Oriol Bustos Martínez

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Summary

Biomedical Engineer and Data Scientist passionate about technology applied to healthcare. Experienced in cross-European projects, collaborating with clinicians and engineers to understand and design data-driven solutions that improve patient care. Developed deep learning solutions for diabetic patients and related metabolic diseases, while translating complex technical concepts for broader audiences, including presentations at international conferences. Fluent in English and Spanish, with a strong interest in consulting, life sciences, and programming.

PROFESSIONAL EXPERIENCE

Micelab   *06/2023 – Present*
Data Scientist   *04/2024 – Present*

- **Developed data-driven digital twins for blood glucose simulation**, creating Generative Deep Learning models that integrate insulin, carbohydrate intake, and exercise information.
- Built an internal Python framework for Digital Twin development leading to 4 published papers and securing €150k in project funding.
- Optimized Tensorflow training loops, achieving a 65% speedup, implemented continual training monitoring with MLflow, acceptance and unit testing, automation for hyperparameter tuning and results visualization in a JavaScript dashboard.
- Planned, authored, and revised research projects: authored and co-authored top-level journal publications and presented at international conferences in collaboration with multicultural research teams and partner universities.
- Onboarded and supervised 2 PhD candidates, 1 MSc student, and 1 BSc intern, guiding their work on GAN implementations.

Internship   *06/2023 – 03/2024*

- Worked in the European project *"Prometeus"*: gathered technical requirements, created the *Nutritional Clinical Advisor* for **nutrient infusion to optimize brain oxygenation** in the Neonatal Intensive Care Unit and presented results to evaluating committee.

EDUCATION

Master in Data Science | University of Girona   *09/2024 – 06/2025*
Grade: 8.2/10 - Honours in the Final Master Thesis

Bachelor in Biomedical Engineering | University of Barcelona   *09/2020 – 06/2024*
Grade 8.33/10 - Honours in Multivariate Calculus and Linear Algebra.

Exchange Student | University of Twente, Netherlands   *09/2022 – 02/2023*
Coursework: Machine Learning, Signals & Actuators, Signal Processing, Biomedical Materials, Telemedicine

LANGUAGES & TECH STACK

- English (Fluent, **C2 Cambridge Certificate**), Spanish (Native), Catalan (Native), German (Basic)
- **Python | SQL | R | MATLAB | TensorFlow | git | MLflow | Docker |**

PAPERS

- **Bustos O**, Mujahid O, Beneyto A, Contreras I, Vehí J. *"Inlcuding Exercise Into Data-Based Virtual Twins For Glycemic Simulation"* accepted in the Journal of Diabetes Science and Technology (Q1 journal, accepted, pending publication)
- Pellizari E, Mujahid O, Prendin F, **Bustos O**, Cappon G, Facchinetti A, Vehí J. *"Enhancing the Physiological Plausibility of GAN-Generated Blood Glucose in Type 1 Diabetes with Monotonicity Constraints"* (paper under review for the 2025 IEEE International Conference on Metrology for eXtended Reality, Artificial Intelligence and Neural Engineering)
- **Bustos O**, Soler J, Mujahid O, Vehí J. *"Predictive Modeling of Exercise-Induced Glycemic Outcomes Using Generative Deep Learning"* (presented in DT; 2024 - complete **abstract** inside link)

OTHER / ACTIVITIES

- Internship in the Clinical Hospital Center Rijeka, Croatia (August 2022)
- Selected for participation in one of ESADE's major competitions, the IdeaUp Challenge 2022, a 6-month program where teams develop business ideas from scratch.
- Science and Technology Baccalaureate with a grade of **9.5/10** and **13.1/14** on the University Access Exams (PAU).
- Designed webapps on interactive data visualization: Growth, Gases & Geopolitics, t-distributed Stochastic Neighbor Embedding on blood glucose