Andrea Pizzetti

PhD in Aerospace Engineering

Expertise

Modeling & Simulation • Verification & Validation • HIL Testing • Vision-Based Navigation • Radiometry • Rendering • Autonomous Systems • Statistics & Probability

Coding

MATLAB

Simulink & Stateflow

Python

Java

Software

Office • LaTeX • Git • Confluence • Jira • Blender

Languages

Italian

English   C1

Spanish   B2

French   A1

Interests

▸   Piano

Work Experience

VBN Engineer
Politecnico di Milano | Milan, Italy

– *StarNAV.* Radiometric calibration of the HIL optical facility. Generation of a dataset of STR images.

GNC/AOCS Engineer
Deimos Space | Madrid, Spain

– *ClearSpace-1.* Development of a flexible modes model for the solar panels and robotic arms. Design of orbital estimator with delay management. Design of fully-magnetic controller for safe mode with adaptive spin-stabilization.
– *SAT4EO.* Simulation and verification of requirements during safe mode. Development of guidance algorithms. Modelling of albedo disturbance effect. Definition of commissioning procedures.
– *DRACO.* Analysis of re-entry trajectory for the design of the Attitude Determination System.
– *Comet Interceptor.* Development of a comet dust flow model. Analytical validation of MC campaign with statistical distributions fitted on empiric data.
– *eAOCS, Cassini, LEO-PNT, Endurance.* Preliminary AOCS analysis and sizing.

AOCS Team Leader
PoliSpace | Milan, Italy

– Trade-off analysis, definition, design, simulation and tuning of the AOCS for a 1U CubeSat.
– Interaction with CubeSats hardware providers for procurement and funding.
– Selection of the AOCS team (5 students out of 90 applicants), through assessment of multiple-choice tests, CV/Motivational Letter screening and interviews.

Simulation Engineer
PoliMOVE | Milan, Italy

1st place @ CES, Las Vegas ⤢
– Generation and simulation of scenarios for autonomous racing cars in Ansys.
– Implementation and refinement of car behaviours and trigger conditions.
– Development of an automatic pdf report generation tool from race logs.
– Development and simulation of the state machine for transition to the real vehicle.

Education

PhD in Aerospace Engineering
Politecnico di Milano | Milan, Italy

Design of autonomous vision-based navigation systems and PIL/HIL validation in star trackers applied to the detection, tracking and approach of small bodies in far to mid-range regimes.

MSc in Space Engineering
Politecnico di Milano | Milan, Italy

110/110 Cum Laude
Orbital Mechanics • Spacecraft Attitude & Control • Space Propulsion • Launch Systems • Space Physics • Payload Design • Telecommunication Systems

BSc in Aerospace Engineering
Politecnico di Milano | Milan, Italy

102/110
Thermodynamics and Heat Transfer ● Applied Numerical Analysis ● Aerospace Technologies and Materials ● Aerospace Propulsion ● Fluid Dynamics ● Modelling of Aerospace Structures

Publications

- Pizzetti, A., Fabrizi, A. (2024). Analytical characterization of the off-pointing probability for a spin-stabilized SC subject to random particle impacts. *Proceedings of the 2024 CEAS EuroGNC conference.* 🗗

- Pizzetti, A., Rizza, A., Topputo, F. (2023). Autonomous wheel off-loading strategies for deep-space cubesats. *Aerotecnica Missili & Spazio, 102(1), 3-15.* 🗗

Conferences

- **CEAS EuroGNC Conference** | *Bristol, 2024*

- **ASI CubeSat Workshop** | *Rome, 2022*

- **XVIII PEGASUS Student Conference** | *Pisa, 2022*

- **4th Symposium on Space Educational Activities** | *Barcelona, 2022*
  A student-made approach for CubeSat design: the 6S roadmap 🗗
  Effective student team infrastructure towards CubeSat mission design in pandemic times 🗗

Awards

- **8th place at XVIII Pegasus Student Conference** | *Pisa, 2022*
  Selected for publication in a peer-reviewed journal

- **MATLAB Minidrone Competition** | *Milan, 2020*
  Winning team for the development of an autonomous path tracking and landing control system for minidrones 🗗

- **Best Freshmen of the A.Y.** | *Milan, 2017*

Milan, 29th June 2024