

# RAPHAEL ALVES HAILER

🏠 Personal Website

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## EDUCATION

Period	Institution	Description
09/2024 – 11/2024	Jet Propulsion Laboratory - NASA	Jet Propulsion Laboratory Visiting Student Research Program (JVS RP)
09/2023 – 03/2024	École Polytechnique de Paris	Visiting Student – Advanced classes in space science and challenges
08/2022 – 09/2024	ENSTA Paris	M.Sc. Equivalent – Diplôme d’Ingénieur GPA: 4.05/4.3
03/2019 – Present	State University of Campinas - Unicamp	B.Sc. Mechanical Engineering Expected 12/2025 • GPA 94/100

## RESEARCH AND TEACHING EXPERIENCE

Period	Institution	Activities
01/2025 – 03/2025	Embraer	Developed a framework to generate multiple CATIA-based EVE-100 Aircraft (Embraer’s eVTOL) configurations for structural testings
04/2024 – 09/2024	EDF Lab Paris-Saclay	Developed a multi-objective optimization framework to improve fatigue simulation models using finite elements in the European INCEFA-SCALE project, guided by Stéphan Courtin
05/2023 – 08/2023	Inria Saclay	Conducted research on stochastic optimization of X-ray micro-CT domain size using PuMA (NASA), guided by Pietro Marco Congedo in partnership with the Italian Space Agency
03/2022 – 07/2022	State University of Campinas	Managed classes as teaching assistant in Thermodynamics 1 course
10/2021 – 07/2022		Mathematics and physics private tutor for high school and undergraduate students

## CONFERENCE ABSTRACTS

- [1] Raphael Alves Hailer et al. “Modeling the Contaminant Footprint of Spacecraft Operating in Near-Vacuum”. In: *56th Lunar and Planetary Science Conference (LPSC)*. The Woodlands, Texas, United States, Mar. 2025. DOI: 10.13140/RG.2.2.30992.52484.

## RESEARCH PROJECTS

Title	Participants	Orientor
<i>Non-Intrusive Polynomial Chaos Expansion Applied to Full-Order Stochastic CFD</i>	Raphael Alves Hailer, Yani Aït Ammar (École Polytechnique)	Mohamed Bouarfa (ArianeGroup)

## EXTRA COURSES

Period	Course	Institution
09/2023	Intensive course on space science and technology	Centre national d’études spatiales (CNES)

## GRANTS AND AWARDS

Date	Description	Awarded by
09/2024 - 12/2024	Tech Fellowship excellence scholarship to conduct a research project at Jet Propulsion Laboratory (JPL) - NASA	Fundação Estudar – Brazil
08/2022 - 02/2024	Brazil France Ingénieur Technologie (BRAFITTEC) excellence scholarship	Coordination for the Improvement of Higher Education Personnel (CAPES) – Brazil
07/2020 - 01/2021	Funding from FUNCATE to develop a test base for solid rocket engines	Brazilian Space Agency (AEB)
2021	Third place award for the 1000 meters apogee rocket Aurora	<i>Latin American Space Challenge</i>
2020	Second place award for the 500 meters apogee rocket Anhangá	<i>Latin American Space Challenge</i>

## OTHER ACADEMIC EXPERIENCES

Period	Role	Description
02/2020 – 02/2022	Structures and Aerodynamics Department Leader – Antares Aerospace Design Team – Unicamp	Responsible for managing the structures and aerodynamics department members as well as the rocket projects for the Antares Aerospace Design Team
04/2019 – 02/2020	Structures and Aerodynamics Department Member – Antares Aerospace Design Team – Unicamp	Responsible for manufacturing the team's rocket projects, select materials and organize the sub-sections of the rockets

## LANGUAGES

Language	Proficiency level
Portuguese	Native
English	C1
French	C1

## SKILLS

Engineering softwares	Programming languages	Additional skills
Porous Microstructure Analysis (PuMA) software, SPARTA, Creo Parametric, Code Aster, Salome Meca, 3DEXPERIENCE (3DX), Microsoft Office	Python, MATLAB and OCTAVE	Experience with LaTeX, Linux and usage of high performance computing (HPC) cluster