputació – 2024, 2025

Program for final year high-school students of Catalonia

Treball de Recerca (Science Project) – 2024

Directed a high-school student in a mandatory assignment, akin to a Bachelor Thesis.

CONFERENCES

2nd Congress of the Spanish Society of Bioinformatics and Computational Biology– November 2026

Talk on the Kidney Cancer Progression manuscript at the main conference

25th European Conference in Computational Biology – September 2026

Poster on Briefings in Bioinformatics publication at the main conference

33rd Conference on Intelligent Systems for Molecular Biology – July 2025

- Poster on the use of VAEs to study Cancer at the main conference
- Talk at the Student Council Symposium

NetSci – June 2025

Flash talk, “Identifying a Novel Medulloblastoma Subgroup: A Multilayer- and Synthetic-Data-Based Approach”

23rd European Conference in Computational Biology – September 2024

- Poster “Representation Learning at the Forefront of Research in Breast Cancer Progression”
- Presentation at the Student Council, “Representation Learning at the Forefront of Research in Breast Cancer Progression”
- Presentation at the “Advancing synthetic data generation and dissemination for Life Sciences” Workshop, organized by BSC

21st European Conference in Computational Biology – September 2022

Poster, “MinSizeML: An R Package to Estimate the Minimum Sample Size in Supervised Learning for Classification”

PROJECTS

EVENFLOW – European Project

Horizon Europe grant agreement No 101070430

OTHER

bitsxlamarato Hackathon, December 2025

Directed one of the proposed challenges: designing the challenge, providing assistance to participants, and evaluating results.

2nd BioHackathon Germany, December 2023

Project “Is Sex Representation in Biological Research Experiments Adequately Funded? A Study of the European Database CORDIS”

Generative Modelling Summer School – 2023

Organized by DTU and TUE