Alessandro Montanari

WORK EXPERIENCE

05/2022 – 09/2023 Rome, Italy
POSTGRADUATE FELLOWSHIP CRAS (CENTRE OF AEROSPACE RESEARCH OF SAPIENZA)

Topic: Models for transient analysis of liquid rocket engines and their feed systems.

EDUCATION AND TRAINING

09/2019 – 03/2022 Rome, Italy
MASTER'S DEGREE IN SPACE AND ASTRONAUTICAL ENGINEERING Sapienza University of Rome

Combustion - Control Systems - Electronics - Gasdynamics - Hypersonics - Liquid Rocket Engines - Space Flight Mechanics - Space Missions and Systems - Space Power Systems - Space Propulsion - Solid Rocket Motors - Space Structures - Turbulence

Final grade 110/110 cum Laude ╎ **Level in EQF** EQF level 7 ╎

Thesis Analysis of combustion instability in LOX/CH4 liquid rocket engines by a real-fluid low-order model

09/2016 – 12/2019 Rome, Italy
BACHELOR'S DEGREE IN AEROSPACE ENGINEERING Sapienza University of Rome

Aerodynamics - Aerospace Materials - Aerospace Propulsion - Aerospace Structures - Applied Mechanics - Calculus - Chemistry - Continuum Mechanics - Electric Systems - Flight Mechanics - Geometry - Microeconomics - Numerical Analysis - Physics - Space Environment - Telecommunication - Space Systems

Final grade 110/110 cum Laude ╎ **Level in EQF** EQF level 6 ╎ **Thesis** Numerical Simulation of Ground Effect

2011 – 2016 Rome, Italy
HIGH SCHOOL DIPLOMA Liceo Scientifico Morgagni

Final grade 100/100

DIGITAL SKILLS

Programming languages

Fortran ╎ Python

Operating systems

Windows ╎ Linux

Software

Microsoft Office ╎ LaTeX ╎ Simulink ╎ Ansys Fluent ╎ Tecplot 360 ╎ Solid Edge ╎ MATLAB

LANGUAGE SKILLS

Mother tongue(s):   **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
SPANISH	B1	B1	B1	B1	B1

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

ADDITIONAL INFORMATION

PROJECTS

03/2020 – 06/2020
L.O.S.T. - Lunar Orbiting Satellites for Telecommunications Space mission concept developed as a group assignment during the Master's studies. It consisted in a three-satellite lunar constellation for TLC purposes, whose design interested the subsystems of the spacecrafts, as well as the stakeholders, clients and costs analyses.

03/2019 – 06/2019
Sapienza Rocketry Challenge Rocketry competition organized by Sapienza University of Rome in collaboration with Avio. The final goal was the realization of a mini-rocket, whose development was accompanied by detailed documentation (Preliminary Design Review/Critical Design Review/Post-Flight Analysis).

HONOURS AND AWARDS

Meritorious student – Sapienza University of Rome Exemption from tuition fees achieved during both Bachelor's and Master's studies by virtue of marks always above 27/30.

COURSES

High performance computing courses at CINECA

Introduction to Parallel Computing with MPI and OpenMP - Julia High Performance

COMMUNICATION AND INTERPERSONAL SKILLS

Personal skills
  • Rigorous and critical approach to scientific problems
  • Hard-working mentality
  • Ability to perform under pressure
  • Passionate about rocket propulsion

Organizative and interpersonal skills
  • Reliability in meeting deadlines
  • Accurate and organized planning of work schedule
  • Predisposition to teamwork
  • At ease with public speaking

PUBLICATIONS

Low order modeling of combustion instability using a hybrid real/ideal gas mixture model

Zolla, P. M., Montanari, A., D'Alessandro, S., Pizzarelli, M. and Nasuti, F. "Low Order Modeling of Combustion Instability Using a Hybrid Real/Ideal Gas Mixture Model," *9th European Conference for Aeronautics and Aerospace Sciences (EUCASS)*, Lille, France, 2022.

Sensitivity study on a low order model for the analysis of transverse combustion instability

Montanari, A., Zolla, P. M., D'Alessandro, S., Pizzarelli, M., Nasuti, F., Cavallini, E. and Pellegrini, R. C. "Sensitivity study on a low order model for the analysis of transverse combustion instability," 10*th European Conference for Aeronautics and Aerospace Sciences (EUCASS)*, Lausanne, Switzerland, 2023.

Low order modeling of combustion instability: a comprehensive analysis of the BKD test case

Zolla, P. M., Montanari, A., Grossi, M., Nasuti, F., Armbruster, W., Börner, M. and Hardi, J. S. "Low order modeling of combustion instability: a comprehensive analysis of the BKD test case," *2024 AIAA SciTech Forum,* Orlando, Florida, 2024.