Raphael Alves Hailer

École Nationale Supérieure de Techniques Avancées Paris - ENSTA Paris - France
Universidade Estadual de Campinas (Unicamp) - Brazil
Campinas, Brazil
E-mail Google Scholar ResearchGate ORCID LinkedIn GitHub

Updated: March 15, 2025

Education

Date	Institution	Description
09/2024 – 11/1014	Jet Propulsion Laboratory - NASA	Jet Propulsion Laboratory Visiting Student Research Program (JVSRP)
09/2023 – 03/2024	École Polytechnique de Paris	Parcours D'Approfondissement: Science et Défis du Spatial – Advanced courses taken in space science and challenges
08/2022 – 09/2024	ENSTA Paris	Formation Cycle Ingénieur – Double degree program between ENSTA Paris and Unicamp - Cumulative GPA 4.05/4.3
03/2019 – Present	State University of Campinas - Unicamp	BSc in Mechanical Engineering - GPA 94/100

Professional experience

Period	Company	Area	Role	Activities
01/2025 – 03/2025	Embraer	Research	Intern	Developed a Python automation framework to generate multiple CATIA-based EVE-100 Aircraft (Embraer's eVTOL) configurations for a future drop test validating the landing skids
04/2024 – 09/2024	EDF Lab Paris-Saclay	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
05/2023 – 08/2023	Inria Saclay	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

Teaching experience

Period	Institution	Role	Activities
03/2022 – 07/2022	State University of Campinas	Teaching Assistant	Managed classes and assisted students in Thermodynamics 1 course
10/2021 – 07/2022	———	Private Tutor	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.

Research projects

Title	Participants	Orientor
Non-Intrusive Polynomial Chaos Expansion Applied to Full-Order Stochastic CFD	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)

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

Fundings

Period	Description	Granted by
09/2024 - 12/2024	Tech Fellowship excellence scholarship to conduct a research project at Jet Propulsion Labratory (JPL) - NASA	Fundação Estudar – Brazil
08/2022 - 02/2024	Brazil France Ingénieur Technologie (BRAFITEC) 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 - Antares Aerospace Design Team	Brazilian Space Agency (AEB)

Competition Awards

Year	Competition	Description
2021	*Latin American Space Challenge*	Third place award for the 1000 meters apogee rocket Aurora
2020	*Latin American Space Challenge*	Second place award for the 500 meters apogee rocket Anhangá

Languages

Language	Proficiency level	Certificate
Portuguese	Native	
English	C1	TOEFL iBT - 108/120 – August 8, 2021
French	C1	TCF TP – June 28, 2024

Skills

Engineering softwares	Programming languages	Additional skills
Porous Microstructure Analysis (PuMA) software, Creo Parametric, Code Aster, Salome Meca, Fusion 360, 3DEXPERIENCE (3DX), Microsoft Excel, Microsoft Word and Microsoft Powerpoint	Python, MATLAB and OCTAVE	Experience with LaTex and usage of high performance computing (HPC) cluster

Academic references

Name	Position	Institute	Contact
Pascal Chabert	Professor	École Polytechnique	pascal.chabert@lpp.polytechnique.fr
William Roberto Wolf	Associate professor	Unicamp	wolf@fem.unicamp.br
Marica Pelanti	Assistant professor	ENSTA Paris	marica.pelanti@ensta-paris.fr

Professional references

Name	Position	Company	Contact
William A. Hoey	Engineer	Jet Propulsion Laboratory	william.a.hoey@jpl.nasa.gov
John M. Alred	Engineer	Jet Propulsion Laboratory	john.alred@jpl.nasa.gov
Stéphan Courtin	Engineer	Électricité de France (EDF)	stephan.courtin@edf.fr
Mohammed Bouarfa	Engineer	Ariane Group	mohamed.bouarfa@ariane.group
Pietro Marco Congedo	Research director	Inria Saclay	pietro.congedo@inria.fr