



Margherita Castellano

Email: margherita.castellano@polytechnique.edu

Date of birth: 06/12/1999

Languages

Italian: native speaker

French: near native /
fluent (C2 level)

English: fluent
(92/120TOEFL iBT)

Spanish: B1 level

Programming languages

- Python: high level
- R-Studio: high level
- FreeFem++: medium level
- HTML 5: medium level
- PHP: medium level
- CSS: medium level
- Maple: basic level
- Matlab: basic level

Projects

Responsible of the PhD seminars at CMAP

Palaiseau, France | October 2023 - July 2025

Among the organiser of research presentations between PhD students at CMAP.

Volunteering

Brussels, Belgium | September 2015 - June 2016

- « Maison des Enfants Clair Matin »
- « L'école de la paix » (St. Egidio community)
- One-week volunteering for Brussels' refugees: « Serve the city » (july 2015, St. Egidio community).

Education

Two-years master's degree in Applied Mathematics (mathematical modeling)

Sorbonne University, France | September 2021 - September 2023

Second year specialization: Partial Differential Equations and Numerical Analysis.

First year of master's degree in Mathematics for Life and Social Sciences

University of Trento, Italy | November 2020 - July 2021

Track Modeling and Analysis of Biosystems. Final grade: 30 / 30.

Third-year exchange program

University of Berkeley, California | September 2019 - June 2020

One-year exchange program for the third year of bachelor's degree. Final grade: 16.405 / 20.

Bachelor's degree in Applied Mathematics and Computer Science

University of Bordeaux, France | September 2017 - July 2020

IT and Mathematics applied to Social and Human Science - track of Economics. Final grade: 15.875 / 20. Rank: 4/97.

European Baccalaureate

European School of Brussels, Belgium | July 2017

IT and Mathematics

- Final grade: 81.69 / 100.

- Additional baccalaureate exam in biology: 16/20.

Experience

PhD candidate at the CMAP research laboratory of école Polytechnique

Palaiseau, France | October 2023 - October 2026

PhD title: *Cahn-Hilliard-Navier-Stokes equations with surfactants*. Study of a finite volume method for a coupled system of PDEs aiming to mathematically represent a problem issued from physics. Under the direction of Flore Nabet and Ludovic Goudenège.

Teaching assistant at école Polytechnique

Palaiseau, France | October 2023 - June 2025

Teaching assistant for first year master's students, first and third-year Bachelor students.

Internship at the CMAP research laboratory of école Polytechnique

Palaiseau, France | April 2023 - September 2023

Six-month internship on Chan-Hilliard equations and Finite Volume discretization method, under the supervision of Flore Nabet and Ludovic Goudenège.

Internship at the INRIA research institution of Paris

Paris, France | June 2022 - July 2022

Two-months internship about the modeling with PDEs of the electrostatic effects in Micro-Electrode Arrays (MEA).

Participation at scientific conferences

- October 2024: CJC en mathématiques appliquées - *presentation*
- June 2024: NAPDE conference (New trends in Numerical Analysis of PDEs) - *poster*
- May 2024: CANUM conference (Congrès national d'Analyse Numérique) - *presentation*
- January 2024: Fluid mechanics conference at Institut Henri Poincaré
- November 2023: FVCA conference (Finite Volumes for Complex Applications)
- October 2023: Journées scientifiques 2023 GdR MaNu
- June 2021: Frontiers in Molecular Biology SIBBM - *poster*

ECIU Challenge

Twente, Hollande | February 2021 - June 2021

Research work about the implementation of predictive analysis in health, treating how the use of Big data in care can decrease the costs and increase the quality of care. Under the supervision of Anna Bos-Nehles and Mireille Hubert, and in collaboration with the consultancy company Bureau HHM.

Academic Tutoring

University of Bordeaux | September 2018 - May 2019

Employed by the University, I held revision classes for first-year Bachelor students.