



Francesca Rossetti

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WORK EXPERIENCE

[01/03/2022 – Current]

Aerodynamics Course Teaching Assistant

Department of Mechanical and Aerospace Engineering, Sapienza University of Rome

University teaching assistant of the course "Aerodynamics" of the Bachelor's Degree in Aerospace Engineering.

[10/2021 – 02/2023]

CFD Applied Research - Consulting Activity

Department of Mechanical and Aerospace Engineering, Sapienza University of Rome

Consulting support activities for Avio S.p.A.:

- From 10/2021 to 07/2022: CFD Sloshing Analyses of VEGA-E Cryogenic Propellant Tanks
- From 12/2022 to 02/2023: CFD Analyses of M60 Engine Cooling System

These activities have been carried out with the following softwares:

- Pointwise and Fluent Meshing as meshing tools
- Ansys Fluent as CFD solver
- Tecplot 360 as CFD post processing tool

[11/2022 – Current]

Research Projects Coordination

Department of Mechanical and Aerospace Engineering, Sapienza University of Rome

Responsible of the project entitled "Thermo-fluid-dynamics characterization of the behavior of cryogenic propellants in tanks", having been awarded a grant of € 1,000.00 for "Progetti per Avvio alla Ricerca – Tipo 1" in 2022.

EDUCATION AND TRAINING

[01/11/2020 – 31/10/2023]

Ph.D. in Aeronautics and Space Engineering (XXXVI cycle)

Department of Mechanical and Aerospace Engineering, Sapienza University of Rome

My research activity has been focused on the study of the behavior of cryogenic propellants in space tanks through computational fluid dynamics (CFD) simulations. Moreover, the activity has been carried out within an agreement with the Italian Space Agency (ASI).

[09/2016 – 10/2020]

Master's degree in Space and Astronautical Engineering

Sapienza University of Rome

Final grade: 110/110

Thesis: "Parametric study of the heat transfer enhancement in LRE combustion chambers by longitudinal wall ribs".

[09/2013 – 12/2016]

Bachelor's degree in Aerospace Engineering

Sapienza University of Rome

Final grade: 110/110

Thesis: "Manovre di rendez-vous su una sonda interplanetaria".

[09/2008 – 06/2013]

High School Diploma

Liceo Scientifico Guglielmo Marconi

Address: 00034, Colleferro (RM)

Final grade: 100/100

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

French

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

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

DIGITAL SKILLS

Matlab | Python | Microsoft Office | LaTeX | Windows | Chemical Equilibrium Applications (CEA) NASA Software | European Computer Driving Licence – ECDL

CFD Simulations

Ansys Fluent

Meshing Tools

POINTWISE | ANSYS Fluent Meshing | ANSA

Postprocessing

Tecplot 360

PUBLICATIONS

[2022]

Stella, F., Cimini, M., DüNDAR, B., Rossetti, F., Barbagallo, D., Neri, A., & Bernardini, M. "Numerical Analysis of the Free-Fall Behavior of a Space Launcher Fragment". *Journal of Spacecraft and Rockets* (2022), p. 1-13.

[2023]

Rossetti, F., Pizzarelli, M., Pellegrini, R., Cavallini, E., & Bernardini, M. "Setup of a numerical methodology for the study of self-pressurization of cryogenic tanks". Submitted to *Cryogenics*, under review.

Rossetti, F., Pizzarelli, M., Pellegrini, R., Cavallini, E., & Bernardini, M. "Setup of a numerical methodology for the study of active-pressurization of cryogenic tanks". *Aerospace Europe Conference 2023 – 10TH EUCASS – 9TH CEAS* (2023).

Cimini, M., Rossetti, F., Della Posta, G., Stella, F., & Bernardini, M. "CFD Analysis of the Lateral Sloshing Phenomenon inside an Aerospace LH2 Cryogenic Tank". *Aerospace Europe Conference 2023 – 10TH EUCASS – 9TH CEAS* (2023).

Rossetti, F., Pizzarelli, M., Pellegrini, R., Cavallini, E., & Bernardini, M. "Numerical Tank Self-Pressurization Analyses in Reduced Gravity Conditions". XXVII AIDAA Congress (2023).

HONOURS AND AWARDS

[15/10/2013]

Certificate of honor: "Alfiere del Lavoro". Awarding institution: President of the Italian Republic Giorgio Napolitano.

CERTIFICATIONS

[17/05/2022 - 21/06/2022] **Basic introduction to ANSA and META for CFD Certificate**

[02/06/2021] **Tecplot 360 Basics Certification**

[23/10/2020] **Pegasus Certificate - The European Network of excellence in Aerospace Engineering Education**

[28/05/2013] **First Certificate in English - Council of Europe Level B2**

[24/08/2012] **Diplôme d'études en langue française (DELF) B2**

[31/01/2011] **Certificato European Computer Driving Licence (ECDL)**

Roma, 07/11/2023