Andrea BRUGNOLI

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Andrea.BRUGNOLI@supaero.isae.fr or andrea.brugnoli92@gmail.com

Phd candidate at ISAE-Supaero (Toulouse)
International spirit, initiative and ability to adapt. Fluent in three languages.

Education

ISAE-Supaero **Toulouse**
PhD candidate *October 2017-October 2020*
A port-Hamiltonian formulation of flexible structures: modelling and symplectic finite element discretization.

Université Paris Saclay/ Supélec **Paris/Toulouse**
Research Master in automatics and image processing *2016–2017*
Courses: inverse problem, advanced dynamics of flexible structures, parameter estimation

ISAE-Supaero **Toulouse**
Double degree in aerospace and astronautical engineering *2015–2017*
Specialisation in applied mathematics and advanced automatics: multidisciplinary optimisation, high performance computing, control of flexible structures

Politecnico di Milano **Milano**
Master in space engineering, 110/110 cum laude *2014–2017*
Courses: orbital mechanics, structural dynamics and control, thermochemical propulsion

Politecnico di Milano **Milano**
Mechanical Engineering Degree, 110/110 cum laude *2011–2014*
Courses: finite element method, mechanical vibrations, numerical methods for engineering

Experiences

ITA-Instituto Tecnológico de Aeronáutica **São José dos Campos**
Visiting researcher *January 2019, 4 months*
Collaboration with Flavio Cardoso-Riberio on numerical methods for port-Hamiltonian systems (see References).

CNES-Centre des études spatiales **Toulouse**
Internship *2017, 6 months*
Analysis of dismissed satellites subject to solar pressure to identify stable pointing configurations and periodical behaviours.

ISAE-Supaero in partnership with LAAS **Toulouse**
Industrial and entrepreneurial project *2016, 5 months*
Intelligent teleoperations for micro-drones systems (six people team).

ISAE-Supaero **Toulouse**
Research project *2016, 4 months*
Modular modelling of rigid multibody systems following the logic of Simscape Multibody

Politecnico di Milano in partnership with Danieli S.p.A **Milano**
Bachelor project *July 2014, September 2014*
Dynamics of a forging manipulator: kinematics modelisation and dynamic analysis. Presented at Danieli.

Publications

[1] A. Brugnoli, D. Alazard, V. Pommier-Budinger, and D. Matignon. Partitioned finite element method for the mindlin plate as a port-hamiltonian system. *IFAC-PapersOnLine*, 52(2):88 – 95, May 2019. 3rd IFAC Workshop on Control of Systems Governed by Partial Differential Equations CPDE 2019.

[2] A. Brugnoli, D. Alazard, V. Pommier-Budinger, and D. Matignon. Port-Hamiltonian formulation and symplectic discretization of plate models part I: Mindlin model for thick plates. *Applied Mathematical Modelling*, 75:940 – 960, Nov 2019.

[3] A. Brugnoli, D. Alazard, V. Pommier-Budinger, and D. Matignon. Port-Hamiltonian formulation and symplectic discretization of plate models part II: Kirchhoff model for thin plates. *Applied Mathematical Modelling*, 75:961 – 981, Nov 2019.

[4] A. Brugnoli, D. Alazard, V. Pommier-Budinger, and D. Matignon. Interconnection of the Kirchhoff plate within the port-Hamiltonian framework. In *Proceedings of the 59th IEEE Conference on Decision and Control*, Dec 2019.

[5] F. L. Cardoso-Ribeiro, A. Brugnoli, D. Matignon, and L. Lefèvre. Port-Hamiltonian modeling, discretization and feedback control of a circular water tank. In *Proceedings of the 59th IEEE Conference on Decision and Control*, Dec 2019.

[6] A. Brugnoli, F. L. Cardoso-Ribeiro, G. Haine, and P. Kotyzca. Partitioned finite element method for power-preserving structured discretization with mixed boundary conditions. Submitted to the 21st IFAC World congress, July 2020.

Languages

English: fluent (Toeic 965/990 2014)

French: fluent

Spanish: intermediate

Brazilian portuguese: intermediate

Italian: native speaker

Computer skills

Softwares and platforms: Simulink, Abaqus, Inventor, Solid Works, Labview

Languages: Python (especially FEM librairies: FEniCS and Firedrake), Matlab, Java, C, LaTeX

Interests

Tutor of mathematics and physics for first and second year bachelor students

Tennis, travelling, literature and cinema