



Michele Cogo

● EDUCATION AND TRAINING

2009 – 2014 Bassano del Grappa, Italy

SCIENTIFIC HIGH SCHOOL QUALIFICATION Liceo scientifico Jacopo da Ponte

Final grade 85/100

10/2015 – 07/2018 Padova, Italy

BACHELOR DEGREE OF AEROSPACE ENGINEERING Università degli Studi di Padova

Final grade 98/110 | **Thesis** Dynamics of a sphere at high Reynolds number flows, prof. Francesco Picano

09/2018 – 15/10/2020 Padova, Italy

MASTER'S DEGREE ON AEROSPACE ENGINEERING Università degli studi di Padova

Final grade 110/100 cum laude |

Thesis Large eddy simulation with wall-stress model: an application to turbulent compressible channel flow. Prof. Francesco Picano

20/12/2020 – 20/08/2021 Roma, Italy

SCOLARSHIP FOR RESEARCH ACTIVITY (BORSA DI STUDIO) Sapienza Università di Roma

Scholarship for research activity on Direct Numerical Simulation of compressible turbulent boundary layers. Supervisor: Prof. Matteo Bernardini

28/02/2021 – CURRENT Padova, Italy

TEACHING ASSISTANT (DIDATTICA INTEGRATIVA) Università degli studi di Padova

Teaching assistant for the courses of:

- Fluid Mechanics, Mechanical Engineering (Bachelor), Prof. Andrea Marion
- Aerodynamics 2, Aerospace Engineering (Master), Prof. Francesco Picano
- Laboratory of Computational Fluid Dynamics, Aerospace Engineering (Master), Prof. Federico Dalla Barba

01/10/2021 – CURRENT

PHD COURSE IN SCIENCES, TECHNOLOGIES AND MEASUREMENTS FOR SPACE Università degli Studi di Padova

Thesis High-fidelity simulations of high speed flows for aerospace problems. Supervisor Prof. Francesco Picano.

10/10/2022 – 10/02/2023

VISITING STUDENT RESEARCHER Delft University of Technology, Department of Flow Physics and Technology

Research activity on high fidelity simulations of compressible boundary layers over rough surfaces; Host supervisor: Prof. Davide Modesti

01/06/2023 – 30/11/2023

VISITING STUDENT RESEARCHER Stanford University, Center for Turbulence Research

Research activity on wall-models for hypersonic turbulent boundary layer with chemical reactions; Host Supervisor: Prof. Parviz Moin.

This experience was part of the Fulbright program and supported by Zegna Founder's scholarship (Zegna Group) and Franklin P. and Caroline M. Johnson Fellowship (Stanford University).

● LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH - IELTS CERTIFICATE (BAND 8), CEFR LEVEL C1	C2	C2	C1	C1	B2

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

● DIGITAL SKILLS

Linux/Unix environments, including shell scripting | Fortran for massively parallel accelerators (e.g. CUDA, MPI, OpenMp, OpenACC) | Python and relative scientific libraries (numpy, scipy, pandas, etc.) | Basic understanding of Python libraries for Machine Learning (Tensorflow, PyTorch) | Basic knowledge of C++ | Good proficiency in Matlab/Simulink | Version control systems (git) | HPC systems and batch workflow managers (SLURM) | Visualizations tools (Paraview, Tecplot, Blender) | Engineering softwares: Ansys Fluent, Patran/Nastran, Labview, Solidworks. | Vector graphics tools (Adobe Illustrator) | Office, Latex, Markdown

● PUBLICATIONS

2024

[Inverse-velocity transformation wall model for reacting turbulent hypersonic boundary layers](#)

Cogo, M., Williams, C. T., Griffin, K. P., Picano, F., & Moin, P. (2023). Inverse-velocity transformation wall model for reacting turbulent hypersonic boundary layers. Center for Turbulence Research Annual Research Briefs.

2023

[URANOS: A GPU accelerated Navier-Stokes solver for compressible wall-bounded flows](#)

De Vanna, F., Avanzi, F., Cogo, M., Sandrin, S., Bettencourt, M., Picano, F., & Benini, E. (2023). URANOS: A GPU accelerated Navier-Stokes solver for compressible wall-bounded flows. *Computer Physics Communications*, 287, 108717.

2023

[Assessment of heat transfer and Mach number effects on high-speed turbulent boundary layers.](#)

Cogo, M., Baù, U., Chinappi, M., Bernardini, M., & Picano, F. (2023). Assessment of heat transfer and Mach number effects on high-speed turbulent boundary layers. *Journal of Fluid Mechanics*, 974, A10.

2023

[Large-Eddy Simulation of the unsteady supersonic flow around a Mars entry capsule at different angles of attack](#)

Placco, L., Cogo, M., Bernardini, M., Aboudan, A., Ferri, F., & Picano, F. (2023). Large-Eddy Simulation of the unsteady supersonic flow around a Mars entry capsule at different angles of attack. *Aerospace Science and Technology*, 143, 108709.

2023

[GPU-acceleration of Navier-Stokes solvers for compressible wall-bounded flows: the case of URANOS](#)

De Vanna, F., Avanzi, F., Cogo, M., Sandrin, S., Bettencourt, M., Picano, F., & Benini, E. (2023). GPU-acceleration of Navier-Stokes solvers for compressible wall-bounded flows: the case of URANOS. In *AIAA SCITECH 2023 Forum* (p. 1129).

2022

[Direct numerical simulation of supersonic and hypersonic turbulent boundary layers at moderate-high Reynolds numbers and isothermal wall condition](#)

Cogo, M., Salvatore, F., Picano, F., & Bernardini, M. (2022). Direct numerical simulation of supersonic and hypersonic turbulent boundary layers at moderate-high Reynolds numbers and isothermal wall condition. *Journal of Fluid Mechanics*, 945, A30.

2022

[A straightforward strategy to unify WR/WMLES approaches for compressible wall-bounded flows](#)

De Vanna, F., Cogo, M., Bernardini, M., Picano, F., & Benini, E. (2022). A straightforward strategy to unify WR/WMLES approaches for compressible wall-bounded flows. In *AIAA SCITECH 2022 Forum* (p. 0181).

2021

[A Wall-Modeled/Wall-Resolved Les Method For Turbulent Wall Flows](#)

De Vanna, F., Michele, C., Matteo, B., Picano, F., & Benini, E. (2021). A wall-modeled/wall-resolved les method for turbulent wall flows. In *ECCOMAS Congress 2020*.

2021

[Unified wall-resolved and wall-modeled method for large-eddy simulations of compressible wall-bounded flows](#)

De Vanna, F., Cogo, M., Bernardini, M., Picano, F., & Benini, E. (2021). Unified wall-resolved and wall-modeled method for large-eddy simulations of compressible wall-bounded flows. *Physical Review Fluids*, 6(3), 034614.

2020

[Large eddy simulation with wall-stress model: an application to turbulent compressible channel flow](#)

Aerospace Engineering Master's Thesis. Supervisor: Prof. Francesco Picano

● **CONFERENCES AND SEMINARS**

06/05/2024 – 09/05/2024 Scopello, Italy

PhD Days 2024

Presenter of "Compressibility and wall-cooling effects on high-speed turbulent boundary layers".

10/04/2024 – 12/04/2024 Erlangen, Germany

Direct and Large-Eddy Simulation 14

Presenter of "DNS of supersonic turbulent boundary layers over rough surfaces".

16/02/2024 Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy

Invited talk at SISSA, Analysis Junior Seminar

Presenter of "Physical and modeling aspects of highly-compressible boundary layers".

19/11/2023 – 21/11/2023 Washington D.C., USA

76th Annual Meeting of the APS Division of Fluid Dynamics

Presenter of "Development of a wall model for chemically-reacting turbulent hypersonic boundary layers".

13/09/2022 – 16/09/2022 Athens, Greece

14th European Fluid Mechanics Conference

Presenter of "Compressibility effects in supersonic and hypersonic turbulent boundary layers at high Reynolds numbers".

25/05/2022 – 27/05/2022 Alba, Italy

33rd Parallel CFD International Conference

Presenter of "DNS of supersonic and hypersonic turbulent boundary layers at moderate-high Reynolds numbers with heat transfer".

10/01/2020 – 14/01/2020 Virtual Congress

14th WCCM-ECCOMAS Congress 2020

Presenter of "A wall-modeled/wall-resolved Les method for turbulent wall flows".

30/04/2019 – 03/05/2019 Libin Redu, Belgium

Concurrent Design Engineering Workshop

Introduction and application of the concurrent engineering methodology at European Space Agency (ESA) Training and Learning Facility.

● **PROJECTS**

09/2019 – 08/2020

Morpheus Team

Università degli studi di Padova
Students project developing a rover for planetary exploration

09/2019 – 08/2020

THRUST Team

Università degli studi di Padova
Transdisciplinary Hybrid Rocket for University Students' Training

● **HONOURS AND AWARDS**

High-performance computing research grants – CINECA, Italy

The candidate has been awarded with different computing research grants as PI (ISCRA-C calls) and co-PI (PRACE call 23, EuroHPC Extreme Scale Access) with Galileo100, Marconi100 and Leonardo Booster (CINECA).

2023

Fulbright Scholarship – The U.S.-Italy Fulbright Commission

Scholarship as Visiting Student Researcher at Center for Turbulence Research, Stanford University.

2023

Zegna Founder's scholarship – Ermenegildo Zegna Group

Supporting scholarship as Visiting Student Researcher at Center for Turbulence Research, Stanford University.

2023

Franklin P. and Caroline M. Johnson Fellowship – School of Engineering, Stanford University

Supporting scholarship as Visiting Student Researcher at Center for Turbulence Research, Stanford University.

2023

Referee for peer-reviewed journals

Referee for Peer -reviewed international journals: "Journal of Fluid Mechanics", "Physics of Fluids"

2020

Excellence award for Aerospace Engineering Master's Thesis – Università degli Studi di Padova

2018

Incentives for scientific studies – Università degli Studi di Padova
