Joan Muñoz Biosca

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ABOUT ME

I am a highly resilient and responsible person, who takes responsibility for tasks and completes them with proper organisation. With a proven track record of adapting to and overcoming tough challenges, I am able to handle complex problems with ease. My excellent capacity for comprehension and communication enables me to foster a collaborative teamwork atmosphere, consistently combined with constant improvement in my work methods. Drawing on my strong computational background and scientific knowledge of physics and biosciences, I am skilled at efficiently collecting and analysing research data.

EDUCATION

2021 – 2022 **Master in Nanoscience and Nanotechnology**
University of Barcelona (UB), Spain

2017 – 2021 **Bachelor's degree in Physics**
University of Barcelona (UB), Spain

2013 – 2017 **Bachelor's degree in Mathematics**
Polytechnic University of Catalonia (UPC), Spain

2011 – 2013 **Scientific A levels**
FINISHED WITH HONORS
High-performance sports centre of Amposta, Spain

WORK EXPERIENCE

FROM OCTOBER 2022 TO JUNE 2023

KU Leuven
PhD in Bio-science Engineering

This project is split up into two differentiated parts:
Computational research: Developing and implementing a novel computational model that couples a continuum description of the cell's extracellular matrix and the cell deformation during tissue differentiation. This fluid-structure interaction is carried out with Python for the cell and OpenFOAM for the fluid phase.
Experimental research: Designing and performing In vitro experiments to calculate visco-elastic properties of bone tissue samples. Leveraging the expertise I acquired with some microscopy techniques, such as Atomic Force Microscope, I extracted valuable information from experiments which will be used to tune up biomedical applications for bone regeneration.

FROM FEB 2021 TO AUGUST 2022

Rheo Diagnostic S.L
Intern researcher

The work that I conducted in Rheo Diagnostics (RheoDx), which is a company aimed at improving the quality of life of haematology patients, was entirely computational and consisted in studying how to couple a phase-field model with an incompressible fluid to study red blood cell rheological behaviour. This project was fully developed in Python language and was part of my master thesis, which was awarded a 99% grade and will be applied in a novel lab-on-a-chip platform. Additionally, I am currently formalising my work to be submitted as a journal article.

SKILLS

BEGINNER — Traction Force Microscopy, Inkscape, COMSOL Multiphysics, CSS, JavaScript

INTERMEDIATE — HTML, Matlab, G-Fortran, C++, Linux, OpenFOAM, Atomic Force Microscopy

EXPERT — Python, Paraview, LaTeX

LANGUAGES

CATALAN — Native

SPANISH — Native

ENGLISH — Fluid

CONFERENCES

Physics of Life Summer School 2022 (Edinburgh)
Participation with poster: *Modelling membranes in a flow with a stream function formulation.* Andreu F. Gallen, Joan M. Biosca, and Aurora Hernandez-Machado.

XXIII Conference on statistical physics: FisEs 2022 (Zaragoza)
Participation with poster: *Modelling membranes in a flow with a stream function formulation.* Andreu F. Gallen, Joan M. Biosca, and Aurora Hernandez-Machado.

PUBLICATIONS

Joan M. Bisoca, Andreu F. Gallen, & Aurora Hernandez-Machado. RBC in flow: Role of shape and rigidity through 3D Vector Potential. *In preparation.*