



Alfredo Locarini

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● WORK EXPERIENCE

07/2021 – CURRENT Forlì, Italy

CEO & PROJECT MANAGER NAUTILUS - NAVIGATION IN SPACE

- Company administration
- Business development
- Program and project management.
- Coordination of space system engineering activities.

02/2018 – CURRENT Forlì, Italy

ADJUNCT PROFESSOR ALMA MATER STUDIORUM - UNIVERSITÀ DI BOLOGNA

Lecturer of "Spacecrafts and Space Missions" (6 CFU), B.Sc. in Aerospace Engineering.

Subject:

- satellites architectures and design
- space project lifecycle
- ADCS
- power system
- thermal design
- telecommunications
- electronics for space
- structures
- propulsion

11/2017 – 10/2023 Forlì, Italy

POSTDOCTORAL RESEARCHER DIN/CIRI-AEROSPACE, UNIVERSITÀ DI BOLOGNA

Responsible for several private and public, national and European, projects focused on:

- small satellites subsystems design
- on board autonomous GNSS navigation
- mission analysis
- mission design
- requirements management
- collision avoidance
- deep space communication architectures.

07/2017 – 12/2017 Nottingham, United Kingdom

VISITING PH.D. RESEARCHER NOTTINGHAM GEOSPATIAL INSTITUTE

Validation of GNSS navigation systems for satellites in LEO.

Study of estimation techniques and filters for autonomous navigation.

11/2014 – 10/2017 Forlì, Italy

PHD RESEARCH FELLOW ALMA MATER STUDIORUM - UNIVERSITÀ DI BOLOGNA

Research activities in the field of:

- GNSS
- Navigation filters
- Autonomous navigation
- Ground Segment and operations

2012 – 2013 Forli, Italy

BUSINESS DEVELOPER SPACEMIND STARTUP- SPINNER CONSORTIUM

Development of a business idea on nano- space systems, funded by the Startup Spinner Program 2013 call, with the "SPACEMIND" project, with particular focus on de-orbiting systems and mitigation of the space debris problem.

2013 – 2014 Imola, Italy

SPACE SYSTEMS R&D ENGINEER NPC SPACEMIND

R&D activities on cubesat technologies. Focus on de-orbiting systems, active debris removal, innovative cubesat structures and materials and ground-based optical debris monitoring solutions.

● **EDUCATION AND TRAINING**

10/2023 – CURRENT Rome, Italy

MASTER IN BUSINESS ADMINISTRATION Rome Business School

10/2022 – 09/2023 Rome, Italy

MASTER IN PROJECT MANAGEMENT Rome Business School

2014 – 2018 Forli, Italy

PH.D. IN MECHANICS AND ADVANCED ENGINEERING SCIENCES - AEROSPACE SYSTEMS Alma Mater Studiorum - Università di Bologna

Thesis "Design, Development and Testing of a GPS-Based Navigation sub-System for Microsatellites Missions".

2011 – 2014 Forli, Italy

MASTER OF SCIENCE IN AEROSPACE ENGINEERING Alma Mater Studiorum - Università di Bologna

Final grade 110/110 CUM LAUDE | **Thesis** "Design of a GNSS receiver for the ESEO Mission"

2013

HIGH FORMATION COURSE "EUROPEAN STUDENT EARTH ORBITER (ESEO): STUDENT TRAINING (LECTURE AND TRAINING COURSE)" Università di Bologna - ESA

2007 – 2011 Forli, Italy

BACHELOR OF SCIENCE IN AEROSPACE ENGINEERING Alma Mater Studiorum - Università di Bologna

Final grade 110/110 CUM LAUDE |

Thesis "Autonomous space debris observation with the ALMASCOPE optical telescope"

● **LANGUAGE SKILLS**

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **DIGITAL SKILLS**

Catia V5 | Microsoft Office | Solidworks | GMAT | Matlab | Orbitron | Eagle | Altium Designer | C / C++ Language | Python | Ansys | NAIF Spice | Project Libre | ValiSpace | MS Project

● **ADDITIONAL INFORMATION**

HONOURS AND AWARDS

2021

First Place in the Telespazio Technology Contest T-TEC 2021 - Telespazio "Multi-Purpose Modular Satellite Servicer" project.

2014

First place in the 3rd Mission Idea Contest (MIC) - UNISEC-Global "Cloud Height Mission" project.

2014

Third place in the Canadian Satellite Design Challenge (CSDC) competition - CSDC Consortium
Development of a 3U cubesat for polar regions monitoring, in collaboration with the École Polytechnique de Montréal.

Publications

- Modenini, D., Curzi, G., Locarini, A., Tortora, P., Cicalò, S., Bertolucci, A., ... & Cardone, M. (2023, September). ABACO, An Autonomous Board for Avoiding Collisions. In *Proceedings of the Advanced Maui Optical and Space Surveillance (AMOS) Technologies Conference* (p. 145).
- Modenini, D., Locarini, A., Valentini, L., Faedi, A., Tortora, P., Rovelli, D., ... & Paolini, E. (2022). Two-leg deep-space relay architectures: Performance, challenges, and perspectives. *IEEE Transactions on Aerospace and Electronic Systems*, 58(5), 3840-3858.
- Fabiani, S., Baffo, I., Bonomo, S., Contini, G., Costa, E., Cucinella, G.,..., Locarini, A., ... & Zambardi, A. (2022, August). CUSP: a two CubeSats constellation for space weather and solar flares x-ray polarimetry. In *Space Telescopes and Instrumentation 2022: Ultraviolet to Gamma Ray* (Vol. 12181, pp. 106-114). SPIE.
- Curzi G., Modenini, D.; Locarini, A.; "Relations Between Collision Probability, Mahalanobis Distance, and Confidence Intervals for Conjunction Assessment", «Journal of Spacecraft and Rockets», 2022, <https://doi.org/10.2514/1.A35234>
- Modenini, D.; Locarini, A.; Zannoni, M., "Attitude Sensor from Ellipsoid Observations: A Numerical and Experimental Validation", «SENSORS», 2020, 20, pp. 1 – 17
- Curzi G., Lucci A., Locarini A., Modenini D., Tortora P., Mariotti G., Cinarelli D., Fabbri V., Melega N., "Lessons learnt from operating ESEO educational spacecraft", Proceedings of 3rd Symposium on Space Educational Activities, Leicester, UK, 16 – 18 September 2019
- Lucci A., Locarini A., Modenini D., Tortora P., "Ground Segment Solutions for the ESA ESEO Educational Mission", Proceedings of 2nd Symposium on Space Educational Activities, Budapest, Hungary, 11 – 13 April 2018
- Locarini A., Modenini D., Tortora P., "GPS-based Navigation Solution for the ESA ESEO Educational Mission", Proceedings of 2nd Symposium on Space Educational Activities, Budapest, Hungary, 11 – 13 April 2018
- Locarini A., Avanzi A., Modenini D., Tortora P., "On-board precise GPS navigation solution for small satellite missions", AIDAA 2017 XXIV International Conference, Palermo/Enna, Italy, 18 – 22 September 2017
- Locarini A., Lucci A., Modenini D., Tortora P., "Ground segment solutions for small satellites", AIDAA 2017 XXIV International Conference, Palermo/Enna, Italy, 18 – 22 September 2017
- Modenini D., Locarini A., Avanzi A., Tortora P., "A Comparative Analysis of GPS-based Algorithms for Real-Time Navigation of Small Satellites", pp.1-9, n Final Proceedings Small Satellites, System & Services Symposium (45), 30 May – 3 June 2016, Valletta, Malta
- Locarini A., Avanzi A., Tortora P., "Development and Test Campaign of a GPS-Based Navigation Sub-System for the ESEO Mission", 3rd Metrology for Aerospace, Florence, Italy, 22 – 23 June 2016
- Modenini D., Bosco M., Locarini A., Tortora P., "Space Engineering and Small Satellites Education Activities at University of Bologna", 1st Symposium on Space Educational Activities, Padova, 9 – 10 December 2015
- Avanzi A., Locarini A., Tortora P., "Real-time precise orbit determination of the ESA ESEO spacecraft," 10th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany, April 20-24, 2015, paper: IAA-B10-1405P
- Valdatta M., Bellini N., Locarini A., Naldi S., Rastelli D., "A compact storage deorbiting sail for cubesat applications", IAC-14,A6,4,2,x25439, 65th International Astronautical Congress, Toronto, Canada, 29 September – 3 October 2014.
- Bellini N., Locarini A., Naldi S., Rastelli D., Valdatta M., Piergentili F., "A space debris "cleaner kit" based on polyuretanic foams", IAC-13,A6,P,29.p1,x17013, 64th International Astronautical Congress, Beijing, China, 21 – 27 September 2013.
- Smyth M., Bellini N., Bourbeau E., Buffet A., Guay A., Labbé A., Locarini A., Naldi S., Panerati J., Rastelli D., Valdatta M., "3U cubesat for Canadian Satellite Design Challenge: A Polytechnique