

Samuele Baldini

Ph.D. Student in *Nuclear Engineering* | University of Bologna

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Location: Bologna, Italy

Education

Ph.D. in *Mechanics and Advanced Engineering Sciences*

2024–present

University of Bologna

- Research topics:
 - Adaptive mesh refinement finite element method for level-set transport.
 - Extended finite element method for multiphase simulations.
- Supervisor: Prof. *Sandro Manservigi*.

M.Sc. in *Energy Engineering*

2022–2024

University of Bologna

- Thesis: *Coupling of Finite Element and Finite Volume codes for optimal control of the heat equation*.
- Grade: 110/110 cum Laude.

B.Sc. in *Mechanical Engineering*

2019–2022

University of Bologna

- Thesis: *Numerical fatigue analysis using Ansys software and comparison with analytical methods*.
- Grade: 108/110.

Experience

Teaching Assistant

2025–present

Industrial Engineering Department

- Mathematical Methods (M.Sc. Energy Engineering).
- Foundation of Computer Science (B.Sc. in Mechanical and Energy Engineering)

Publications

- S. Baldini, G. Barbi, G. Bornia, A. Cervone, F. Giangolini, S. Manservigi, L. Sirotti, *A Finite Element–Finite Volume Code Coupling for Optimal Control Problems in Fluid Heat Transfer for Incompressible Navier–Stokes Equations*, Mathematics, 2025.(doi)
- S. Baldini, G. Barbi, A. Cervone, F. Giangolini, S. Manservigi, L. Sirotti, *Optimal Control of Heat Equation by Coupling FVM and FEM Codes*, Mathematics, 2025.(doi)

Conferences and talks

- Talk: *Coupling of FEM and FVM Codes for Optimal Control*, 11th edition of the International Conference on Computational Methods for Coupled Problems in Science and Engineering, Villasimius, 2025.