

Andrea Caruso

WORK EXPERIENCE

Radio Science and Planetary Exploration Laboratory - Università di Bologna

City: Forlì | Country: Italy

[May 2021 – Current] **PostDoc - Radio Science Data Analyst**

- Developed extensive expertise in radio occultation techniques for planetary atmospheric analysis.
- Analyzed scientific performance and error budget of radio science experiments, and definition of payload requirements for missions using intersatellite links.
- Contributed to radio science experiments for NASA and ESA space missions, including Cassini, Juno, and upcoming missions Europa Clipper, JUICE, and Uranus Orbiter and Probe.
- Demonstrated strong technical writing skills by publishing research findings in international peer-reviewed journals.
- Proficient in conveying complex technical concepts through presentations at international conferences.
- Cultivated strong interpersonal skills through effective collaboration with research team members and external partners.
- Successfully handling multiple parallel projects under strict deadlines.

Università di Pisa

City: Pisa | Country: Italy

[Nov 2017 – Dec 2020] **Ph.D. Student**

- Acquired experience in Space Mission Analysis and Optimal Control of Spacecraft Trajectories.
- Ability to work autonomously, honed through independent research.
- Problem-solving skills have been cultivated by tackling complex challenges in my academic endeavors, allowing me to face research problems with confidence and creativity.
- Actively pursued continuous professional development via courses and international conferences.
- Proven experience in providing guidance and supervision to students as a Teaching Assistant for courses on Space Flight Dynamics and Control Systems Design.

University of Glasgow

City: Glasgow | Country: United Kingdom

[Jan 2020 – May 2020] **Visiting Research Student**

- I strengthened my software development skills for conducting advanced numerical analyses.
- During my time studying abroad, I had the enriching experience of collaborating with a diverse and inclusive multicultural team.
- Exploring a new city, working alongside colleagues from diverse cultural backgrounds, and embracing different work methodologies throughout my international experience highlighted my remarkable adaptability and my determination to succeed in any dynamic and complex setting.

Termomeccanica SpA

City: La Spezia | Country: Italy

[Feb 2017 – Jul 2017] **Internship**

- Theoretical and practical training activities on turbomachinery design.
- I honed my ability to work effectively in a team by collaborating with fellow interns.

- Developed clear communication skills by presenting work to my supervisor and seeking clarification, enabling rapid comprehension of new concepts.
- I demonstrated a strong inclination to receive and act upon feedback. I adapted my approach based on feedback received to enhance my performance and achieve continuous improvement.

EDUCATION AND TRAINING

[Nov 2017 – 23 Dec 2020]

Dottorato di Ricerca in Ingegneria Industriale

Università di Pisa

City: Pisa | **Country:** Italy | | **Final grade:** Ottimo con Lode | **Thesis:** "Analysis and optimization methodologies of spacecraft trajectories in multi-impulse and low-thrust mission scenarios"

[Oct 2013 – 14 Jun 2016]

Laurea Magistrale in INGEGNERIA AEROSPAZIALE (LM-20)

Università di Pisa

City: Pisa | **Country:** Italy | | **Final grade:** 110/110 e Lode | **Thesis:** "Optimization of Interplanetary Trajectories with Impulsive Maneuvers"

[Oct 2009 – 8 Oct 2013]

Laurea in INGEGNERIA AEROSPAZIALE (L-9)

Università di Pisa

City: Pisa | **Country:** Italy | | **Final grade:** 110/110 e Lode | **Thesis:** "Preliminary Sizing of a Propeller using General Blade Element Theory"

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

SKILLS

MATLAB | Python | Basic understanding of C/C++ programming | Windows | Linux | Microsoft Office | LaTeX

PUBLICATIONS

Full publication record

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57202803205>

Google Scholar: https://scholar.google.com/citations?user=44S_TOEAAA&hl=it&oi=ao

[2025]

The Io plasma torus observed by Juno between 2016 and 2022

Authors: Moirano, Caruso, Mura et al. | **Journal Name:** Astronomy and Astrophysics | **Volume, Issue and Pages:** 699, A53

[2025]

Juno-Derived Electron Density Profiles of the High-Latitude Jovian Ionosphere

Authors: Coffin, Withers, Agiwal et al. | **Journal Name:** Journal of Geophysical Research Space PhysicsOpen source preview | **Volume, Issue and Pages:** 130(6), e2025JA033754

[2025]

Electron Density in Io's Alfvén Wing Observed Via Radio Occultation With Juno

Authors: Buccino, Caruso, Coffin et al. | **Journal Name:** Geophysical Research Letters | **Volume, Issue and Pages:** 52(4), e2024GL111568

[2023]

Radio Occultation Measurements of Europa's Ionosphere From Juno's Close Flyby

Authors: Parisi, Caruso, Buccino et al. | **Journal Name:** Geophysical Research Letters | **Volume, Issue and Pages:** 50(22), e2023GL106637

[2023]

Radio Occultation Data Analysis With Analytical Ray-Tracing

Authors: Caruso, Bourgoin, Togni et al. | **Journal Name:** Radio Science | **Volume, Issue and Pages:** 58(9), e2023RS007740

[2022] **Ganymede's Ionosphere Observed by a Dual-Frequency Radio Occultation With Juno**
Authors: Buccino, Parisi, Gramigna et al. | **Journal Name:** Geophysical Research Letters | **Volume, Issue and Pages:** 49(23), e2022GL098420

CONFERENCES & SEMINARS

Full conference list

https://scholar.google.com/citations?user=44S_TOEAAA&hl=it&oi=ao

[Sep 2025] **EPSC-DPS 2025** Helsinki, Finland

Caruso et al., Characterization of Jupiter's Ionosphere using Juno's Radio Occultation Measurements

Galanti et al., The shape of Jupiter redefined by Juno

[Apr 2025] **EGU 2025** Vienna, Austria

Caruso et al., Radio Occultations with Juno: Unveiling the Structure of Jupiter's Polar Atmosphere and Ionosphere

[Dec 2024] **AGU 2024** Washington, USA

Caruso et al., Probing Jupiter's Atmosphere through Radio Occultations: Methodology and Initial Observations from Juno

[Sep 2024] **EPSC 2024** Berlin, Germany

Caruso et al., Io's Alfvén Wing Electron Density Measured by Juno Radio Occultations

Moirano et al., Moon-induced infrared and ultraviolet auroral emission at Jupiter: overview during the Juno mission

[Apr 2024] **EGU 24**

Caruso et al., Jupiter's atmosphere through Juno's radio occultation experiments

Zannoni et al., Radio science investigations with an Uranus orbiter mission

[May 2023] **EGU 23**

Togni et al., Voyager 2 Radio Occultation of Triton revisited using modernized analysis tools

Firma



Forlì, 6 Oct 2025