Raphael Alves Hailer

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Rua Condessa do Pinhal,672 Campinas, SP, Brazil

Education

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

Jet Propulsion Laboratory - NASA Pasadena, CA, 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

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.

Capes - Coordination for the Improvement of Higher Education Personnel Brazil, 08/2022 - 08/2024
Recipient of the France Ingénieur Technologie (BRAFITEC) 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 Brazil, 2021
Third place award for the 1000 meters apogee category in a highly competitive international rocketry competition.

Latin American Space Challenge Brazil, 2020
Second place award for the 500 meters apogee category in a highly competitive international rocketry competition.

Research and Teaching Experience

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

[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

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

Centre national d'études spatiales - CNES France, 09/2023

Intensive course on space science and technology.

Extracurricular Activities

Structures and Aerodynamics Department Leader Antares Aerospace Design Team Unicamp 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.

Structures and Aerodynamics Department Member Antares Aerospace Design Team Unicamp Brazil, 04/2019 02/2020

Responsible for manufacturing the teams 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