LEONARDO SCIARRETTA

PHD CANDIDATE – CFD ENGINEER

CONTACT

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TECHNICAL SKILLS

- **Software & Solvers:** OpenFOAM (advanced), Paraview(advanced), Rhino(intermediate), AutoCAD (advanced), Ansys Fluent (intermediate)
- **Engineering Expertise:** Structure Interaction (FSI), Computational Fluid Dynamics (CFD), Finite Element Method (FEM / FEA), Structural Analysis
- **Programming & Computing:** Python (intermediate), MATLAB (intermediate), Linux OS (intermediate), High-Performance Computing (HPC) environments (intermediate), basic C++

SOFT SKILLS

- **Problem-Solving:** Strong analytical mindset for debugging numerical code and troubleshooting complex simulations.

PROFESSIONAL OVERVIEW

I am a PhD student in Computational Fluid Dynamics at the University of Bologna with a background in Structural Engineering. During my PhD, I have developed expertise in numerical modeling, including CFD, the Finite Element Method, and Fluid–Structure Interaction phenomena, with specific experience in coupled CFD–FEM simulations. I have worked in high-performance computing (HPC) environments to run large-scale simulations and have developed efficient post-processing workflows using MATLAB and Python.

EDUCATION

PhD

Engineering and Information Technology for Structural and Environmental Monitoring and Risk Management, University of Bologna 11/2023- 10/2026

- High-fidelity numerical models combining Computational Fluid Dynamics and Finite Element Method to simulate fluid-structure interactions phenomena, using the open-source library preCICE to couple OpenFOAM with structural software (CalculiX and Python code)
- Utilized High-Performance Computing (HPC) in Linux environment to execute simulations (BASH, SLURM)
- Automated data post-processing workflows using MATLAB, Python and ParaView.

Master's Degree (110/110 cum Laude)

Civil Engineering – Curriculum Structures, University of Bologna 09/2021- 10/2023

Thesis: Simulation of fluid-structure interaction phenomena using software couplers.

Bachelor's degree (110/110 cum Laude)

Civil Engineering, University of Bologna 09/2018- 07/2021

Thesis: State-of-the-art analysis of the use of CFD modelling and 4D MRI imaging for the study of blood flow in the aorta.

PROFESSIONAL EXPERIENCE

Research period

University of A Coruña 02/2025- 07/2025

- Investigated Fluid–Structure Interaction phenomena on structural sectional models, analyzing aerodynamic behavior and wind-induced responses of bluff bodies.
- Utilized and calibrated non-linear mathematical frameworks to predict the combined effects of Vortex-Induced Vibrations (VIV) and structural galloping.

- **Management & Autonomy:** Ability to independently manage a multi-year research project and adapt to changing technical requirements.
- **Cross-Functional Communication:** Experienced in translating technical CFD/FSI data into clear, actionable presentations.

LANGUAGES

English: B2/C1

(Upper-Intermediate / Advanced)

HOBBIES

- **Cinema**
- **Arts**
- **Photography**
- **Music**
- **Sports**

XVIII Conference of the Italian Association for Wind Engineering

Fluid-structure interaction simulations using open-source software couplers - University of Pisa 08/09/2024 - 11/09/2024

XIV Conference of the Italian Association for Wind Engineering

Fluid-structure interaction simulations using PreCICE – Polytechnic of Bari

13/09/2026 - 16/09/2026

Didactic Tutor of the course computational mechanics

Civil Engineer Master's Degree, University of Bologna 02/2024- 09/2026

PUBLICATIONS

A simple approach for the evaluation of galloping-VIV response based on the mapping of aerodynamic damping – L. Sciarretta, L. Patruno, A.J. Álvarez and F. Nieto

Submitted to Journal of Wind Engineering & Industrial Aerodynamics

CERTIFICATIONS

ENGLISH IELTS CERTIFICATION (B2) 06/2022

COURSES

CINECA Summer School for HPC + AI

Summer school 2026

CFD Modelling for Process Industry

PhD Course 2026

Machine Learning

PhD Course 2026

CFD for Structural Designers & Analysts

NAFEMS - The Modelling & Simulation Community 2024

Elements of Turbulence Modelling

NAFEMS - The Modelling & Simulation Community 2024