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Education

Oct. 2013 - **MASTER'S DEGREE IN AEROSPACE ENGINEERING**
Oct. 2015 *Università degli Studi della Campania "Luigi Vanvitelli", Caserta (Italy)* 110/110 magna cum laude

Main subjects: Aircraft Aerodynamics, Aircraft Flight Dynamics and Flight Simulation, Complements of Gasdynamics, Fluid Dynamics Stability, Computational Fluid Dynamics, Rotary Wing Aerodynamics, Statistics for Innovation, Applied Mechanics, Advanced Aerospace Structures, Economics and Business Management, Avionics.

Weighted average mark: 29/30.

Thesis: *Fluid dynamic analysis of oxidizer injection and effect on fuel regression in hybrid rockets.*

Assignments:

- Numerical solution of Burgers equation by ENO (Essentially-Non-Oscillatory) and WENO (Weighted-Essentially-Non-Oscillatory) methods.
- Solution of incompressible Navier-Stokes equations by classical methods.
- Aerodynamics of a bidimensional Darrieus Turbine.

Oct. 2010 - **BACHELOR'S DEGREE IN AEROSPACE ENGINEERING**
Oct. 2013 *Università degli Studi della Campania "Luigi Vanvitelli", Caserta (Italy)* 110/110 magna cum laude

Weighted average mark: 28.9/30.

Thesis: *Generation of computational grids around a wing.*

Generation of structured meshes for the analysis of viscous turbulent flows, using the software ANSYS ICFM CFD.

2005 - 2010 **SCIENTIFIC HIGH SCHOOL DIPLOMA**
Liceo Statale "Piero Calamandrei", Napoli (Italy) 100/100

Work Experience

Mar. 2016 - **INTERNSHIP AT TECNAM**
Jul. 2016 *Costruzioni Aeronautiche Tecnam, Design Office- Office of Airworthiness, Caserta (Italy).*

Aerodynamic and structural engineer in a company that manufactures General Aviation aircraft (CS-VLA, Adv UL, CS-23 and US-LSA aircraft). I am active part in Tecnam P2012 type certification as CS-23 aircraft and in the activities of existing fleet sustain.

Main activities:

- Analysis of flight loads on wing and on control surfaces, determination of control system loads and operation tests for control surfaces for P2012 aircraft type certification.
- Set up of Flight Test Instrumentation for P2012 flight tests for type certification.
- Structural and FEM analysis (FE model of P2002 JF fuselage).
- Continued airworthiness: classification, analysis and declaration of compliance to EASA regulations of aircraft repairs.
- Aircraft configuration modifications: classification, analysis and declaration of compliance to EASA regulations.

Apr. 2015 - **UNIVERSITY INTERNSHIP**
Oct. 2015 *Università degli Studi della Campania "Luigi Vanvitelli", Aerospace Propulsion Lab, Naples (Italy).*

I worked in a research group, comprising other four students, which had the aim to characterize the performances and the fluid dynamic behaviour of Hybrid Rocket Motors, with a view to a subsequent experimental campaign aimed at studying two different hybrid configurations, using different oxidizers: gaseous O₂ and liquid H₂O₂.

My activities were mainly focused on the CFD analysis of the effect of the gaseous oxidizer injection on the fuel regression rate; anyway I took part in all laboratory activities.

Main activities:

- CFD simulation of different injector configurations in hybrid rocket engines.
- Firing tests and comparison between experimental and numerical results.

Publications

- Sept. 2016 *A simplified computational fluid-dynamic approach to the oxidizer injector design in hybrid rockets.*
Acta Astronautica, Vol. 129, 2016, pp. 8-21
Author 1, Author 2, Author 3, Author 4.

Other experiences

Sept. 2014 - REXUS/BEXUS Campaign 19/20. ESA programme.

Dec. 2014 **Member of Team ICARUS (Innovative Capsule for Aerobraked Re-entry with Unconventional Shield)**
Our proposal consisted of an innovative capsule with a deployable shield in order to decrease the ballistic parameter of the capsule. The proposal wasn't accepted. I belonged to the aerothermodynamics subteam and I analyzed the aerodynamics of the capsule during the different phases of the reentry mission. Furthermore I was fully involved in the organization of team meetings, in the outreach activities and in the drawing up of the experiment proposal.

Sept. 2013 - REXUS/BEXUS Campaign 17/18. ESA programme.

Feb. 2014 **Member of Team HYPER-LANDERS (High-ballistic-parameter hYPERsonic Reentry vs Low-ballistic-parameter Aerobraking Nacelle with DEployable Reentry Shield)**

The team comprised students from the Universities of Naples and Strathclyde (Glasgow). The experiment consisted of a comparison between the performances of two different space capsules during a space re-entry. The students from the University of Glasgow designed a capsule with an ordinary approach, while the students from Naples designed an innovative capsule with a deployable aerobrake in order to decrease the ballistic parameter. The experiment was chosen as one of the best projects and the team performed a presentation at ESTEC (ESA). Unfortunately the project was discarded at the last selection. I was part of aerothermodynamics subteam, and I had the same role I explained above.

Personal Skills

Mother tongue Italian **Other languages** English: Professional

Relational skills Excellent ability to work in a group acquired during my whole student career and my university internship, which gave me the opportunity to carry out experimental activities cooperating with other students. Moreover I took an active part in two students teams that joined the REXUS/BEXUS programme. Furthermore I improved these skills playing saxophone in musical groups and marching bands and practicing team sports (football and then basketball) since I was a child.

Organizational skills During my current job I have to carry on different activities with different priorities. Furthermore during the P2012 certification I have to carry to completion my work meeting deadlines in order to avoid delays in certification process. I also demonstrated a good capability of managing responsibilities since in TECNAM I am carrying out important tasks although I am the youngest engineer of my company. I have also shown a good attitude in planning my work and in meeting deadlines during my student career, since I graduated on time.

Computer Skills

Programming languages

MATLAB: very good command
C: basic knowledge
PYTHON: basic knowledge

Aerodynamic analysis tools

XFOIL: very good command
XROTOR: good command
AVL: good knowledge
Datcom: good knowledge

Operating systems

Windows: good knowledge
Linux: basic knowledge

CFD Software

STAR-CCM+: very good command
ANSYS Fluent: very good knowledge
ANSYS ICEM CFD: good knowledge

Structural analysis software

MSC Patran: good knowledge
MSC Nastran: good knowledge

CAD Software

Dassault CATIA: good command
AutoCAD: basic knowledge

Word processors

LaTeX: very good command
Microsoft Office: very good command