



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA

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Prof. Stefano Fontanesi

Professore Associato SSD ING-IND/08
Dipartimento di Ingegneria "Enzo Ferrari"

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CURRICULUM VITAE

CURRENT POSITION

Since 31-10-2015: Associate Professor at the Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia. Discipline (SSD ING-IND/08) "Fluid Machineries and Energy Conversion Systems".

Since 01/01/2022: Head of the Governing Board for the BS degree and MS degree in Automotive Engineering

EDUCATION

21/10/1999: MS Graduation "cum laude" in mechanical engineering at the University of Modena and Reggio Emilia

Thesis on Internal Combustion Engines. Title: "Analisi numerico - sperimentale del "matching" in motori Diesel automobilistici" (Numerical - experimental analysis of turbomatching in automotive Diesel engines") in cooperation with VM Motori S.p.A..

26/02/2003: PhD in Mechanical Engineering at the University of Modena and Reggio Emilia. Title of the dissertation: " Numerical - experimental analysis of the performance of high specific power output internal combustion engines".

01/11/2007: Full-time researcher at the Department of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia.

TEACHING DUTIES

Since 2025, course on "Thermal Management of Power Electronic Systems" at the 1st year of the Master Degree in Electronic Engineering

Since 2002, course on "CFD Simulation of Propulsion Systems" (formerly "CFD Simulation of Internal Combustion Engines") at the 2nd (last) year of the Master Degree in Automotive Engineering at the University of Modena and Reggio Emilia.

Since 2022, course on "Fundamentals of Internal Combustion Engines and Fluid Machineries" at the 3rd (last) year of the Bachelor Degree in Automotive Engineering at the University of Modena and Reggio Emilia.

From 2007 to 2014, course on "Fluid Machineries and Energy Conversion Systems" at the 3rd (last) year of the Bachelor Degree in Mechanical Engineering at the University of Modena and Reggio Emilia

Since 2001, short-courses on Internal Combustion Engine Fundamentals and on CFD Simulation of Internal Combustion Engines for the Post-graduate Master Course in Automotive Engineering at the University of Modena and Reggio Emilia

RESEARCH



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Since 2007, head of "GRUppoMOTORI", the ICE research group at the University of Modena and Reggio Emilia

Main research fields are:

- Simulation of turbulent flows using RANS, SAS and LES approaches
- RANS and LES simulation of turbulent combustion in engines, both SI and CI
- Advanced modelling of abnormal combustions, with particular reference to engine knock
- Modelling of heat transfer and thermo-mechanical stresses in engine components
- Modelling of fuel sprays and related phenomena (primary and secondary atomization, impingement)
- Modelling of fuel chemistry and development of smart strategies to incorporate it in 3D-CFD simulations
- CFD and electro-chemical modelling of PEM Fuel Cells
- CFD simulation of innovative additive manufactured components for automotive applications
- Simulation of hydrogen jets, hydrogen/air mixing and combustion in both high-efficiency and/or high specific-power engines

Current/recent technical collaborations:

- Ferrari (Italy)
- Ferrari Gestione Sportiva (F1 Team) (Italy)
- FCA (Italy)
- Maserati (Italy)
- Alfa Romeo (Italy)
- Daimler (Germany)
- AUDI (Germany)
- GM (USA)
- TMG - Toyota Motorsport (Germany)
- Winterthur Gas & Diesel (Switzerland)
- Kohler (Italy)
- Caprari (Italy)
- EMAK (Italy)
- Friendship Systems (Germany)

Technical Expert for SIEMENS DISW for in-cylinder model development

Co-founder of "R&D CFD Srl", an engineering service company based in Modena, previously Spin-Off company of the University of Modena and Reggio Emilia

Current/recent scientific collaborations with:

- Seoul National University, prof. Kyoungdoug Min
- STEMS, National Research Council, Dr. Gerardo Valentino, Dr. Simona S. Merola, Dr. Bianca Vaglieco
- Université de Orléans, Laboratoire Prisme, prof. Fabrice Foucher
- University of Oxford, Prof. Martin Davy and Prof. Felix Leach



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Author of nearly 160 scientific publications, particularly focusing CFD simulation of Internal Combustion Engines. Most of the publications are international journals with peer review process and international congresses with peer review process.

EDITORIAL BOARD EXPERIENCE

Associate editor for the "SAE International Journal of Engines" since 2017.

PRIZES/RECOGNITIONS

Recipient of "Forest R. McFarland Award" 2020 for sustained outstanding contributions toward the work of the SAE Engineering Events

INDEXING

Current Scopus h-index: 34

Citations (as of 2025/06/25): ≈3000

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PUBLICATIONS

See ORCID profile 0000-0002-3303-4229

See Scopus profile: <https://www.scopus.com/authid/detail.uri?authorId=36838051500>