Antonio Froio

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BIO

Born in Catanzaro, IT
on 25/11/1990

SKILLS

IT

Programming
Java • MATLAB • LaTeX
C • C++ • bash • Modelica
Python

Software
Microsoft Office • LibreOffice
Dymola • OpenModelica
Star–CCM+

OS
Linux • Windows
Android

Other
High-Performance Computing

PERSONAL

Excellent capability to work a in multicultural and multidisciplinary team.
Good ability to organize a long-term work.
High versatility, working simultaneously on different subjects.
Strongly logical reasoning.
Passionate for research.

LANGUAGES

Italian • English

EXPERIENCE

POLITECNICO DI TORINO | Assistant professor

May 2022 – Apr 2025 | Torino, IT
Assistant professor of Nuclear Engineering thermal-hydraulics.
Research on thermal-hydraulics for the Breeding Blanket and Balance-of-Plant of tokamak fusion reactors.
Member of EUROfusion Work Package Design.
Main developer of the GETTHEM code.
Lecturer in the courses "Computational thermal fluid dynamics", "Nuclear fusion reactor engineering", "The future of nuclear energy", "Computational heat and mass transfer", "Monte Carlo Methods". Responsible of the course "System-level modelling of nuclear plants".
Tutor or co-tutor of 1 PhD student and 4 MSc theses.

POLITECNICO DI TORINO | Post-doc

Oct 2021 – Apr 2022 | Torino, IT
Thermal-hydraulic analyst for tokamak fusion reactors.

POLITECNICO DI TORINO | Assistant professor

Aug 2018 – Jul 2021 | Torino, IT
Assistant professor of Nuclear Engineering thermal-hydraulics.
Research on thermal-hydraulics for the Balance-of-Plant of the EU DEMO tokamak under a EUROfusion Engineering Grant.
Lecturer in the courses "Laboratorio computazionale di scambio termico", "Introduction to computational heat transfer" and "Nuclear fusion reactor engineering".
Tutor or co-tutor of 7 MSc and 9 BSc theses.

POLITECNICO DI TORINO | Post-doc

Mar 2018 – Jul 2018 | Torino, IT
Thermal-hydraulic analyst for the Breeding Blanket of the EU DEMO tokamak.

POLITECNICO DI TORINO | PhD student

Nov 2014 – Mar 2018 | Torino, IT
PhD thesis on the development from scratch of a system-level thermal-hydraulic model for the EU DEMO fusion power reactor.
Main activities:

- Identification of the model requirements
- Implementation of the model using the high-level Modelica language
- Validation of the model through benchmark with existing codes and experimental data

POLITECNICO DI TORINO | teaching assistant

Sep 2016 – Jul 2018 | Torino, IT
Assistant for the MSc course "Introduction to computational heat transfer": fontal lecturer during both lab sessions and classroom lectures.
Course taught in English to 300+ students.

POLITECNICO DI TORINO | teaching assistant

Sep 2015 – Jul 2015 | Torino, IT
Assistant for the MSc course "Introduction to computational methods for energy applications": frontal lecturer during lab sessions.
Course taught in English to 100+ students.

POLITECNICO DI TORINO | teaching assistant

Sep 2013 – Jan 2014 | Torino, IT
Assistant for the MSc course "Computational methods for energy applications and for thermo-fluiddynamics": provide assistance to students during lab sessions.

EDUCATION

POLITECNICO DI TORINO | PhD in Energetics
Nov 2014 – Mar 2018 | Torino, IT
Degree achieved cum laude
Thesis on "Multi-scale thermal-hydraulic modelling for the Primary Heat Transfer System of a tokamak"

POLITECNICO DI TORINO | MSc in Energy and Nuclear Engineering
Sep 2012 – Jul 2014 | Torino, IT
Career: Nuclear Technologies and Applications | Final grade: 110/110 cum laude
Thesis on "Artificial Neural Network modeling of the pulsed heat load during ITER CS magnet operation"

ALTA SCUOLA POLITECNICA
Mar 2013 – Dec 2014 | Milano, IT and Torino, IT
Received the ASP Diploma by Alta Scuola Politecnica, the excellence school of Politecnico di Milano and Politecnico di Torino
Team project on "A system for three-dimensional face comparison aimed at medically diagnosing rare diseases involving face dysmorphisms"

POLITECNICO DI MILANO | MSc in Nuclear Engineering
Dec 2014 | Milano, IT
Double degree as part of the ASP programme.

UNIVERSITÀ DELLA CALABRIA | BSc in Mechanical Engineering
Sep 2009 – Sep 2012 | Arcavacata di Rende, IT
Final grade: 110/110 cum laude
Thesis on "Compressed-air energy storage systems for power-frequency regulation of power electrical systems with high penetrations of renewable power plants"

PATENTS

A. Froio, *et al.*, *A computer based method for classifying a mass of an organ as a cyst*, WO/2020/240455, 2019

L. Bonacina, *et al.*, *Process for processing medical images of a face for recognition of facial dysmorphisms*, WO/2017/089953, 2015

PUBLICATIONS

See publication list at https://iris.polito.it/browse?type=author&authority=rp19898&authority_lang=en