Marco Gambarini

Education

2021–2024 (grad. 2025) **Mathematical models and methods in engineering**, *PhD*, Politecnico di Milano.

2018–2021 **Aeronautical Engineering - Aerodynamics track**, *MSc*, Politecnico di Milano.

2015–2018 **Aerospace Engineering**, *BSc*, Politecnico di Milano.

Work experience

05/2021–10/2021 **Research collaborator**, *Dipartimento di Elettronica, Informatica e Bioingegneria*, Politecnico di Milano.
WAMIZ project: simulating waves in the marginal ice zone.

11/2021–10/2024 **PhD student**, *Mathematical models and methods in engineering*, Politecnico di Milano.
Modeling and robust optimization of parks of wave energy converters.

12/2024–02/2025 **Post Degree researcher**, *CMCC - Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici*, Milano.
Contribution to the WITCH Integrated Assessment Model of climate change and the economic system.

03/2025–present **Post Doctoral researcher**, *CMCC - Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici*, Milano.

Publications

1. M. Gambarini, G. Ciaramella, and E. Miglio. A gradient flow approach for combined layout-control design of wave energy parks, 2024. preprint
2. M. Gambarini, G. Agate, G. Ciaramella, E. Miglio, and S. Maran. Modeling and optimization for arrays of water turbine OWC devices. *Ocean Engineering*, 312:119132, 2024
3. G. Ciaramella, M. Gambarini, and E. Miglio. *A Preconditioner for Free-Surface Hydrodynamics BEM*, pages 125–132. Springer Nature Switzerland, 2024
4. M. Gambarini, G. Ciaramella, E. Miglio, and T. Vanzan. Robust optimization of control parameters for WEC arrays using stochastic methods. *Journal of Computational Physics*, 493:112478, nov 2023
5. M. Gambarini. CFD analysis of the influence of the Mori-Torbole tunnel on lake Garda. Master's thesis, Politecnico di Milano, 2021

Conference presentations

1. "A scalable numerical approach for the simulation of large arrays of floating objects", *emr-sim2022 : Simulation and Optimization for Marine Renewable Energy*, Roscoff (France), June 2022

2. "Robust optimization of wave energy converter parks", *9th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2024)*, Lisbon, June 2024
3. "Gradient flow optimization of wave energy parks", *GIMC SIMAI young 2024*, Napoli, July 2024

Other research activities

- Peer review activity: *IEEE Transactions on Computational Social Systems* (2024), *Computational Geosciences* (2024)
- Collaboration to the organization of the minisymposium "Optimization methods for classical and data-driven approaches", *GIMC SIMAI young 2024*, Napoli, July 2024

Teaching experience

- A.Y. 2021/22, 2022/23, 2023/24. Computer lab and exercise sessions for the course *Numerical modeling of differential problems*, MSc Aeronautical Engineering and Space Engineering (in English), Politecnico di Milano. Topics: Numerical analysis for partial differential equations; theory and implementation of finite element and finite difference methods.
- A.Y. 2022/23. Exercise sessions for the course *Curve e superfici per il design*, BSc Interior Design (in Italian), Politecnico di Milano. Topics: introduction to 3D geometry; transformations; parametric curves and surfaces.
- Co-supervision of 2 MSc Theses.

Computer skills

OS	Microsoft Windows, Linux
Basics	Microsoft Office/Open Office
Programming	Python, C++, Matlab/Octave, LaTeX, shell scripting
3D modeling	SolidEdge, SolidWorks, Inventor

Languages

Italian	**Mothertongue**	
English	**Proficient**	*C1 level - TOEIC test*
Spanish	**Basic**	