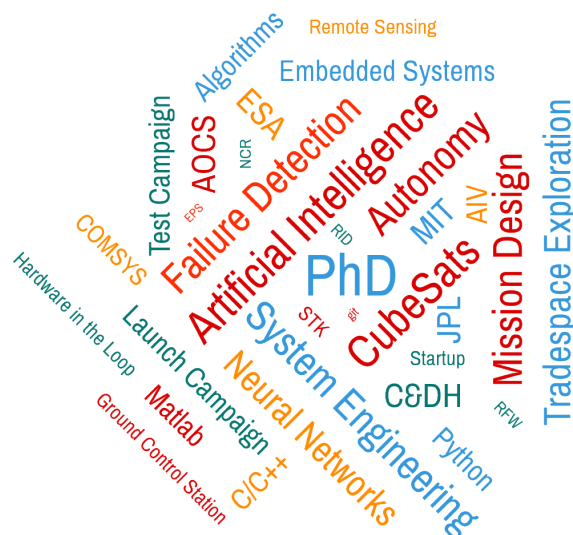


PhD Candidate at Politecnico di Torino

in *lorenzoferuglio*



2014–now **PhD Candidate, Aerospace Engineering, Politecnico di Torino, Torino, Mentor: Sabrina Corpino.**

2016 Visiting Student Researcher (JVS RP) at **Jet Propulsion Laboratory (JPL)** for Mission Autonomy Research (Section 332H - Alessandra Babuscia)

2015 Visiting Student Researcher (JVS RP) at **Jet Propulsion Laboratory (JPL)** for Mission Autonomy Research (Section 332H - Kar-Ming Cheung)

2014 Exchange student at **Massachusetts Institute of Technology** 'CubeSat for Space Exploration: a new paradigm for Planetary Science Missions' (EAPS - Sara Seager)

2009–2012 **Aerospace Engineering, Politecnico di Torino, Torino, Master of Science.**
Graduated with Honors

2006–2009 **Aerospace Engineering, Politecnico di Torino, Torino, Bachelor's Degree.**

<i>research</i>	Autonomous Space Systems, Artificial Intelligence
<i>experience</i>	Six years and counting of <i>hands-on</i> experience with CubeSats Polito CubeSat Team Leader for C&DH, AOCS and GCS design
<i>knowledge</i>	CubeSat design, Space Systems Engineering, Subsystems (AOCS, C&DH, COMSYS) Algorithm design, STK, Matlab/Simulink, Python, C/C++, ESA-DRAMA, ECSS
<i>hands-on projects</i>	e-st@r CubeSat AIT (Hardware in the Loop simulations) e-st@rII CubeSat from design phase to LEOP and Commissioning 3-STAR CubeSat for GNSS Remote Sensing and Earth Imaging

Experience

PhD Student - Space System Engineering

- 2014–now **Mission Autonomy**, *Politecnico di Torino*, Torino.
Methodologies and Technologies to Improve Small Satellites Space Mission Autonomy
Current field of research:
- Neural networks for image quality assessment and event detection
 - Fuzzy logics for failure detection of actuators
 - Definition of case studies (Interplanetary CubeSats) in order to investigate on mission autonomy-enhancing technologies
 - Genetic Algorithms to optimize Multi-Attribute Tradespace Exploration problems
 - Hardware-In-The-Loop testing of training algorithms for neural networks for asteroid recognition

Space System Engineer

- 2013–2014 **Assistant Researcher**, *Politecnico di Torino*, Torino.
Capture and De-Orbiting Technologies.
Field of Research:
- Development of a Simulator Technology to perform mission analyses and In-The-Loop simulations
 - Research on GNC strategies for the latest phases of a rendez-vous and mating manoeuvre
 - Attitude Determination and Control Algorithms testing on specific hardware (ARM architecture)
 - Code development and upgrading for ADCS and OBC subsystems (e-st@rII CubeSat)
 - e-st@r-II CubeSat Subsystem and System Functional Testing
- 2012–2013 **Operation Architecture Engineer**, *SES (contractor)*, Luxembourg.
Efficient Automation of Satellite Operations (EASO Project).
Detailed achievements:
- Development, verification and validation of automated procedures for Satellite Operations
 - Payload and Bus operation procedures for the SES Orbital fleet:
 - Dynamic Satellite Simulators (Orbital)
 - AOCS, TCR, TCS, EPS, CDH procedures development and subsystem analysis by means of DSS
 - Ground Control Station Software (SCORPIO)
 - SPELL, Python, Eclipse
- 2009–2012 **Polito CubeSat Team - Team member**, *Politecnico di Torino*, Italy.
Member of the University CubeSat Team, developing and launching 1U+ CubeSats.
Detailed achievements:
- Satellite (1U and 3U CubeSat) experience:
 - System Engineering methodologies
 - ADCS, C&DH Subsystem development and testing
 - CubeSat functional testing (test definition and execution)
 - ECSS standards for software development and testing
 - Real-time OS (Salvo, RTLinux)

Skills

Analysis	STK, Dynamic Satellite Simulation (AOCS, Failure Detection Systems), Space Debris Mitigation, Optimizations Techniques
System Eng	ECSS, Multi-Attribute Tradespace Exploration, Satellite System Budgets, Mission Design and Functional Analysis
Programming	Matlab/Simulink, Python, C/C++, Data Driven and Test Driven Development, SysML, UML, git
Embedded	MPS430, ARM9, Raspberry-Pi, Satellite Hardware-In-The-Loop Testing
Miscellaneous	MS Office, Visio, LaTeX
OS	UNIX (Ubuntu), RTLinux, Windows
Languages	Italian (Mother language), English, basic French and German