

# Simone Andolfo



**Date of birth:** 26/06/1996

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## Education

2020 — present **Ph.D. Aeronautical and Space Engineering**

Sapienza – University of Rome

Thesis subject: use of imaging data to improve the navigation of interplanetary probes (*e.g.*, rovers); image processing techniques to produce Digital Elevation Model (DEM) of planetary surfaces

Supervisor: Professor Antonio Genova

2018 — 2020 **Master's Degree, Space and Astronautical Engineering**

Sapienza – University of Rome

110/110 with honors

Thesis: Localization of Planetary Exploration Rovers by using Visual Odometry

Supervisor: Professor Antonio Genova

2015 — 2018 **Bachelor's Degree, Aerospace Engineering**

Sapienza – University of Rome

110/110 with honors.

Thesis: Divergence and flutter issues related to aeroelastic stability

(Il problema della divergenza e del flutter nello studio della stabilità aeroelastica)

Supervisor: Professor Paolo Gasbarri

2010 — 2015 **High School Diploma, Scientific Curriculum**

Liceo Scientifico “E. Majorana”

100/100 with honors

## Personal skills

**Digital skills** Programming languages: MATLAB, Python, PyTorch, TensorFlow, ROS-Gazebo, MSC Software, Microsoft Office, IDM-CIC, C++.

**Organizational and managerial skills** Teamwork, leadership, risk/benefit assessment

**Mother tongue(s)** Italian

Foreign language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Spanish	C1	C1	B2	B2	B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user  
[Common European Framework of Reference for Languages - Self-assessment grid](#)

## Additional information

**Honors and awards**

- 2020 Excellence Path in Space Engineering, University of Rome “La Sapienza”
- 2015 Excellence Path in Aerospace Engineering, University of Rome “La Sapienza”
- 2015 – 2020 Sapienza Deserving Student, University of Rome “La Sapienza”
- 2015 “Alfiere del Lavoro” award for High School Excellence
- 2014 Participation to the final phase of the Italian Mathematical Olympiad

**Projects**

- 2018 – 2019 Teamwork preliminary design of a space mission: ERMES (Efficient Routing Mars-Earth Satellites)
- 2017 – 2018 Space Propulsion Laboratory: design, assembling and launch of a model rocket

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## Publications

Andolfo, S., Gargiulo, A. M., Di Stefano, I., Petricca, F., Genova, A. (2021). “Safe navigation and visual odometry-based localization for planetary exploration rovers”. Abstract presented at *European Geoscience Union (EGU) General Assembly 2021*.

Andolfo, S., Petricca, F., Genova, A. (2021). “Rovers Localization by using 3D-to-3D and 3D-to-2D Visual Odometry”. Proceedings of *2021 IEEE 8th International Workshop on Metrology for AeroSpace (MetroAeroSpace)*, pp. 334–339.

Andolfo, S., Petricca, F., Genova, A. (2022). “Estimation of the NASA Mars2020 Perseverance rover path through Visual Odometry”. Abstract presented at *European Geoscience Union (EGU) General Assembly 2022*.

Andolfo, S., Petricca, F., & Genova, A. (2022). “Visual Odometry analysis of the NASA Mars 2020 Perseverance rover’s images”. Proceedings of *2022 IEEE 9th International Workshop on Metrology for AeroSpace (MetroAeroSpace)*, pp. 287–292.

Andolfo, S., Del Vecchio, E., Gargiulo, A. M., Petricca, F., & Genova, A. (2022). “Semi-Autonomous Guidance, Navigation and Control System for Planetary Rovers”. *73rd International Astronautical Congress (IAC) 2022*.

Tomasicchio, G., Gargiulo, A. M., Genova, A., Marsella, M., Andolfo, S., Del Vecchio, E., Petricca, F., Rodriguez, F., & Albanese, C. (2022). “Lunar Surface exploration based on LCNS orbiters and Onboard Sensor observables”. *73rd International Astronautical Congress (IAC) 2022*.

Sulcanese, D., Mitri, G., Genova, A., Petricca, F., Andolfo, S., Chiarolanza, G. (2022). “Topographical analysis of a candidate subglacial water region in Ultimi Scopuli, Mars”. *Icarus*, 392. <https://doi.org/10.1016/j.icarus.2022.115394>

Genova, A., Gossens, S., Del Vecchio, E., Petricca, F., & Andolfo, S. (2022). “Mercury’s crustal density and porosity from MESSENGER gravity data”. *AGU Fall Meeting 2022*.

Andolfo, S., Petricca, F., & Genova, A. (2022). “Localization of the Perseverance Rover at the Van Zyl Overlook Region by using Visual Odometry”. *AGU Fall Meeting 2022*.

Andolfo, S., & Genova, A. (2022). “Design of a Software for Imaging Data Processing devoted to Autonomous Spacecraft Navigation and Orbit Determination”. *AGU Fall Meeting 2022*.

Andolfo, S., Petricca, F., & Genova, A. (2022). “Precise pose estimation of the NASA Mars 2020 Perseverance rover through a stereo-vision based approach”. *Journal of Field Robotics*, 1– 17. <https://doi.org/10.1002/rob.22138>

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