Teaching experiences & Scientific activities

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1 Teaching activities

During my thesis, I carried out my teaching activities at the *Institut Supérieur de l'Aéronautique et de l'Espace* (ISAE-SUPAERO), either for the french engineering training or for the international masters. I have taught courses in Automatic Control for 4th year students in the french engineering diploma (state representation, frequency control, root locus, estimation, identification, co-located output feedback, supervision of the student project), and in the international master "Aerospace systems and control" (discrete systems, Z-transform, student project *identification and control of flexible structures*). I have also taught classes in Applied Mathematics for 3rd year students in the french engineering diploma (numerical resolution of PDEs, finite differences, finite elements, numerical methods for convex optimization). The Table 1 summarizes the different activities in terms of time volume.

Year	Level	Class Type	Subject	Duration
2019-2020	3rd year	Coding Lab	Numerical solution of PDEs	6h
	3rd year	Coding Lab	Optimization	6h
2018-2019	4th year	Frontal lecture & Coding Lab	Automatic control (for the french and international curricola)	40h
	4th year	Coding Lab	Control of flexible structures	8h
2017-2018	4th year	Frontal lecture & Coding Lab	Automatic control (for the french and international curricola)	40h

Table 1: Summary teaching activities at ISAE-SUPAERO

2 Scientific activities

During my professional career, I have been involved in different scientific activities. During my thesis, I participated in the supervision of the "Engineering and Enterprise Project" for 5th

year students in ISAE-SUPAERO (see Table 2). This project was focused on the development of numerical algorithms for linear thermoelasticity. I contributed as a reviewer for *Journal of Elasticity* and *Mathematical and Computer Modelling of Dynamical Systems*. I co-organized an invited session for the conference *Lagrangian and Hamiltonian method in non linear control 2021*. Currently, I co-supervise with prof. Marijn Nijenhuis a PhD student. The thesis is focused on the development of interconnected Hamiltonian models for highly flexible structures (in English *flexures*). In particular, the idea is to design a structured computational framework for the digitization of flexible mechanical components for topological design and optimization purposes. I also collaborate with the Instituto Tecnológico de Aeronáutica (Brazil), for the supervision of the final year internship of a Brazilian student in double degree with the University of Twente. The subject of this internship is the reduction of models for flexible multi-body systems.

Année	Lieu	Description
2022 (ongoing)	University of Twente (Enschede)	Supervision of the master thesis of Vitor Borges Santos, in a double degree program Instituto Tecnológico de Aeronáutica/University of Twente (collaboration with prof. Flavio Cardoso Ribeiro).
2022 (ongoing)	University of Twente (Enschede)	Supervision of the PhD thesis "On the modeling and mechanical design of flexures (compliant mechanisms)" between the Robotics and Mechatronics et le the precision engineering department at the University of Twente (collaboration with prof. Marijn Nijenhuis).
2021	Technical University of Berlin (Berlin)	Organisation of the invited session: "Theoretical and numerical advancements in Hamiltonian formulations of continuum mechanics" for the conference "Lagrangian and Hamiltonian method in non linear control 2021".
2022	—	Reviewer for *Mathematical and Computer Modelling of Dynamical Systems*.
2020	—	Reviewer for *Journal of Elasticity*.
2019-2020	ISAE-SUPAERO (Toulouse)	Organisation and supervision of an Engineering and Enterprise Project titled "Simulation and control of thermoelastic structures for space applications".

Table 2: Summary scientific activities.