



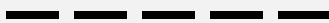
Alessandro Costa

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📍 Via Palestro 20, Brembate di Sopra (BG), Italy

Skills

MATLAB



Simulink



C++



Python



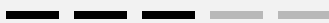
JavaScript



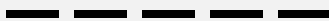
Solidworks



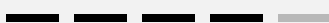
Femap



LaTeX



Git/GitHub/GitLab



Microsoft Windows



Linux



Languages

Italian



English



Education

PhD in Aerospace Engineering

Dec 2024 - Ongoing

Politecnico di Milano

MSc in Space Engineering

Sep 2021 - Apr 2024

Politecnico di Milano

110/110

BSc in Aerospace Engineering

Sep 2017 - Sep 2021

Politecnico di Milano

87/110

High School Diploma

2017

Istituto Superiore G. Maironi da Ponte

87/100

MSc Thesis

**Eclipse-Free Quasi-Halo Orbits Design
with Applications to the LUMIO Mission**

Oct 2023 - Apr 2024

Politecnico di Milano

Design of an innovative and robust optimization method to refine Quasi-Halo orbits into Eclipse-Free trajectories adopting an high-fidelity dynamical model. The results are paired with an exhaustive station-keeping analysis of the obtained orbits, which is implemented together with a massive Monte Carlo analysis. The thesis aims to demonstrate that the Eclipse-Free Quasi-Halo trajectories retain the main features of the initial guesses of the optimization process while minimizing station-keeping costs, eliminating the need for additional eclipse avoidance manoeuvres. The study is applied to the LUMIO mission, a space mission currently under development by the DART Research Group of Politecnico di Milano in collaboration with ESA.

Research Fellowship

**Development of algorithms and systems
for attitude control in hardware-in-the-loop
simulations for the project EXTREMA**

Jun 2024 - Dec 2024

Politecnico di Milano

Development of software and hardware components for the attitude simulation platform STASIS, part of the HIL facility of the DART Research Group: the EXTREMA Simulation Hub. The research focused on attitude control and estimation of the platform using Reaction Wheels and IMU, along with the refinement of the Monitoring and Control Application (MoniCA) for data analysis and validation.

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MSc Projects Experience

ADCS simulation and analysis of a large satellite

2021

Politecnico di Milano

Preliminary design of a sub-optimal interplanetary transfer with flyby

2021

Politecnico di Milano

Preliminary analysis of a perturbed Earth orbit evolution and ground-track estimation

2021

Politecnico di Milano

Reverse engineering of NASA-ESA Ulysses Mission

2021

Politecnico di Milano

Preliminary design of a small scale liquid rocket engine

2021

Politecnico di Milano

Optimization of an impulsive and a continuous guidance problem

2022

Politecnico di Milano

Solution of a navigation problem through batch filter and sequential filters

2022

Politecnico di Milano

A-SMAD course project: ARCHIMEDE

2022

Politecnico di Milano

Preliminary analysis and design of a Space-based Solar Power Generator in Moon's environment exploiting innovative Laser technology. Team leader experience and ADCS responsible. Final presentation held in front of esteemed organizations including ESA and ASI, and renowned companies such as Leonardo, Airbus, OHB, SITAEL, EUMETSAT, and many others

Preliminary structural analysis with finite elements of VEGA launcher coupled with a spacecraft

2023

Politecnico di Milano