

Mauro Carnevale

Place: **Bergamo**
Date: **01/01/2026**

GENERAL INFORMATION

Full Name	Mauro Carnevale
E-mail	mauro.carnevale@unibg.it and mc2497@bath.ac.uk
Spoken Languages	Italian, English

EDUCATION

Type	Year	Institution	Notes
University graduation	2006	Università degli Studi di Milano	Degree in Physics vecchio ordinamento
PhD	2012	Università di Firenze	PhD in Energetica e Tecnologie Industriali Innovative

APPOINTMENTS

Dates (from .. to..)	From 1/07/2018 – now
Name and address of the Employer (Public or/and private institution/body)	University of Bergamo, Via Salvecchio, 19 - 24129 Bergamo (BG) ITALY
Position held	Associate Professor in the Engineering Department and applied Science
Dates (from .. to..)	From 3/09/2018 – 28/06/2024
Name and address of the Employer (Public or/and private institution/body)	University of Bath Claverton Down, BA2 7AY, Bath UK
Position held	Lecturer/Senior Lecturer in the mechanical Engineering Department
Dates (from .. to..)	01/07/2017 – 31/08/2018
Name and address of the Employer (Public or/and private institution/body)	University of Oxford – Department of Engineering Science Parks Road, Oxford OX1 3PJ, United Kingdom
Position held	I held the position of research fellow at university of Oxford. Moreover I was teaching assistant for Department of Engineering Science.

Dates (from .. to..)	01/12/2012 - 30/06/2017
Name and address of the Employer (Public or/and private institution/body)	Imperial College London Exhibition Rd, South Kensington, London SW7 2BX, United Kingdom
Position held	Research Associate – Mechanical Engineering Department – VUTC.
Dates (from .. to..)	01/03/2012 - 30/11/2012
Name and address of the Employer (Public or/and private institution/body)	University of Florence P.za di San Marco, 4, 50121 Firenze FI, Italy
Position held	Phd Student at Mechanical Engineering department.
Dates (from .. to..)	Academic Years between 2004 and 2007
Name and address of the Employer (Public or/and private institution/body)	University of Milan Via Festa del Perdono, 7, 20122 Milano MI
Position held	Assistant researcher

Other Appointments

Dates (from .. to..)	June 2007 – Dec 2008
Name and address of the Employer (Public or/and private institution/body)	Ubiquity S.r.l. Indirizzo: Via Teodosio, 65 CAP:20131 Città: Milano (MI)
Position held	Software developer.
Main activities/responsibilities	Developer of software and application server for messaging and Internet Banking
Dates (from .. to..)	March 2007 – May 2007
Name and address of the Employer (Public or/and private institution/body)	Miam srl Monza and Brianza Area, Italy
Position held	Physic specialist in Radiation Dosimetry
Main activities/responsibilities	Physic specialist of CR39 dosimetry for Nuclear Tracks. Collaborator for CESNEF (Nuclear department of Polytechnic of Milan) in testing new reading method of CR39 polymer.

RESEARCH ACTIVITIES

Current Research Activities at University of Bergamo and at University of Bath

Keywords: LES, Stator-Rotor Cavities, Data Reduction

Brief Description: The core of the research consists in the development of numerical model and CFD solver for fluid flow prediction and fluid structure interaction. Together with my research group I am developing an in-house CFD solver already widely validated for LES to investigate Secondary Air System in gas turbines, when machines are operating a real engine condition. This particular aspect of my research is closely related to few funded programs for industrial partners such as SAFRAN, Siemens and McLaren F1.

Keywords: LES-URANS, Unsteady CHT, Compressor and turbines cavities, Multi-fidelity CFD

Brief Description: An additional research branch is devoted to the development of open-source libraries for two phase fluid-flow in a fluid-structure interaction with particular attention to the CHT. The case study consists in rotating turbine and compressor cavities featuring buoyancy and heat transfer between fluid and solids. The new proposed approach will overcome the limitation of the current status of the art in of UNSTEADY-CHT, where the different in time and space scales between the fluid flow and the heat transfer in solid makes simulation of realistic configuration at engine condition not affordable. This research is funded by Siemens.

Keywords: Boiling CO₂, Two Phase flow, Microchannel

Brief Description: The project is devoted to the investigation of the phase change of the Boiling CO₂ used as cooling flow through microchannel. The project is aimed to the understanding of the mechanisms driving the boiling of CO₂. This research is aimed to establish the connection between the bubble nucleation, flow features such as saturation temperature, vapour quality, shear stress, pipe roughness. The research implies new design of experiments to provide suitable boundary conditions and appropriate experimental database for CFD validation. This research is carried out in a project aimed to the update of the next CMS detector at CERN.

Past Research Activities: Post-doc, Research Fellow and PhD

Keywords: LPT, Laminar separation, CFD

Brief Description: The main subject of my PhD thesis was the application of the Large Eddy Simulation (LES) to internal cooling flows in gas turbines. During my PhD I was visiting research student at Whittle Laboratory at the University of Cambridge. I worked on coupling LES with Uncertainty Quantification (UQ) and its application to internal cooling flow field.

Keywords: LES, Internal Cooling, Heat Transfer, Synthetic Jet

Brief Description: In the framework of a project funded by the Italian government (MIUR), I developed a procedure to trigger turbulence inside the boundary layers by means of an active control device located on the suction side of Low-Pressure Turbine (LPT) blades. The device consists in a zero-net mass flow pulsating jet (usually known as synthetic jet). This mechanism allows controlling instabilities in boundary layer and separation in low pressure turbine blades.

Keywords: Ultra-fan, LPC, Optimization

Brief Description: Multi-fidelity models have been defined to design Low Pressure Compressor system for very high by-pass ratio engine. In detail a medium fidelity approach has been implemented to design an ultra-fan, including the coupling effect with Intake LPC and Pylon. Moreover, this method has been coupled with an optimization loop to design the OGV stage to reduce the pressure distortion from intake, fan and structural component.