

GIUSEPPE GOVERNALE

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EXPERIENCE

Research Fellow - Politecnico di Torino

Nov. 2018 - *Current*

Technology Development Roadmaps for Space Exploration

Trade-off, risk assessment, prioritisation, technology context, database development, sensitivity analysis.

- EFESTO - European Flexible hEat Shields advanced TPS design and tests for future in-Orbit demonstration *European Union's Horizon 2020 research and innovation programme under grant agreement No 821801.*
- Mini-microlauncher costs and systems evaluation and trade-off, *ESA Express Procurement*
- Strategies and methodologies to generate and update sustainable TRL increase paths applied to future reusable space transportation systems, *ESA contract.*
- Technology Roadmaps for Exploration: Methodologies and Tools to enhance current Roadmapping Instruments, *ESA contract.*

Scientific Responsible Nicole Viola, Department of Mechanical and Aerospace Engineering

Space Systems - Thales Alenia Space, ISAE-Supaero, University of Leicester

March - October 2018

6-months internship within the SEEDS Specializing Master Programme

- Mission design of the LUnar Propellant Outpost (LUPO) 30 years lifetime programme, pre-phase A study.
- Multiple reviews and Concurrent Design Facility (CDF) sessions at ESA ESTEC, Noordwijk, NL.
- Main roles and activities: systems engineering, programmatics and timeline, risks assessment, technology development roadmap definition, project management for a 39 students working team.

Locations Thales Alenia Space and Altec - Italy, ISAE Supaero - France, University of Leicester - UK.

Affiliate - NASA Jet Propulsion Laboratory, California Institute of Technology

Sep. 2016 - Jul. 2017

JPL Visiting Student Research Program - Robotic Systems Estimation, Decision, and Control Group

- Thermal Analysis of deployable solar reflectors for the lunar environment - NASA Innovative Advanced Concept
- Feasibility study of the lunar application for thermal storage solutions.

Mentor Adrian Stoica, Supervisor, Robotic Systems Estimation, Decision, and Control Group (347E)

Mission Designer - Politecnico di Torino

February - June 2016

Team Project

- Mission design of an interplanetary CubeSats mission for asteroid exploration.
- In charge for the decision analysis processes, the architectures and ConOps trade-offs, the mission baseline and the mission timeline.

Thermal Analysis Group - Team DIANA for Google Lunar X-Prize

Oct. 2012 - Jul. 2015

Student team, part of the Italian team Amalia

- Thermal control for a lunar rover by active and passive systems.
- Lunar thermal mapping and line-of-sight communications.

TEACHING EXPERIENCE

Space exploration systems II - Politecnico di Torino, Italy

January 2019

Lectures - II Level Master in Space Exploration And Development Systems

Space mission design project work - Altec, Politecnico di Torino, Italy

March - May 2019

Tutoring - II Level Master in Space Exploration And Development Systems

Space Concepts - California State University Long Beach, USA

June 2017

Lecture - Robotics Department, Students and Research Group

EDUCATION

2nd level Specializing Master in Space Exploration and Development Systems Nov. 2017 - Oct. 2018
Politecnico di Torino, Italy — ISAE of Toulouse, France — University of Leicester, UK
Human and robotic exploration of space and the related missions, systems, and technologies.
Scholarship holder

MS in Aerospace Engineering for Space Systems *Graduated on July 2017*
Politecnico di Torino, Italy
Thesis: Lunar south pole thermal modeling and analysis. Satellite topographic data and terrain thermal properties integration.
Advisors Sabrina Corpino, Politecnico di Torino Adrian Stoica, NASA JPL

BS in Aerospace Engineering *Graduated on July 2014*
Politecnico di Torino, Italy
Thesis: Heat exchange and thermal control of a lunar exploration rover.
Advisors Umberto Lucia and Marco Carlo Masoero, Politecnico di Torino.

TRAININGS

Lifecycle, Processes & Systems Engineering at NASA, JPL	May 2017
Thermal Design at NASA, JPL	April 2017
Requirements Development and Management at NASA, JPL	April 2017
Mechanical Fabrication and Assembly at NASA, JPL	March 2017
Quality Assurance of Hardware at NASA, JPL	March 2017
Launch and Orbital Mechanics at NASA, JPL	February 2017
Materials and Processes at NASA, JPL	February 2017
Cleanroom Fundamentals Certification at NASA, JPL	November 2016
Reliability Analyses at NASA, JPL	November 2016
Bias in Decision Making at NASA, JPL	November 2016
Environmental Assurance at NASA, JPL	October 2016

SKILLS

Languages	Italian <i>Native</i> English <i>Fluent</i> Spanish <i>Intermediate</i> French, Portuguese <i>Basic</i>
Computer	<i>Proficient</i> MS Project, OCDT Concorde, MATLAB and Simulink C&R Thermal Desktop, GMAT, STK (Agi), AutoCAD, Siemens NX <i>Familiar</i> SolidWorks, Blender, Adams, Patran and MSC Nastran DOORS (IBM), Capella, Python, Comsol Multiphysics, Catia, Linux <i>Beginner</i> C/C++, ROS, Fortran, Visual Basics, Embedded Systems
Other Skills	Technical writing, Leadership, Assertiveness, Problem solving, Decision making, 3D printing

PUBLICATIONS

Acta Astronautica Journal, under review - submitted Feb. 2019
System architecture and gnc algorithms for lunar surface precision landing and transfer trajectories optimization.

Acta Astronautica Journal Volume 154, January 2019, Pages 238-255
Interplanetary CubeSats for asteroid exploration: Mission analysis and design.

69th International Astronautical Congress (IAC), October 1-5, 2018 Bremen, Germany.
Lunar outpost sustaining human space exploration by utilizing in-situ resources with a focus on propellant production.
International cooperation and general public involvement for future lunar missions.
System architecture and gnc algorithms for lunar surface precision landing and transfer trajectories optimization.

10th IAA Symposium, June 27-29, 2017 Torino, Italy.
Interplanetary CubeSats for Asteroid Exploration: Mission Analysis and Design.