Tariq Ridwan

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Education

UPC · BARCELONA TECH
PhD in Aerospace Engineering
📅 2021-ongoing 📍 Barcelona, ES

IIUM
MSc, BSc Mechanical Engg.
📅 2017-19, 2010-14 📍 Kuala Lumpur, MY

CTH
MSc Applied Mechanics
📅 2014-15 📍 Göteborg, SE

LUH
BSc Research Internship
📅 Jun-Sep 2013 📍 Hannover, DE

Research Grant

DOCTORAL GRANT €98,960
Ministerio de Ciencia e Innovación, España
Fellowship for doctoral research.

Coursework

PHD
Atmospheric Physics
Finite Elements in Fluids

MASTER'S
Mechanics of Fluids
CFD of Turbulent Flow
Compressible Flow
Gas Turbine Technology
Thesis: A comparative study of natural gas & biogas combustion in swirling flow gas turbine combustor

Skills

PROGRAMMING
Fortran • Python • MATLAB • C/C++

MISCELLANEOUS
Git • Shell • LaTeX

Honors

SI SCHOLARSHIP
Swedish Institute
for MSc Applied Mechanics studies.

IIUM EXCELLENCE AWARD
Awarded to top 5 students of the university, for BSc studies.

Links

🔗 GitHub **tariqridwan**
in Linkedin **tariq-ridwan**

Experience

DOCTORAL RESEARCHER
Barcelona Supercomputing Center
📅 Dec 2021 – Present 📍 Barcelona, Spain
- Modeling properties of large turbulent coherent structures in the atmospheric boundary layer (ABL) to improve the characterization of wind properties for wind-energy applications.
- Development of HPC multi-physics CFD code *Alya* to simulate the turbulent ABL flows in *Marenostrum 5* supercomputer at BSC.

R&D ENGINEER
Vortex Engineering Enterprise
📅 Jan 2021 - Nov 2021 📍 Kuala Lumpur, Malaysia
- Multidisciplinary numerical simulations and modelling, Alternate Fuels combustion, Gas Turbine Engine design.

RESEARCH ASSOCIATE
Jubail University College
📅 Jun 2020 - Nov 2021 📍 Jubail, Saudi Arabia *(remote work)*
- Mechanical design & development of an alternate fuel powered engine components, combustion CFD simulations.

CFD CONSULTANT
Jubail University College
📅 Aug 2018 - Feb 2019 📍 Jubail, Saudi Arabia *(remote work)*
- Provided CFD solutions for Fluid-Structure Interaction simulations.

RESEARCH INTERN
Institut für Turbomaschinen und Fluid-Dynamik, LUH
📅 Jun 2013 - Sep 2013 📍 Hannover, Germany
- Worked on LES of the secondary flow in diffusers of stationary gas turbines using OpenFOAM in the institute's HPC system.

RESEARCH ASSISTANT
IIUM
📅 Feb 2012 - Jul 2014 📍 Kuala Lumpur, Malaysia
- Developed codes for highly non-linear PDEs using FDM and Fornberg's algorithm to simulate nano-thin film flows.

Recent Projects

TABL4CW
Universitat Politècnica de Catalunya · Barcelona Tech
📅 Dec 2021 – Feb 2024 📍 Barcelona, ES
- *Turbulence and large coherent structures in the atmospheric boundary layer: Fundamental aspects for parametrizations of cloud formation and for wind-energy applications*. URL: futur.upc.edu. Fund: €96,800.
- The project exploits multidisciplinary expertise of 15 researchers around EU and their international collaborations. Together, they bring expertise in turbulence and meteorology, wind energy, fluid mechanics and stability analysis, numerical simulation and HPC.

Publications

- "A comparative study of Natural Gas and Biogas combustion in a swirling flow gas turbine combustor". Combustion Science & Technology, 1-28. DOI: 10.1080/00102202.2021.1882441
- "An investigation of RANS simulations for swirl-stabilized isothermal turbulent flow in a gas turbine burner". CFD Letters 11 (9), 14-31. URL