

PERSONAL INFORMATION Marco Pizzoli

	⊠ marco.pizzoli@uniroma1.it				
	Postdoctoral fellow at Sanienza University of Rome				
CORNENT POSITION	V Fostdoctoral lellow at Sapienza Oniversity of Rome				
RESEARCH ACTIVITY					
Main research interests	 Sloshing effects on aeroelastic stability and response. Deep learning for nonlinear system identification. Fluid-structure interaction problems. 				
November 2024 – Current	Postdoctoral fellow				
	Sapienza University of Rome, Department of Mechanical and Aerospace Engineering, via Eudossiana, 18, Rome, Italy				
Research Topic	Conducting research to advance the design and performance of liquid hydrogen (LH2) stor- age systems for large civil aircraft, focusing on structural optimization, safety, and operational efficiency. Specifically focused on developing AI-based reduced-order models to predict key parameters within the LH2 storage tank, including sloshing features, pressure-drop and the time evolution of thermal stratification.				
Research Funder	European project HASTA (Hydrogen Aircraft Sloshing Tank Advancement)				
November 2022 – October 2024	Postdoctoral fellow				
	Sapienza University of Rome, Department of Mechanical and Aerospace Engineering, via Eudossiana, 18, Rome, Italy				
Research Topic	Nonlinear Reduced-order models of sloshing in aeronautical fuel tanks for the aeroelastic re- sponse of next-generation aircraft				
Research Funder	European project H2020 SLOWD (SLOshing Wing Dynamics) led by AIRBUS Operations				
EDUCATION AND TRAINING					
November 2019 – January 2023	Ph.D in Aeronautics and Space Engineering				
	Sapienza University of Rome, Department of Mechanical and Aerospace Engineering, via Eudossiana, 18, Rome, Italy				
Thesis	Experimental assessment and reduced order modeling of nonlinear vertical sloshing for aeroe- lastic analyses				
Research Topic	Investigation of fuel-sloshing dynamics in wing tanks and its effects on the global aeroelastic response of aircraft				
Research Funder	European project H2020 SLOWD (SLOshing Wing Dynamics) led by AIRBUS Operations				
Visiting mar. 2022 - jul. 2022	Visiting scholar at University of Washington, Seattle, WA, USA, Applied Mathematics Depart- ment (Supervisor Prof. Nathan J. Kutz)				
October 2016 – October 2019	MASTER DEGREE in Aeronautical Engineering				
	Sapienza University of Rome, Piazzale Aldo Moro, 5, Rome, Italy				
	Graduation Note: 110/110				
Thesis	Investigations of sloshing-tank effects on integrated aircraft modelling of aeroelasticity and flight dynamics (Supervisor: Prof. Franco Mastroddi)				
Honors	 Among the winners of the AIAA-PEGASUS 2020 student conference (2nd ex-aequo position) Paper submitted to the AIAA-PEGASUS 2020 student conference selected for the publication on the Journal of Aerospace Science, Technologies & Systems 				
October 2011 – March 2016	BACHELOR DEGREE in Aerospace Engineering				

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Curriculum vitae

Thesis	Sapienza University of Rome, Piazzale Aldo Moro, 5, Rome, Italy Graduation Note: 106/110 <i>Semi-analytical modeling of high-speed impacts on fiberglass laminates</i> (Supervisor: Prof. Paolo Gaudenzi)						
Sectember 2006 – July 2011	High School Diploma L.S.S. Giovanni Vailati, Via Achille Grandi, 146, Genzano di Roma (RM)						
PERSONAL SKILLS							
Mother tongue	Italian						
Other languages	UNDERSTANDING		SPEAKING		WRITING		
	Listening	Reading	Spoken interaction	Spoken production			
English	C1	C1	C1	B2	B2		
Computer skills	 competent with most Microsoft Office programmes and LTEX basic knowledge of Python, Pytorch, Tensorflow, Fortran and Wolfram Mathematica good knowledge of Matlab & Simulink good knowledge of FEM software MSC Nastran & MSC Patran 						
Driving licence	В						
ADDITIONAL INFORMATION							
Tutoring activities	 Tutor of the course <i>Costruzioni Aerospaziali</i> (Aerospace Structures) of the Bachelor Degree in Aerospace Engineering at Sapienza University of Rome (academic year 2020-21). Tutor of the course <i>Costruzioni Aerospaziali</i> (Aerospace Structures) of the Bachelor Degree in Aerospace Engineering at Sapienza University of Rome (academic year 2021-22). 						

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Publications

- Pizzoli, M., (2020). Investigation of sloshing effects on flexible aircraft stability and response. Aerotecnica Missili & Spazio vol. 99, pages 297–308
 - Colella, M., Saltari, F., Pizzoli, M. & Mastroddi, F. (2021). Sloshing reduced-order models for aeroelastic analyses of innovative aircraft configurations. Aerospace Science & Technology, 118, 107075.
 - Pizzoli, M., Saltari, F., Mastroddi, F., Martínez-Carrascal, J. & González-Gutiérrez, L. M. (2022). Nonlinear reduced order model for vertical sloshing by employing neural networks. Nonlinear dynamics, 107(2), pp. 1469–1478
 - Pizzoli, M., Saltari, F., Coppotelli, G., & Mastroddi, F. (2022). Experimental Validation of Neural-Network-Based Nonlinear Reduced-Order Model for Vertical Sloshing. AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2022, AIAA 2022-1186
 - Saltari, F., Pizzoli, M., Mastroddi, F., Gambioli, F. & Jetzschmann, C. (2022). Nonlinear sloshing integrated aeroelastic analyses of a research wing prototype. AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2022, AIAA 2022-1187
 - Saltari, F., Pizzoli, M., Coppotelli, G., Gambioli, F., Cooper, J.E. & Mastroddi, F. (2022). Experimental characterisation of sloshing tank dissipative behaviour in vertical harmonic excitation. Journal of Fluids and Structures, 109, 103478
 - Saltari, F., Pizzoli, M., Gambioli, F., Jetzschmann, C. & Mastroddi, F. (2022). Sloshing reduced-order model based on neural networks for aeroelastic analyses. Aerospace Science and Technology, 127, 107708
 - Pizzoli, M., Saltari, F. & Mastroddi, F. (2022). Linear and Nonlinear Reduced Order Models for Sloshing for Aeroelastic Stability and Response Predictions. Applied Sciences, 12(17):8762
 - Saltari, F., De Courcy, J., Pizzoli, M., Constantin, L., Mastroddi, F., Coppotelli, G., et al. (2022). Data driven and model-based vertical sloshing reduced order models for aeroelastic analysis. IFASD 2022, Madrid, Spain
 - Martínez-Carrascal, J., Constantin, L., Pizzoli, M., González-Gutiérrez, L. M., Titurus, B., Cooper, J.E. & Coppotelli, G (2022). Overview of Single Degree of Freedom Experiments of vertical sloshing flows inside scaled tanks. IFASD 2022, Madrid, Spain
 - Pizzoli, M., Martínez-Carrascal, J., Saltari, F., González-Gutiérrez, L. M. & Mastroddi, F. (2022). Neural-network-based reduced-order model for vertical sloshing for FSI simulations.
 9th International Conference on Hydroelasticity in Marine Technology, Rome, Italy
 - Pizzoli, M., Saltari, F., Coppotelli, G., & Mastroddi, F. (2023). Study of geometrical effects on slosh induced damping, AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2023
 - Pizzoli, M., Saltari, F., Pustina, L., Mariani, G., Coppotelli, G., Migliorino, M.T., Gambioli, F. & Mastroddi, F. (2023). Sloshing effects on free-body commercial aircraft aeroelastic loads, Italian Association of Aeronautics and Astronautics, XXVII AIDAA Congress, 4-7 September 2023, Padova, Italy
 - Pizzoli, M., Saltari, F., Coppotelli, G., & Mastroddi, F. (2023). Neural-network-based reduced order modeling for nonlinear vertical sloshing with experimental validation, Nonlinear Dynamics, 111, 8913 – 8933.
 - Martinez-Carrascal, J., Pizzoli, M., Saltari, F., Mastroddi, F. & Gonzalez-Gutierrez, L.M. (2023). Sloshing reduced-order model trained with Smoothed Particle Hydrodynamics simulations, Nonlinear Dynamics, 111, 21099 – 21115
 - Saltari, F., Pizzoli, M., Migliorino, M.T., Binni, A., Coppotelli, G., Mastroddi, F., Pagliaroli, T., Del Duchetto, F., Gambioli, F., Abarca, R. & Henning Scheufler, H. (2024). Experimental investigations on the sloshing-induced pressure drop in tanks for hydrogen-powered aircraft, AIAA 2024-2158, AIAA SciTech Forum 2024.
 - Laureti, N., L. Pustina, M. Pizzoli, F. Saltari, and F. Mastroddi (2024). Nonlinear aeroelastic analysis of a regional airliner wing via a neural-network based reduced order model for aerodynamics. Proceedings of the International Forum of Aeroelasticity and Structural Dynamics 2024, IFASD 2024.
 - Nerattini, A., M. Pizzoli, J. Martinez-Carrascal, F. Saltari, L. Gonzalez, and F. Mastroddi (2024). Loads-based optimal fuel-usage strategy by using a neural-network-based reducedorder model for vertical sloshing. Aerospace Science and Technology, p. 109408.
 - Saltari, F., Pizzoli, M., Migliorino, M.T., Binni, A., Coppotelli, G., Mastroddi, F., Pagliaroli, T., Del Duchetto, F., Gambioli, F., Abarca, R. (2024). Experimental methodological investigations of sloshing-induced mass transfer coefficients for aircraft tanks. Journal of Thermophysics and Heat Transfer.

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