Silvia Marelli

Full Professor

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Personal Information

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Bibliometric indicators:

Scopus: 1,099 citations; H-index 20

Google Scholar: 1,396 citations; H-index 21

Current And Previous Positions

2022–present: Full Professor of Fluid Machines and Low Carbon Propulsion Systems, Department of Mechanical, Energy, Management and Transportation Engineering (DIME), University of Genoa

2018–2022: Associate Professor, University of Genoa

2011–2018: Assistant Professor, University of Genoa

2008-2011: Research Assistant, University of Genoa

Prizes And Awards

2004: Associazione Tecnica dell'Automobile – ATA Thesis Award

2008: Elsag Datamat PhD Thesis Award

2017: Award for Excellence in Oral Presentation, SAE World Conference and Exhibition paper: S. Marelli, et al., Heat transfer effect on performance map of a turbocharger turbine for automotive application, SAE Technical paper no. 2017-01-1036, 2017, doi: 10.4271/2017-01-1036

Visiting Academic Positions

2019–2022: Member of the International Advisory Board (IAB) of the Competence Center for Gas Exchange (CCGEx), KTH Royal Institute of Technology, Sweden

Teaching Activities And Phd Supervision

Silvia Marelli currently holds the following Courses at UniGe:

- Macchine 1 for the BSc in Nautical Eng.

- Macchine for the BSc in Mechanical Eng.
- Motori a Combustione Interna a Ridotto Impatto Ambientale for the MSc in Mech. Eng. - Energy and Aeronautics
- Sistemi per l'Energia e l'Ambiente for the BSc in Energy Eng.
- Sistemi Propulsivi e Combustibili Alternativi per una Mobilità Sostenibile for the MSc in Mech. Engineering - Energy and Aeronautics

In past years, she held the following courses at UniGe:

- Macchine e Sistemi per l'Energia e la Propulsione, for the BSc in Mech. Eng.
- Macchine a Fluido, for the MSc in Mech. Eng. - Design and Production
- Macchine e Sistemi Propulsivi, for the MSc in Safety Eng.
- Sistemi Propulsivi a Ridotto Impatto Ambientale, for the MSc in Mech. Eng. - Energy and Aeronautics

She has supervised 42 MSc theses in Mech. Eng., 85 BSc theses in Mech. Eng., 6 PhD Theses in Ingegneria delle Macchine e dei Sistemi per l'Energia, l'Ambiente e i Trasporti and 5 postdoctoral researchers.

National And International Collaborations

Silvia Marelli has been Scientific Responsible for the University of Genoa of different research projects with private company research (FPT Industrial SpA, Automobili Lamborghini SpA, General Motors Powertrain-Europe S.r.l., CRITT M2A).

Research projects and agreements include:

- R&D Framework Agreement with FPT Industrial SpA (2025-2028)
- Studio dell'ottimizzazione della sovralimentazione di motorizzazioni Diesel Heavy Duty ad elevata efficienza, FPT Industrial SpA (2025-present)
- Research activities on advanced boosting systems for Hydrogen and Compressed Natural Gas Internal Combustion Engines, FPT Industrial SpA (2024)
- Turbocharger steady flow characterization and mapping, Automobili Lamborghini S.p.A. (2021)
- Approfondimento del sistema di sovralimentazione articolato nelle seguenti voci: unsteady turbine behaviour, unsteady compressor behaviour, heat transfer, pre-processing turbocharger maps, waste-gate impact, Turbocharging systems for Euro 7, Automobili Lamborghini S.p.A. (2021)
- Twin scroll turbocharger characterization (performance maps for simulations), FPT Industrial Spa (2017-2018)
- Turbocharger characterization – Performance maps for simulations, FPT Industrial Spa (2016)
- Turbocharger characterization – Performance maps for simulations, FPT Industrial Spa (2015)
- Turbine characterization, CRITT M2A (2015-2016).

• Progetto di Ateneo 2013 (2014-2015): Metodologie per la caratterizzazione sperimentale ed il controllo avanzato di sistemi energetici.

• Research Agreement with Centre de Recherche d'Innovation Technique et Technologique en Moteurs et Acoustique Automobile (CRITT M2A) (2013/2016 rinnovata 2016/2019).

• Testing methodologies for automotive turbochargers, CRITT M2A (2013-2014).

• Parameter study of Pulsating flow in a Variable Geometry Turbine, General Motors Powertrain-Europe S.r.l. (2013/2014).

• H2020: UPGRADE- High efficient Particulate free Gasoline Engines, 2016-2019

She was involved in EU VI FP NICE, EU VII FP POWERFUL, PRIN 2005, PRIN 2007, and private company research (Centro Ricerche Fiat, General Motors Powertrain Europe, Röchling Automotive AG, Mecaprom TCO, Ferrari).

Other Work Experience

External evaluator for PhD theses at leading international institutions, including KTH Royal Institute of Technology (Sweden), Universitat Politècnica de València – Spain – CMT.

Italian patent No. 102024000010468, European Patent application EP25174953.7, 2024.

S. Barberis, S. Marelli, A. Patti, P. Silvestri, A. Traverso and V. Usai. "Open reverse cycle for thermal recovery."

Silvia Marelli is co-founder of Sit Technologies srl, spin-off company from Polytechnic School of University of Genoa, founded in 2018, committed to provide smart and intelligent solutions for improving energy efficiency, power plant reliability and environmental awareness.

Education

Graduated in Mechanical Engineering at University of Genoa, Italy in 2004, discussing a Thesis "Analisi sperimentale in regime transitorio delle prestazioni di turbogruppi di sovralimentazione per applicazione automobilistica".

PhD Degree in Mechanical Engineering – Fluid Machines at University of Genoa, Italy in 2008.

2008-2011: Postdoctoral Research, Mechanical Engineering, University of Genoa.

Administrative Role And Position Responsibility

2021–present: Coordinator of the Bachelor Course in Mechanical Engineering, University of Genoa

2024–present: Coordinator of the Turbomachinery and Energy Systems and Transportation (MASET) Division of DIME, University of Genoa

2017–present: Head of Laboratory Teaching and Research Activities (Responsabile dell'Attività Didattica e di Ricerca di Laboratorio (RADRL)), University of Genoa

2021-2023: DIME Delegate to the Orientation and Tutoring Committee, University of Genoa

2012-present: Member of the Academic Board for the Doctoral Research Program in “Macchine a fluido” e in “Ingegneria Matematica, delle macchine e dei sistemi per l’energia e l’ambiente e i trasporti”.

Scientific Organisations / Coordination Of Academic Activities

2017–present: Head of Laboratory Teaching and Research Activities (Responsabile dell’Attività Didattica e di Ricerca di Laboratorio (RADRL)), University of Genoa

Scientific leadership: responsible for internal combustion engines and propulsion systems components laboratory.

Editorial Activity

She serves as reviewer for leading scientific journals in the field, including those published by

Elsevier, the Journal of Automobile Engineering, SAE International, and the International

Journal of Engine Research.

2021: Guest Editor of a special issue “Advanced Boosting Systems”, Energies

Membership Of Scientific Societies

2025-present: Member of the Board for SAE-NA Naples Section, SAE International (Society of Automotive Engineers)

2023–present: Secretary for Associazione Italiana delle Macchine a Fluido e dei Sistemi per l'Energia e l'Ambiente (AIMSEA)

2020–present: Member of the Board of Directors for Associazione Italiana delle Macchine a Fluido e dei Sistemi per l'Energia e l'Ambiente (AIMSEA)

2004–2013: Member of the Board for Associazione Tecnica dell’Automobile (ATA) and Secretary from 2007 to 2013