


# RAPHAEL ALVES HAILER

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## EDUCATION

<b>State University of Campinas - Unicamp</b> B.Sc. in Mechanical Engineering - Expected graduation: 12/2025 - GPA: 0.9348/1.	Brazil, 03/2019 - Present
<b>ENSTA Paris - École nationale supérieure de techniques avancées</b> M.Sc. Equivalent – Diplôme d'Ingénieur - GPA: 4.05/4.3. •Specialization: Smart and sustainable mobility.	France, 08/2022 - 09/2024

## OTHER ACADEMIC EXPERIENCES

<b>Jet Propulsion Laboratory - NASA</b> Jet Propulsion Laboratory Visiting Student Research Program (JVSRP).	United States, 09/2024 - 11/2024
<b>École Polytechnique</b> Visiting Student – Advanced classes in space science and challenges.	France, 09/2023 - 03/2024

## GRANTS AND AWARDS

<b>Leopoldo Américo Miguez de Mello Research, Development and Innovation Center</b> Recipient of a merit-based undergraduate research assistantship.	Brazil, 05/2025 - Present
<b>Fundação Estudar - Tech Fellowship 2024</b> Selected as 1 of only 13 recipients of the Tech Fellowship 2024 scholarship, a highly competitive merit-based program that received more than 10,000 applications. Selected candidates demonstrated academic excellence and leadership skills in the technology sector.	Brazil, 09/2024 - Present
<b>Capes - Coordination for the Improvement of Higher Education Personnel</b> Recipient of the France Ingénieur Technologie (BRAFITTEC) merit-based scholarship, following a competitive national call among top brazilian universities.	Brazil, 08/2022 - 08/2024
<b>Brazilian Space Agency (AEB)</b> Merit-based funding provided for the development a test base for solid rocket engines at Antares Aerospace Design Team (Unicamp).	Brazil, 07/2020 - 01/2021
<b>Latin American Space Challenge 2021</b> 3rd place award for the 1000 meters apogee category in an international rocketry competition.	Brazil, 2021
<b>Latin American Space Challenge 2020</b> 2nd place award for the 500 meters apogee category in an international rocketry competition.	Brazil, 2020

## RESEARCH EXPERIENCE

<b>Embraer</b> Research intern: developed a framework to generate multiple CATIA-based EVE-100 Aircraft (Embraer's eVTOL) configurations for structural testing.	Brazil, 01/2025 - 03/2025
<b>EDF Lab Paris-Saclay</b> Research intern: developed a multi-objective optimization framework to improve fatigue simulation models using finite elements in the European INCEFA-SCALE project, guided by Stéphan Courtin.	France, 04/2024 - 09/2024
<b>Inria Saclay</b> Research intern: 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 (ASI).	France, 05/2023 - 08/2023

## TEACHING EXPERIENCE

<b>State University of Campinas - Unicamp</b> Undergraduate teaching assistant (PAD program) in Thermal Engineering 1 course.	Brazil, 08/2025 - Present
<b>State University of Campinas - Unicamp</b> Undergraduate teaching assistant (PAD program) in Thermodynamics 1 course.	Brazil, 03/2022 - 07/2022
<b>Private Tutor</b> Mathematics and physics tutoring for high school and undergraduate students.	Brazil, 10/2021 - 07/2022

## 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

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### ***Non-Intrusive Polynomial Chaos Expansion Applied to Full-Order Stochastic CFD***

France, 2024

- Members: Raphael Alves Hailer, Yani Aït Ammar (École Polytechnique).
- Advisor: Mohamed Bouarfa (ArianeGroup).

## EXTRA COURSES

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### **Centre national d'études spatiales - CNES**

France, 09/2023

Intensive course on space science and technology (40 hours).

## EXTRACURRICULAR ACTIVITIES

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### **Structures and Aerodynamics Department Leader - Antares Aerospace Design Team**

Brazil, 02/2020 - 02/2022

Responsible for managing the structures and aerodynamics department members as well as all the rocket projects for the Antares Aerospace Design Team - Unicamp.

### **Structures and Aerodynamics Department Member - Antares Aerospace Design Team**

Brazil, 04/2019 - 02/2020

Responsible for manufacturing the team's rocket projects, select materials and organize the sub-sections of the rockets. at the Antares Aerospace Design Team - Unicamp

## VOLUNTEER WORK

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### **Cop1 - Solidarités Étudiantes**

France, 2023

Contributed with 20 hours of volunteer work, distributing food for students in need.

## LANGUAGES

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Language	Proficiency level
Portuguese	Native
English	C1
French	C1

## SKILLS

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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