



## WORK EXPERIENCE

**15/11/2024 - 20/12/2024** Colleferro, Italy

### **Aerothermal Intern** AVIO spa

- Developed a MATLAB tool for accurate prediction of thermal fluxes on a launcher along any given trajectory
- Conducted CFD analysis (geometry creation, meshing, and simulations) on a complex structure, such as a launcher with protrusions
- Ensured timely completion of tasks and met project deadlines
- Collaborated in a professional company environment

**10/2019 - CURRENT** Roma, Italy

### **Propellant grain Design and Manufacturing** SASA - Sapienza Aerospace Student Association

- Teamwork
- Structural analysis and realization of model rocket with Open Rocket [10/2019 - 06/2022]
- Design and Development of a Hybrid Engine for Space Applications within the Propellant Grain Design and Manufacturing Group [09/2022 - present]

**03/2024 - 05/2024** Roma, Italy

### **Project "Conceptual design of a space mission"** Space Mission Department

- Design of a SmallSat for Earth Observation
- Design and optimization of the propulsion subsystem using MATLAB, with a focus on selecting a green solution
- Presentation of a Preliminary Design Review (PDR) using LaTeX
- Project presentation to an audience
- Teamwork

**09/2023 - 12/2023** Roma, Italy

### **Liquid Engine Design** Propulsion Department

- Design and optimization of components for a Closed Expander Cycle liquid engine using MATLAB
- Team collaboration

**07/2022 - 12/2022** Roma, Italy

### **Telecommunications Subsystem Designer for Satellites** s5la b

- "Fly Your Satellite" International University Competition by ESA
- Designed the TT&C (Telemetry, Tracking, and Command) subsystem for a CubeSat satellite
- Team qualified for the Selection Workshop
- Teamwork

## EDUCATION AND TRAINING

**09/2022 - 24/01/2025** Roma, Italy

### **Laurea Magistrale Space and Astronautical Engineering** Sapienza Università di Roma

The objective was to accurately predict thermal fluxes on a launcher during flight along any given trajectory. The thesis was structured in two main

phases: first, the creation of a Computational Fluid Dynamics (CFD) database for a VEGA-like launcher under realistic flight conditions; second, the development of a MATLAB tool able to perform complex interpolation of CFD data for trajectories different from the simulated one. This work was conducted as part of an internship in the Aerothermal Department at AVIO. This experience provided me the opportunity to work in a collaborative environment, improving both my teamwork and communication skills. Additionally, this role also enhanced my critical thinking and my ability to approach complex problems with a structured methodology. A key challenge was the development of a reliable database to accurately predict heat fluxes, particularly in the supersonic regime, which represents one of the most thermally challenging and risky phases for launcher safety. This analysis was essential for providing accurate data that could support the future design and sizing of thermal protection systems.

**Final grade** 108 / 110 | **Thesis** Accurate prediction of Launch Vehicle Aerothermal loads through Computational Fluid Dynamics

**09/2019 – 10/2022** Roma, Italy

**Laurea triennale in Ingegneria Aerospaziale** Sapienza Università di Roma

**Thesis** Design e ottimizzazione dell'antenna di un Cubesat e della stazione di terra per un link budget terra-luna

## LANGUAGE SKILLS

**MOTHER TONGUE(S):** Italian

**Other language(s):**

**English**

**Listening** C1

**Spoken production** C1

**Reading** C1

**Spoken interaction** C1

**Writing** C1

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*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## SKILLS

ANSYS Fluent | MATLAB | CEA NASA | Marc Mentat | MSC Patran | MSC Nastran | Microsoft Office | LaTeX

## HOBBIES AND INTERESTS

**Scuba Diving**

PADI Advance Open Water Certification