

PERSONAL INFORMATION

Gian Marco Bianchi



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Sex Male | Date of birth 08/07/1968 | Nationality Italian

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input checked="" type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist
<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

- 07/04/2021 – Current **Director of the First and Second Cycle Degree in Mechanical Engineering**
Alma Mater Studiorum Università di Bologna - Bologna (Italy)
- 09/11/2020 – Current **Full Professor of Fluid Machinery** (Academic discipline: ING-IND/08)
Alma Mater Studiorum Università di Bologna - Bologna (Italy)
 - Head of the 'Advanced Combustion Systems Fluid Dynamics Research Group' composed by one associate professor, one assistant professor, one assistant researcher and two PhD students
- 01/03/2005 – 08/11/2020 **Associate Professor of Fluid Machinery** (Academic discipline: ING-IND/08)
Alma Mater Studiorum Università di Bologna - Bologna (Italy)
 - Supervisor of research assistants, assistant professor and PhD students.
- 01/07/2000 – 28/02/2005 **Assistant Professor of Fluid Machinery** (Academic discipline: current ING-IND/08)
Alma Mater Studiorum Università di Bologna - Bologna (Italy)
 - Involved in fundamental research on CFD methods for ICE application and supervisor of graduating and students

EDUCATION AND TRAINING

- 1999 **Doctoral Degree in 'Fluid Machinery'**
Politecnico of Bari (Italy)
- 1994 **Degree in Mechanical Engineering** (five year degree)
Università degli Studi di Bologna

RESEARCH

- Research and Technology Transfer
 - A) 2007-current: Co-Founder and Co-Owner of NAIS Srl, an Alma Mater Studiorum University of Bologna appointed Spin-Off company (<https://site.unibo.it/idea/it/le-nostre-imprese-innovative>)
 - B) Scientific Leader of research contracts signed by the University of Bologna with world leader companies, among all: Ferrari, Ducati, Lamborghini, Piaggio & C, Pierburg Pump Technologies, Ansys Germany GmbH, Magneti Marelli, FCA, CNR.

Most of the research projects have been funded by companies.
- Topic of research
 1. Development of brand new computing methodologies
 2. Machine Learning application to CFD problems
 3. Chemistry and thermo-physical modelling applied to industrial system/components
 4. Renewable fuel and energy conversion systems simulation and assessment
 5. In-depth CFD methodology and physical models experience

6. Heat transfer simulation of battery packs, CD-CD heat sinks and electric motors
7. Heat transfer simulation of open-foam catalysts
8. Powertrain and vehicle energetic models
9. Powertrain and vehicle fluid-dynamic models, including thermal management
10. CFD simulation and optimization of the structured catalyst for methanation reaction, including the porous medium modelling, the transfer of mass, the chemical reactions and their diffusivity
11. CFD simulation of Turbomachinery including multi-phase application

Skills and experience Very high level in scientific programming (Fortran), in CFD 3D and 0D modelling, in the application of pneumatic and hydraulic codes, including those related to the simulation of both the powertrain and the vehicle

Keywords Sustainable powertrain, Renewable Energy, Thermal and Cooling Systems Simulation, Vehicle and Systems modelling, 3D and 0D modelling, A.I. application

ADDITIONAL INFORMATION

- Selected Publications
- 1 - Mariani, V., Pulga, L., Bianchi, G.M., Falfari, S., Forte, C., Machine learning-based identification strategy of fuel surrogates for the CFD simulation of stratified operations in low temperature combustion modes, *Energies* 2021, 14(15), 4623; <https://doi.org/0.3390/en14154623>
 - 2 - Mariani, V. Pulga, L., Bianchi, G.M., Cazzoli, G., 2020, A Bayesian neural network methodology to predict the liquid phase diffusion coefficient, *Int. J. of Heat and Mass Transfer*, Volume 161, November 2020, <https://doi.org.ezproxy.unibo.it/10.1016/j.ijheatmasstransfer.2020.120309>
 - 3 - Pulga, L. Bianchi, G. M., Falfari, S., and Forte, C., A machine learning methodology for improving the accuracy of laminar flame simulations with reduced chemical kinetics mechanisms, *Combustion and Flame* 216 (72–81), 2020, <https://doi.org/10.1016/j.combustflame.2020.02.021>
 - 4 - Ricci, M., Pulga, L., Bianchi, G.M., Falfari, S., Forte, C. (2019). Numerical Aspects Affecting Heat Transfer in ICE Applications and Definition of a Temperature Wall Function Accounting for the Boundary Layer Compressibility. *SAE International Journal of Engines*, <https://doi.org/10.4271/03-12-05-0034>
 - 5 - Falfari S., Micci G., Bianchi G.M., Brusiani F., Montenegro G., Torre A.D., Onorati A. (2016). Design of catalytic devices by means of genetic algorithm: Comparison between open-cell foam and honeycomb type substrates. *SAE International Journal of Engines* , vol. 9, p. 1686-1695, ISSN: 1946-3936, <https://doi.org/10.4271/2016-01-0965>

Scientific impact ORCID ID: <https://orcid.org/0000-0002-9139-5946>
 Source: Scopus (Author ID: 7203067911)
 Authored Papers (overall): 115 (Journal and Peer Reviewed International Conf. Papers)
 Citations: 1296
 h-index: 21 (19 w/o self-citations)

Scientific qualification Currently fulfilling all the ASN 2021-23 qualification criteria issued by MUR according to art.16 of the Italian law 30 December 2010, n.240.

Funded projects Leader of Research Unit in project PRIN 2010-2011 2010XFT2BB – “Intensification of Catalytic Processes for Clean Energy, Low-Emission Transport and Sustainable Chemistry using Open-Cell Foams as Novel Advanced Structured Materials (IFOAMS)” – PRIN Call issued on 2012 – Project execution time window from 01/2013 to 01/2016.

Teaching More than 2100 hours of teaching topic related to fluid machinery, energy conversion and I.C.E.

PERSONAL SKILLS

Mother tongue(s) Italian
 Other language(s) English - B2

Bologna, June 27th 2022

Prof. Gian Marco Bianchi