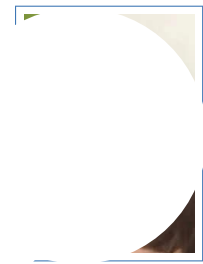


Maria Nicole Antonuccio

Curriculum vitae



Personal data

First Name Maria Nicole
Last Name Antonuccio
Nationality Italian
Birth Date
Gender

Research Experience

July 2019– Nov. 2019 **Researcher**, *Department of Aerospace Engineering (Pisa) and Ospedale del Cuore (Massa), Italy.*

Study of the hemodynamics of the thoracic aorta, both in physiological and pathological cases. In particular, the main focus was the variation of inflow/outflow boundary conditions in Computational Fluid Dynamic simulations, evaluating its impact through deterministic and stochastic approaches.

Master's thesis students tutor.

Education

Sep. 2016– July 2019 **Master's degree in Biomedical Engineering**, *University of Pisa (Italy), Industrial Curriculum.*

Thesis: *Towards the translation of patient-specific simulations into clinics: an integrated approach in guiding CFD analysis for a non-invasive study of aortic coarctation.*

Supervisors: Prof. Simona Celi, Prof. Alessandro Mariotti, Dr. Claudio Capelli.

Description: the thesis based on a research activity, carried out at BioCardioLab of Fondazione Toscana "Gabriele Monasterio" and Ospedale del Cuore of Massa, in collaboration with University College of London. The hemodynamics of a patient affected by an aortic coarctation were investigated, integrating Computational Fluid-Dynamics simulations and Magnetic Resonance Imaging data for the 3D reconstruction. The thesis aimed to provide a non-invasive methodology, alternative to the traditional invasive diagnose, assessing how the uncertainties on the input parameters affected the result of the simulations (uncertainty quantification).

Mark: 110/110 cum Laude.

Feb.2019– June 2019 **Visiting Research Scholar**, *University College of London, (United Kingdom).*

Dec. 2010– July 2016 **Bachelor's degree in Biomedical Engineering**, *University of Pisa* (Italy), Industrial Curriculum.

Thesis: *Mechanical characterization and comparison between Dyneema polymeric cables and steel cables for surgical devices.*

Supervisors: Prof. Cesare Stefanini, Dr. Mario Milazzo.

Description: the thesis based on a research activity, carried out at Biorobotics Institute of Scuola Superiore "Sant'Anna", Pontedera (PI). The aim was the comparison between novel polymeric materials and traditional ones in order to actuate the surgical robots, like DaVinci Robot. Some tests were performed using Instron Machine, and a data analysis was made using Microsoft Office Excel and MATLAB.

Mark: 102/110.

July 2010 **High school diploma**, *Liceo Classico, "S. Lopiano"*, Cetraro (Italy).

Mark: 100/100.

Computer skills

Programming	C++, MATLAB-Simulink, LabVIEW, Arduino, Python
FEM	ANSYS APDL and Workbench, Comsol, SimVascular
CAD	Solidworks
Image Processing	itk-Snap, Osirix
3D Printing	Repetier, Cura, MeshMixer, MeshLab
Others	ParaView, Microsoft Office, LaTeX
Operative systems	Windows, Linux

Language skills

Italian	Native
English	Advanced (level: C1)
French	Good listening and speaking capabilities

Conference Paper

- 2019** M. N. Antonuccio, A. Mariotti, E. Sauvage, B. M. Fanni, K. Capellini, C. Capelli and S. Celi, "An integrated approach of uncertainty quantification and 3D MRI techniques in guiding CFD analysis for a non-invasive study of aortic coarctation". *Workshop on Frontiers of Uncertainty Quantification in Fluid Dynamics – Pisa* (Italy), 11-13 September 2019.

Poster Award

- 2019** M. N. Antonuccio, A. Mariotti, B. M. Fanni, K. Capellini, E. Sauvage, C. Capelli and S. Celi, "An integrated CFD and UQ approach to assess hemodynamic alterations in the Aortic Coarctation". *International CAE Conference – Vicenza* (Italy), 28-29 October 2019.

Conference Proceeding

- 2019** M. N. Antonuccio, A. Mariotti, S. Celi and M. Vittoria Salvetti, "Effects of the distribution in space of the velocity-inlet condition in hemodynamic simulations of the thoracic aorta". Rojas I., Valenzuela O., Rojas F., Herrera L., Ortuño F. (eds) Bioinformatics and Biomedical Engineering. IWBBIO 2020. Lecture Notes in Computer Science, vol 12108. Springer, Cham, doi:10.1007/978-3-030-45385-5_6.

Unpublished Papers

- 2019** M. N. Antonuccio, A. Mariotti, B. M. Fanni, K. Capellini, E. Sauvage, C. Capelli and S. Celi, "Effects of Outlet Boundary Conditions Uncertainty in an Aortic Coarctation Case". *Annals of Biomedical Engineering*.

Summer School

July – London, UK
August 2006

Personal Skills

Good data analysis and correct use of the laboratory equipment, acquired at Biorobotics Institute of SSSA, at Biocardiolab, during the traineeship at UCL and during the research activity at Istituto Italiano di Tecnologia and Research Center "E. Piaggio".

Good mechanical and electrical design acquired by individual and group projects.

Social and organization Skills

Good communication and teamwork skills, acquired during the following experiences:

- Visiting Research Scholar.
- Students tutoring.
- Laboratory experiences.
- Experiences as animator and volunteer.
- First flute and assistant director of "Filippo Lanza" Orchestra (Cetraro, Italy).

Other informations

Driving license EU type "B"

Other Certification First Aid Operator Certificate

Interests Technology, music, running, swimming, reading, medicine, voluntary associations (AVIS, ADMO, Emergency, Doctors without Borders).

Pisa, 29/11/2019