

## PERSONAL INFORMATION

## Riccardo Zamolo

 Via +

Gender Male | Date of birth 20 April 1988 | Nationality

## WORK EXPERIENCE

March 2023 – April 2023

## Postdoctoral Fellow

Engineering &amp; Architecture Dept., Università degli Studi di Trieste, Italy

Validation and application of a meshless RBF-FD (Radial Basis Function - Finite Difference Method) solver for the solution of 2D and 3D natural convection problems.

October 2019 – September 2022

## Postdoctoral Fellow

Engineering &amp; Architecture Dept., Università degli Studi di Trieste, Italy

Topological optimization for heat conduction and structural analysis problems through the RBF-FD (Radial Basis Function - Finite Differences) numerical meshless method.

March 2019 – June 2019

## Postdoctoral Fellow

Engineering &amp; Architecture Dept., Università degli Studi di Trieste, Italy

Development and implementation of boundary conditions and geometric manipulation techniques for RBF-FD (Radial Basis Function - Finite Difference Method) numerical meshless methods.

## EDUCATION AND TRAINING

November 2015 – March 2019

## Ph.D. in Engineering &amp; Architecture

EQF 8

Università degli Studi di Trieste, Italy

Mechanical, naval, energy and production engineering (SSD: ING-IND/10, Fisica tecnica industriale)

Thesis title: "Radial Basis Function-Finite Difference Meshless Methods for CFD Problems"

Analysis, development and implementation of advanced and novel numerical techniques and algorithms for the efficient numerical solution of 2D/3D partial differential equations using RBF-FD (Radial Basis Function - Finite Differences) meshless methods, with particular reference to CFD (Computational Fluid Dynamics) problems.

## September – December 2017

Research collaboration at IMT (Institute for Materials and Technology), Ljubljana, Slovenia

Development of multilevel techniques for RBF-FD meshless discretizations [2] at the Laboratory for the simulation of materials and processes.

2011 – 2015

## Master of Science in Mechanical Engineering (LM-33)

EQF 7

Università degli Studi di Trieste, Italy

Thesis title: "Metodo dei Domini Fittizi con Moltiplicatori di Lagrange Distribuiti in Termofluidodinamica Computazionale"

Final mark: 110/110 (magna cum laude)

Analysis and implementation of numerical techniques (Spectral Element Method coupled with Fictitious Domain Method and Distributed Lagrange Multipliers) for the solution of CFD (Computational Fluid Dynamics) problems.

2007 – 2011 **Bachelor’s Degree in Industrial Engineering, Mechanical curriculum** EQF 6

Università degli Studi di Trieste, Italy

Thesis title: “Validazione di una Metodologia di Riduzione di Sistemi Dinamici Complessi ad un Sistema Dinamico Equivalente Lineare / Non Lineare ad un Grado di Libertà”

Final mark: 110/110 (magna cum laude)

Analysis and development of a numerical technique for the reduction of ordinary differential equations.

2002 – 2007 **High School Degree, Mechanical curriculum** EQF 4

Istituto Tecnico Industriale “G. Galilei”, Gorizia, Italy

Final mark: 100/100

**PERSONAL SKILLS**

Mother tongue Italian

Other languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B1	B1	C1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user  
[Common European Framework of Reference for Languages](#)

Computer skills – Programming languages: Julia (Excellent), Matlab (Excellent), C (Good), Scilab (Good)  
 – CAE tools: ANSYS Workbench for CFD problems - Fluent (Good)  
 – Office tools: LaTeX (Excellent), Microsoft Office Suite (Good)

## ADDITIONAL INFORMATION

## Peer-reviewed publications

- [1] **R. Zamolo** and E. Nobile. *Numerical solution of heat conduction problems by means of a meshless method with proper point distributions*, Proceedings of CHT-17 ICHMT International Symposium on Advances in Computational Heat Transfer, 727–742, 2017. DOI: [10.1615/ICHMT.2017.CHT-7.750](https://doi.org/10.1615/ICHMT.2017.CHT-7.750)
- [2] **R. Zamolo** and E. Nobile. *Numerical analysis of heat conduction problems on irregular domains by means of a collocation meshless method*, Journal of Physics, Conference Series, 796(1): 012006, 2017. DOI: [10.1088/1742-6596/796/1/012006](https://doi.org/10.1088/1742-6596/796/1/012006)
- [3] **R. Zamolo** and E. Nobile. *Numerical analysis of heat conduction problems on 3D general-shaped domains by means of a RBF collocation meshless method*, Journal of Physics, Conference Series, 923(1): 012034, 2017. DOI: [10.1088/1742-6596/923/1/012034](https://doi.org/10.1088/1742-6596/923/1/012034)
- [4] **R. Zamolo**, L. Parussini and V. Pediroda. *Distributed Lagrange multiplier functions for fictitious domain method with spectral/hp element discretization*, Journal of Scientific Computing, 74(2): 805–825, 2018. DOI: [10.1007/s10915-017-0464-1](https://doi.org/10.1007/s10915-017-0464-1)
- [5] **R. Zamolo** and E. Nobile. *Two algorithms for fast 2D node generation: Application to RBF meshless discretization of diffusion problems and image halftoning*, Computers & Mathematics with Applications, 75(12): 4305–4321, 2018. DOI: [10.1016/j.camwa.2018.03.031](https://doi.org/10.1016/j.camwa.2018.03.031)
- [6] **R. Zamolo** and E. Nobile. *Solution of incompressible fluid flow problems with heat transfer by means of an efficient RBF-FD meshless approach*, Numerical Heat Transfer, Part B: Fundamentals, 75(1): 19–42, 2019. DOI: [10.1080/10407790.2019.1580048](https://doi.org/10.1080/10407790.2019.1580048)
- [7] **R. Zamolo** and E. Nobile. *Numerical analysis of advection-diffusion problems on 2D general-shaped domains by means of a RBF collocation meshless method*, Journal of Physics, Conference Series, 1224(1): 012013, 2019. DOI: [10.1088/1742-6596/1224/1/012013](https://doi.org/10.1088/1742-6596/1224/1/012013)
- [8] **R. Zamolo**, E. Nobile and B. Šarler. *Novel multilevel techniques for convergence acceleration in the solution of systems of equations arising from RBF-FD meshless discretizations*, Journal of Computational Physics, 392: 311–334, 2019. DOI: [10.1016/j.jcp.2019.04.064](https://doi.org/10.1016/j.jcp.2019.04.064)
- [9] **R. Zamolo** and L. Parussini. *Geometric uncertainty propagation in laminar flows solved by RBF-FD meshless technique*, Journal of Physics, Conference Series, 1599: 012045, 2020. DOI: [10.1088/1742-6596/1599/1/012045](https://doi.org/10.1088/1742-6596/1599/1/012045)
- [10] **R. Zamolo** and L. Parussini. *Analysis of geometric uncertainties in CFD problems solved by RBF-FD meshless method*, Journal of Computational Physics, 421: 109730, 2020. DOI: [10.1016/j.jcp.2020.109730](https://doi.org/10.1016/j.jcp.2020.109730)
- [11] D. Miotti, **R. Zamolo** and E. Nobile. *A fully meshless approach to the numerical simulation of heat conduction problems over arbitrary 3D geometries*, Energies, 14(5), 1351, 2021. DOI: [10.3390/en14051351](https://doi.org/10.3390/en14051351)
- [12] **R. Zamolo**, L. Parussini and E. Nobile. *Propagation of geometric uncertainties in heat transfer problems solved by RBF-FD meshless method*, Journal of Physics, Conference Series, 1868: 012021, 2021. DOI: [10.1088/1742-6596/1868/1/012021](https://doi.org/10.1088/1742-6596/1868/1/012021)
- [13] **R. Zamolo**, and E. Nobile. *Node generation in complex 3D domains for heat conduction problems solved by RBF-FD meshless method*, Journal of Physics, Conference Series, 2116: 012020, 2021. DOI: [10.1088/1742-6596/2116/1/012020](https://doi.org/10.1088/1742-6596/2116/1/012020)
- [14] **R. Zamolo**, D. Miotti and E. Nobile. *Numerical analysis of thermo-fluid problems in 3D domains by means of the RBF-FD meshless method*, Journal of Physics, Conference Series, 2177: 012007, 2022. DOI: [10.1088/1742-6596/2177/1/012007](https://doi.org/10.1088/1742-6596/2177/1/012007)

## International Conferences

- 39<sup>th</sup> UIT Heat Transfer Conference, June 20<sup>th</sup>-22<sup>nd</sup>, 2022, Gaeta.
- 8<sup>th</sup> European Thermal Sciences Conference - Eurotherm 2020, September 20<sup>th</sup>-22<sup>nd</sup>, 2021, on-line.
- 38<sup>th</sup> UIT Heat Transfer Conference, June 21<sup>st</sup>-23<sup>rd</sup>, 2021, on-line.
- 37<sup>th</sup> UIT Heat Transfer Conference, June 24<sup>th</sup>-26<sup>th</sup>, 2019, Padova, Italy.
- International CAE Conference, October 8<sup>th</sup>-9<sup>th</sup>, 2018, Vicenza, Italy.
- 36<sup>th</sup> UIT Heat Transfer Conference, June 25<sup>th</sup>-27<sup>th</sup>, 2018, Catania, Italy.
- 25<sup>th</sup> International Conference on Materials and Technology, October 16<sup>th</sup>-19<sup>th</sup>, 2017, Portorož, Slovenia.
- 35<sup>th</sup> UIT Heat Transfer Conference, June 26<sup>th</sup>-28<sup>th</sup>, 2017, Ancona, Italy.
- 7<sup>th</sup> International Symposium on Advances in Computational Heat Transfer (CHT-17), May 28<sup>th</sup> - June 1<sup>st</sup>, 2017, Napoli, Italy.
- 34<sup>th</sup> UIT Heat Transfer Conference, July 4<sup>th</sup>-6<sup>th</sup>, 2016, Ferrara, Italy.

## Teaching experience

- 48 hours course “Programmazione Informatica” (2020 to 2022)  
Recipients: Undergraduate students in Civil & Environmental Engineering and Naval Architecture & Marine Engineering, Università degli Studi di Trieste.  
Teaching the basics and the use of MATLAB, focusing on typical problems of undergraduate courses (linear algebra, mathematical analysis, etc.).
- 8 hours course “The Julia Programming Language: an Introduction” (2021 & 2023)  
Recipients: Ph.D. students, Università degli Studi di Trieste.  
Teaching the basics of the Julia programming language for scientific computing.
- 4 hours course “Matrices handling in PDEs solution with MATLAB” (2016 to 2023)  
Recipients: M.Sc. students in Mechanical Engineering, Università degli Studi di Trieste.  
Teaching the use of MATLAB for the numerical solution of partial differential equations (PDEs), focusing on heat transfer problems.
- 4 hours course “Introduction to MATLAB” (2018 & 2019)  
Recipients: Undergraduate students, Università degli Studi di Trieste.  
Teaching the basics of MATLAB.

Autorizzo il trattamento dei dati personali nelle modalità previste dal Regolamento UE 2016/679.