Andrea Brugnoli

Associate professor, ISAE - SUPAERO
Email: andrea.brugnoli@isae.fr
ORCID: 0000-0002-6823-7499
Web: in 8 O

Analytical and computational mechanics, numerical methods, systems and control.

Education

2017–2020 Oct Nov	PhD in Automatic Control, ISAE - SUPAERO	
	A port-Hamiltonian formulation of flexible structures	phd thesis
2017	Research master in signal processing, Université Paris Saclay	
2015–2017 Sep Oct	Double degree in Aerospace Engineering, Politecnico di Milano and ISAE - SUPAERO	
2011–2014 Sep Jul	BSc in Mechanical Engineering, Politecnico di Milano	

Professional Experience

2023–now Oct	Associate professor, ISAE - SUPAERO
	Departement of Mechanics of Structures and Materials
2023–2023 Jan Sep	Post-Doctoral researcher, TU Berlin, Germany
2020–2022 Nov Dec	Post-Doctoral researcher, TU Twente, The Netherlands
2017–2017 Apr Sep	Research Engineer, Centre National d'Études Spatiales, France

Teaching

2025–2026	Classical Mechanics (15h), Solid mechanics (45h), Finite elements for structural mechanics (6h), Optimization (6h), Dynamical system (6h)
2024–2025	Classical Mechanics (15h), Solid mechanics (45h), Finite elements for structural mechanics (6h), Optimization (6h), Dynamical systems (6h)
2023–2024	Classical Mechanics (10h), Solid mechanics (40h), Optimization (6h), Dynamical systems (4h)

Supervision

PhD students

2025–now	**Evan RABINEAU**, *High performance solvers for Vibration Analysis of Lattice Structures for Aerospace Applications*
2024–now	**Shubham DESHMUKH**, *Integration of Handling Qualities in multidisciplinary optimization of High Aspect Ratio Wings*

Master students

2025	**Tulio CARMONA**, *Development of microgravity satellite plateform*
2025	**Riccardo SPINZI**, *Simulation of vibration shocks via energy methods*, joint supervision with Riccardo Vescovini (Politecnico di Milano)

2022   **Vitor BORGES SANTOS**, *Hamiltonian neural network for mutibody systems*, joint supervision with Flavio Luiz Cardoso-Ribeiro (Instituto Tecnológico de Aeronáutica)

2022   **Sjoerd de JONG**, *Structure preserving domain decompostion methods for wave propagation*

Research project for Graduate students

2025-2026   **Giovanni GELMETTI, Le Hanh Linh VU**, *Finite elements numerical methods for fluid structure interaction*

2025-2026   **Shruti Shishir PUNTAMBEKAR, Andrea TALAMONTI**, *Active control of flexible structures via piezoelectric actuation*

Bachelor students

2024   **Siek SLAVOMIR**, *Damage constitutive models in beams* (exchange from University of Connecticut)

Tutored apprentships

2025-now   **Charlotte ORLOVIC**, apprentish at Comat

2022-2025   **Ludovic BASTIEN**, apprentish at Airbus DS

Tutored master students

2025   **Erwan TOUX**, *Developing a neural network for exospheric temperature forecasting*, internship at Cnes

2025   **Susir SUBRAMANI**, *Design and development of Structural model for a Docking arm and a Thruster arm*, internship at Infinite Orbits

2025   **Javier CORRAL PASCUAL**, *Gain optimization in the C* law: the new manoeuvre point criterion*, internship at Airbus

2024   **Alexandru BIJA**, *Optimisation of structures subject to snapthrough behaviour*, internship at Airbus

2024   **Bénion TOM**, *Modeling of Thermocouples to Match Experimental and Numerical Temperature Values*, internship at MTU AeroEngines

2024   **Victor ESTAVOYER**, *Metamodel for thermal calculations in transient state*, internship at MTU AeroEngines

2024   **Mallapur NIHARIKA**, *Research and Designing a Long-Range Fixed wing e-VTOL UAV*, internship at Menaps

Awards

2021   PhD thesis award, Foundation ISAE - SUPAERO   link

2015–2017   Double degree scholarship

2011–2015   Academic merit scholarship (tuition waiver)

Invitations

2025   **Seminar**, invited by Kaibo Hu, Prof. Anil Hirani, Prof. Kaushik Kalyanaraman, University of Chicago

2024   **Seminar**, invited by Deepesh Toshniwal and Arthur Palha, University of Delft

2024   **Seminar**, invited by Prof. Jerome Droniou and Prof. Daniele di Pietro, Institut Montpelliérain Alexander Grothendieck

Reviewing activities

Applied Mathematical Modelling, IMA Journal of Numerical Analysis, Journal of Elasticity, Computer Methods in Applied Mechanics and Engineering, SMAI journal of computational mathematics, Results in Engineering, Mathematical Methods in the Applied Sciences, Systems and Control Letters, SIAM journal of Control and Optimization, Computers and Structures

Involvement in the scientific community

2024   Co-organizer (with Prof. Peter Betsch), of the mini-symposium on structure-preserving methods for multiphysics problems, WCCM 2024, Vancouver

2021   Co-organizer (with Federico Califano), of the mini-symposium on numerical methods for continuum mechanics, LHMNC 2021, Berlin

Selected Publications

- Brugnoli, A. et al. *A linearly-implicit energy-momentum preserving scheme for geometrically nonlinear mechanics based on non-canonical Hamiltonian formulations.* Nonlinear Dynamics, (2025). doi:10.1007/s11071-025-11601-6.

- Brugnoli, A., et al. *Finite element hybridization of port-Hamiltonian systems.* Applied Mathematics and Computation 498 (2025): 129377. doi:10.1016/j.amc.2025.12937.

- Brugnoli, A., et al. *Dual field structure-preserving discretization of port-Hamiltonian systems using finite element exterior calculus.* Journal of computational physics 471 (2022): 111601. doi:10.1016/j.jcp.2022.111601.

- Brugnoli, A., et al. *Port-Hamiltonian formulation and symplectic discretization of plate models Part I: Mindlin model for thick plates.* Applied Mathematical Modelling 75 (2019): 940-960. doi:0.1016/j.apm.2019.04.035.