

# Manuel Gavilán Herrera | PhD student

## M. Sc. Biochemistry and Aeronautics

Madrid, Spain

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### Education

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#### PhD in Molecular Biosciences

*Spanish National Center for Cardiovascular Research, CNIC (Madrid, Spain)* 2022–2025

○ Supervisors: Dr. Jorge Alegre-Cebollada & Dr. Roberto Silva-Rojas

○ Autonomous University of Madrid

#### M. Sc. Biochemistry

*Complutense University, School of Chemistry (Madrid, Spain)* 2021–2022

○ GPA: 3.58/4

○ Supervisor: Dr. Jorge Alegre-Cebollada

○ Honors distinction in: Molecular Biology of Cancer and Master Thesis

#### M. Sc. Aeronautical Engineering

*Carlos III University (Madrid, Spain)* 2018–2020

○ GPA: 3.44/4

○ Supervisor: Dr. Pablo Fajardo

○ Honors distinction in: Computational Aerodynamics, Space Navigation Systems and Master Thesis

#### Neil Armstrong Hall of Engineering

*Purdue University (Indiana, United States)* 2017–2018

○ GPA: 3.91/4

○ Honors distinction for both Fall and Spring semesters

#### B. Sc. Aerospace Engineering

*Carlos III University (Madrid, Spain)* 2014–2018

○ Supervisor: Dr. Nicole Key

○ Honors distinction in: Thermal Sciences, Advanced Mathematics, French Language and Bachelor Thesis

### Research experience

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#### Spanish National Center for Cardiovascular Research, CNIC (Madrid, Spain)

*PhD Program in Molecular Biosciences - Molecular Mechanics of the Cardiovascular System Lab*<sup>1</sup> 2022–2025

○ Project: The role of titin mechanics in muscle stem cells differentiation

○ Main Techniques: flow cytometry, single-fiber proteomics, RNAseq and cell culture

#### Spanish National Center for Cardiovascular Research, CNIC (Madrid, Spain)

*Master Thesis* 2021–2022

○ Project: Exploring a novel polyprotein system for single-molecule nanomechanical characterization of proteins

○ Main Techniques: Single molecule force spectroscopy (AFM - Atomic Force Microscopy and MT - Magnetic Tweezers), surface functionalization and protein expression and purification.

#### European Space Agency (ESA) (Madrid, Spain)

*Flight Dynamics and Operations Department* 2020–2021

○ Project: Spacecraft mechanics, Electric Orbit Raising (EOR) and satellite manoeuvring for European Space Agency (ESA) and Centre National d'Études Spatiales (CNES)

○ Main techniques: Algorithm optimization, data analysis, software implementation and simulation in Fortran and Python

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<sup>1</sup><https://www.cnic.es/en/investigacion/molecular-mechanics-cardiovascular-system>

## Maurice J. Zucrow Laboratories (Indiana, United States)

### Aeronautics Propulsion Lab

2017–2018

- Project: Experimental design, simulation and validation of air flow in a transonic centrifugal compressor
- Main techniques: Applied Laser Spectroscopy, shadowgraphy, backlight imaging and optical diagnostics

## Competitive Fellowships

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### PhD Fellowship INPhINIT Retaining from "la Caixa" Foundation

2022–2025

Competitive grant (4.9% success rate) to finance PhD studies in Spain by the private entity "la Caixa" bank

### CNIC Cicerone research grant

2021–2022

Training program to carry out research activities at Spanish National Center for Cardiovascular Research, CNIC.

### UCM master's excellence aid

2021–2022

Merit-based financial aid granted by UCM to pursue a master program.

### Distinction in Bachelor (2018) and Master (2020) Theses

2018, 2020

The academic community of Universidad Carlos III de Madrid proposed my final Bachelor and Master degree research works as outstanding thesis award.

### Purdue University Exchange Fellowship

2017–2018

Fellowship to study in the Neil Armstrong Hall of Engineering at Purdue University during the last year of my undergraduate studies.

### Fellowship for undergraduate students with an outstanding performance

2017–2018

Financial aid of €5,000 by UC3M based on the academic record.

### Semester Honors for outstanding scholastic performance

2017–2018

Certificate for outstanding performance during both Fall and Spring semesters by Purdue University.

### Spanish Ministry of Education Scholarship for six consecutive years

2014–2020

### Baccalaureate Honors Scholarship

2013–2014

## Conferences

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### Society for Muscle Biology

São Paulo (Brasil)

Co-chair & Poster

2023

### European Muscle Conference (EMC)

Florence (Italy)

Poster

2023

### Spanish Biophysical Society (SBE)

Cataluña (Spain)

Poster

2023

### Universidad Internacional de Andalucía (UNIA)

Jaén (Spain)

Poster

2023

## Languages

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### English (C1)

Cambridge Certificate in Advanced English, CAE

2015

### French (B2)

Diplôme d'études en Langue Française DELF B2 (Grade: 87.5/100)

2021

### Italian (B1)

Certificazione di Italiano come Lingua Straniera CILS B1 (Grade: 85.0/100)

2022

### Spanish

Native speaker

## Computer skills

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**Programming:** Python, R, MatLab, Fortran, C++

**OS:** Linux, macOS, Microsoft Windows

**Engineering:** Ansys, Fluent, Solid Edge, Abaqus

**Miscellanea:** GitHub, Excel, R, XFLR5