# Matteo Barba

## EDUCATION AND TRAINING

[ Jan 2024 – Current ]

### Space and Astronautical Engineering

*La Sapienza - University of Rome* https://corsidilaurea.uniroma1.it/en/course/33484

**City:** Rome | **Country:** Italy | **Field(s) of study:** Engineering, manufacturing and construction | **Level in EQF:** EQF level 7 | **Type of credits:** CFU | **Number of credits:** 120

Strong technical background in aerospace engineering, with specialised insight in space missions and exploration.

Key competencies include:

- Orbital dynamics and interplanetary trajectory design
- Mission analysis and satellite system architecture.
- Attitude determination and control systems
- Space environment.
- Systems engineering for scientific and exploratory missions.
- Integration of payloads and instrumentation for space applications.
- Team-based conceptual design and mission planning.

An interdisciplinary approach was developed during the course on the design, simulation and execution of modern space missions to tackle the most complex challenges.

[ Sep 2020 – Dec 2023 ]

### Aerospace engineering

*La Sapienza - University of Rome* https://corsidilaurea.uniroma1.it/en/course/33474

**City:** Rome | **Country:** Italy | **Field(s) of study:** Engineering, manufacturing and construction | **Level in EQF:** EQF level 6 | **Type of credits:** CFU | **Number of credits:** 180 | **Thesis:** Study of the Propfan: Efficiency, Design, and Applications

A strong foundation in mathematics, physics, and chemistry, combined with core competencies in industrial, aeronautical, and space engineering.

Key areas of skills include:

- Numerical methods
- Solid and structural mechanics
- Materials science and technology
- Electrical engineering
- Orbital mechanics
- Space instruments
- Applied mechanics

The ability to solve complex engineering problems is supported by an interdisciplinary and analytical approach.

## PROJECTS

[ Nov 2024 – Current ]

### BILAR

I'm currently involved in the BILAR project at S5Lab (Sapienza Space Systems and Space Surveillance Laboratory), in collaboration with a team of Ph.D. and Master's students.

The project focuses on the simulation and inversion of satellite light curves to support attitude reconstruction, contributing to the development of a service for surface brightness characterization based on virtual and experimental data.

My main responsibility lies in the virtual simulation environment, where I use software tools such as Blender and Unity to reconstruct realistic satellite observation scenarios. This includes creating digital twins of observed objects, modeling their geometry and material properties, and simulating

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