Raphael Alves Hailer

Personal Website LinkedIn r223852@dac.unicamp.br +55 13 991178023
Rua Condessa do Pinhal,672 – Campinas, SP, Brazil

Education

State University of Campinas - Unicamp Brazil, 02/2019 - Present
B.Sc. in Mechanical Engineering - Expected graduation: 12/2025 - GPA: 0.9348/1.
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 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

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 awarded to support 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 in the 1000 meters apogee category in an international rocketry competition.
Latin American Space Challenge 2020 Brazil, 2020
2nd place award in the 500 meters apogee category in an international rocketry competition.

Research 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 testing.
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).

Teaching Experience

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

Conference abstracts

[1] WA Hoey et al. "Modeling the Contaminant Footprint of Spacecraft Operating in Near-Vacuum". In: *LPI Contributions* 3090 (2025), p. 2884. DOI: 10.13140/RG.2.2.30992.52484.

Research projects

Pressure Transmissibility in Sedimented Beds Brazil, 05/2025 - Present
•Advisor: Flávio de Campos Bannwart (Unicamp).

Non-Intrusive Polynomial Chaos Expansion Applied to Full-Order Stochastic CFD France, 09/2023 - 03/2024
•Advisor: Mohamed Bouarfa (ArianeGroup).

Extra courses

Centre national d'études spatiales - CNES France, 09/2023
Intensive course on space science and technology (40 hours).

Extracurricular Activities

Structures and Aerodynamics Department Leader - Antares Aerospace Design Team Brazil, 02/2020 - 02/2022
Managed the Structures and Aerodynamics Department members and oversaw all rocket projects for international competitions.

Structures and Aerodynamics Department Member - Antares Aerospace Design Team Brazil, 04/2019 - 02/2020
Responsible for fabricating the team's rockets, selecting materials, and organizing the rockets subsystems. Additionally, Performed numerical simulations to predict the rocket apogees and designed parachutes for recovery systems.

Volunteer Work

Cop1 - Solidarités Étudiantes France, 2023
Contributed with 20 hours of volunteer work, distributing food for students in need.

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