

Massimo Piazza

Aerospace Engineer

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📍 Berlin (Germany)

📅 Date of Birth: July 14, 1997

🇮🇹 Citizenship: Italy



Working Experience

System Budgets Engineer

Rivada Space Networks 🔗 rivadaspace.com

📅 Nov 2023 – Ongoing

📍 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 activities: AIV/AIT support, requirements management, PM, documentation, procurement, contract reviews
- Development of software for star tracker online calibration and performance characterization
- Deep learning-based pose estimation & Kalman filtering
- Integration & testing of GEO flight dynamics software
- Project coordinator for a R&D contract awarded by CNES
- Use of a robotic testbed for HIL testing (calibration, integration and post-processing)
- Business development support for proposal writing and tracking of US federal grant/contract opportunities
- Other: Agile PM, product management, recruiting, 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
- Early employee (#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 2nd stage redesign using LOX/LH₂ 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

CTO & Co-founder

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
- TMTC design and link budget analysis involving: cruise, EDL and Martian surface operations

Head of Aerodynamics and Flight Dynamics

Skyward Experimental Rocketry  skywarder.eu

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

Aerodynamics

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

MS Office

Adobe Illustrator/Photoshop/Premiere Pro

Intermediate

GNC

Flight Dynamics

Aerodynamics

Remote Sensing

Signal Processing

Optics

LLMs

OpenCV

Blender

SolidWorks

Solid Edge

Autodesk Inventor

Vitis (Xilinx)

Capella MBSE

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

- “**Deep Learning Specialization (5 courses)**” by deeplearning.ai on Coursera
- “**Machine Learning**” by Stanford University on Coursera
- “**Generative AI with LLMs**” by AWS on Coursera
- “**Private Equity & Venture Capital**” by Bocconi University on Coursera
- “**Agile Project Management**” by Google on Coursera
- “**Finance for Managers**” by IESE Business School on Coursera
- GRE:⁽²⁰¹⁷⁾ 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