

# Massimo Piazza

## Aerospace Systems Eng. | Computer Vision / AI

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📅 Date of Birth: July 14, 1997    🇮🇹 Citizenship: Italy  
📍 Berlin (Germany)



## Working Experience

### System Budgets Engineer

Rivada Space Networks    rivadaspace.com

📅 Nov 2023 – Oct 2025    📍 Berlin, DE



- Systems Engineer responsible for system-wide technical budgets of a 600-satellite LEO constellation, coordinating closely with performance engineers and contractors; the network of laser-meshed satellites is designed to provide Carrier Ethernet services via regenerative Ka-band phased-array payloads
- Requirements/interface management and cross-segment design integration, across Space/Ground/User segments + V&V support
- Precursor mission support, including ConOps and planning of incremental capability demonstrations
- MBSE modeling support (Capella-based), including development of automated workflows and SW interfaces aimed at improving traceability and removing the human-in-the-loop
- Toolchain integration between E2E simulation, reqs. management, V&V, and MBSE environments

### Lead Spacecraft Navigation Engineer

Infinite Orbits    infiniteorbits.io

📅 Apr 2022 – Nov 2023    📍 Toulouse, FR



- Leading development & integration of onboard software of a proximity navigation camera / star tracker
- Systems engineering: AIV/AIT support, reqs. management, agile PM, documentation, procurement, contract reviews
- Deep learning-based pose estimation (CNNs) & Kalman filtering
- Synthetic image generation (Blender/UE5 + flight dynamics sim.)
- Development of software for star tracker online calibration and performance characterization
- Integration & testing of GEO flight dynamics software
- Project coordinator for a R&D contract awarded by CNES
- 7-DoF robotic testbed integration, calibration, operations
- Business development support for proposal writing & tracking of US federal grant/contract opportunities
- Other: product management, recruiting, building optical testbeds

### Computer Vision Engineer

Infinite Orbits

📅 Jan 2021 – Mar 2022    📍 Toulouse, FR

- Development of an image processing pipeline (Matlab/Simulink) for angles-only navigation, enabling detection and tracking of resident space objects
- Auto-coding & HIL testing of image processing and estimation algorithms (Xilinx target hardware + FreeRTOS)
- Development of orbit determination software (Orekit-based)
- Other: link budgets, high-fidelity SRP & power generation modeling
- Founding engineer (#6)

## Education

### MSc in Space Engineering

Politecnico di Milano

📅 Sep 2018 – Dec 2020



Thesis: "Deep learning-based monocular relative pose estimation of uncooperative spacecraft"  
(English taught)

### BSc in Aerospace Engineering

Politecnico di Milano

📅 Oct 2015 – Sep 2018

Final project: "Falcon 9 2<sup>nd</sup> stage redesign using LOX/LH<sub>2</sub> bipropellant"

## Publications

### Journal papers

- M. Piazza *et al.*, "Monocular relative pose estimation pipeline for uncooperative resident space objects," *AIAA (JAIS)*, pp. 1–20, 2022.

### Conference proceedings

- D. Kaidanovic, M. Piazza, *et al.*, "Deep learning based relative navigation about uncooperative space objects," in *73rd International Astronautical Congress*, 2022.
- F. Ventre, ..., M. Piazza, *et al.*, "Phase-A design of a Mars south pole exploration mission: MARS PENGUIN," in *73rd International Astronautical Congress*, 2022.
- M. Piazza *et al.*, "Deep learning-based monocular relative pose estimation of uncooperative spacecraft," in *8th European Conference on Space Debris, ESA/ESOC*, 2021.

### Peer-review activity

- Peer-reviewer for scientific journals, including: *Advances in Space Research (Elsevier)* and *Journal of Aerospace Information Systems (AIAA)*

## Early Working Experience

### Co-founder & CTO

#### WatchApp, Inc.

Jan 2015 – Aug 2019

Lewes, DE, USA



- Wrote the entire source-code of the mobile apps released by the startup ([Canvas Keyboard](#), [Everboard](#))
- Development of handwriting recognition algorithms and integration of several REST APIs

## Project Experience

### Telemetry & Telecommand Engineer

#### MARs South Pole Exploration and Geysers in-situ Investigation (MARS-PENGUIN)

Mar 2020 – Jul 2020

Milan, IT

- **Phase-A design** of a rover mission to the south pole of Mars, aimed at collecting soil samples and performing in-situ investigation of geyser phenomena
- TMTCC design and link budget analysis involving: cruise, EDL and Martian surface operations

### Head of Aerodynamics and Flight Dynamics

#### Skyward Experimental Rocketry

Oct 2017 – Jul 2018 (Head)

Milan, IT



Oct 2016 – Sep 2017 (Dept. member)

- Carried out flight dynamics simulations and CFD analyses, aimed at designing a jet-powered UAV (project Cyrano)
- Interviewed ~50 people and selected new team members

## Skills & Background

### Advanced

Astrodynamics Propulsion Systems AOCS  
Telecommunications Systems Engineering  
Structural Dynamics Machine Learning Computer Vision  
Orbit Determination Attitude Determination

Matlab Simulink  $\LaTeX$  Git Unix Python PyTorch  
C Objective-C Auto-coding Orekit Valispace Xcode  
CEA Adobe Illustrator/Photoshop/Premiere Pro MS Office  
Jira/Confluence

### Intermediate

GNC Flight Dynamics Aerodynamics Remote Sensing  
Signal Processing Optics LLMs

OpenCV Blender SolidWorks Solid Edge  
Autodesk Inventor Vitis (Xilinx) Capella MBSE HTML/CSS

## Patents

WO 2023094347 (issued Nov 24, 2023)  
Vision-based Autonomous Navigation System and Method for a Satellite

## Accomplishments

- Pose Estimation Challenge, **ESA** (2020)
- “Best Freshmen of the A.Y. 2015/16” – Politecnico di Milano (Mar 2017)
- Apple's **20 Under 20** (Jun 2015)
- Smau App Awards – Rome (2014)
- Smau App Awards – Milan (2013)

## Certifications

- “**Agile Systems Engineering**” by UC Boulder
- “**Deep Learning Specialization (5 courses)**” by deeplearning.ai
- “**Machine Learning**” by Stanford University
- “**Generative AI with LLMs**” by AWS
- “**Private Equity & Venture Capital**” by Bocconi University
- “**Agile Project Management**” by Google
- “**Finance for Managers**” by IESE Business School
- GRE:<sup>(2017)</sup> 309/340 (Q:159 - V:150)

## Languages

**English:** full professional proficiency

**Italian:** mother tongue

**French:** limited working proficiency

**German:** elementary proficiency

## Other Interests

### Music education

- Studied at Conservatory “A. Scarlatti”  
Classical Guitar (8 years)  
Musical Composition (4 years)
- Winner of multiple national and international classical music competitions

### Various

Entrepreneurship Venture Capital  
Financial markets Geopolitics  
Artificial Intelligence NewSpace