


# RAPHAEL ALVES HAILER

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📍 Rua Condessa do Pinhal, 672 Campinas, SP, Brazil

## EDUCATION

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### State University of Campinas - Unicamp

Brazil, 03/2019 - Present

B.Sc. in Mechanical Engineering - Expected graduation: 12/2025 - GPA: 0.94/1.

### ENSTA Paris - École nationale supérieure de techniques avancées

France, 08/2022 - 09/2024

M.Sc. Equivalent Diplôme d'Ingénieur - GPA: 4.05/4.3.

- Specialization: Smart and sustainable mobility.

## OTHER ACADEMIC EXPERIENCES

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### Jet Propulsion Laboratory - NASA

United States, 09/2024 - 11/2024

Jet Propulsion Laboratory Visiting Student Research Program (JVSRP).

### École Polytechnique

France, 09/2023 - 03/2024

Visiting Student Advanced classes in space science and challenges.

## GRANTS AND AWARDS

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### Leopoldo Américo Miguez de Mello Research, Development and Innovation Center

Brazil, 05/2025 - Present

Recipient of a merit-based undergraduate research assistantship.

### Fundação Estudar - Tech Fellowship 2024

Brazil, 09/2024 - Present

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.

### 28th CREA-SP Award - Professional Development Category

Brazil, 2025

Recognized for academic excellence in engineering by the Regional Council of Engineering and Agronomy in the state of São Paulo (CREA-SP)

### Capes - Coordination for the Improvement of Higher Education Personnel

Brazil, 08/2022 - 08/2024

Recipient of the France Ingénieur Technologie (BRAFITTEC) merit-based scholarship, following a competitive national call among top brazilian universities.

### Brazilian Space Agency (AEB)

Brazil, 07/2020 - 01/2021

Merit-based funding provided for the development a test base for solid rocket engines at Antares Aerospace Design Team (Unicamp).

### Latin American Space Challenge 2021

Brazil, 2021

3rd place award for the 1000 meters apogee category in an international rocketry competition.

### Latin American Space Challenge 2020

Brazil, 2020

2nd place award for the 500 meters apogee category in an international rocketry competition.

## RESEARCH AND TEACHING EXPERIENCE

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### Embraer

Brazil, 01/2025 - 03/2025

Research intern: developed a framework to generate multiple CATIA-based EVE-100 Aircraft (Embraer's eVTOL) configurations for structural testings.

### EDF Lab Paris-Saclay

France, 04/2024 - 09/2024

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.

### Inria Saclay

France, 05/2023 - 08/2023

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).

### State University of Campinas - Unicamp

Brazil, 03/2022 - 07/2022

Managed classes as teaching assistant in Thermodynamics 1 course.

### Private Tutor

Brazil, 10/2021 - 07/2022

Mathematics and physics tutoring for high school and undergraduate students.

## CONFERENCE ABSTRACTS

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- [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.

## 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 teams 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