About me

Ph.D. in Mechanical engineering and a CFD engineer with more than 10 years of experience in code developing and utilizing CFD packages and machine learning(data-driven algorithm). **Expertise in numerical modeling of turbulent non-Newtonian fluid** (LES/DNS) and proposing semi-analytical solutions to analyze the corresponding laminar flows and verifying CFD code, numerical simulation of multi-material compressible reactive and non-reactive flow.

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https://pasha0313.github.io/Saeed/

https://scholar.google.com/citations?user=Te8VKkEAAAAJ&hl=en
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Experience	
2021-until now	Postdoctoral researcher at The Royal Institute of Technology (KTH), Supervisor: Prof. Outi Tammisola Project title: The instability in Elastoviscoplastic Fluid, POD and DMD of flow around a cylinder, Flow past porous media.
2020 - 2021	Researcher at INEGI, Institute of Science and Innovation in Mechanical and Industrial Engineering, Supervisor: Prof. Fernando Pinho Project title: Heat transfer in laminar boundary and mixing layer, and jet flow of FENE-P fluid
2018	Visiting researcher at Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering (Coppe), Federal University of Rio de Janeiro (UFRJ), Supervisor: Prof. Hamidreza Anbarlooei Project title: DNS of turbulent non-Newtonian flow in a rod-roughened channel
2017 - 2020	FCT researcher at The Mechanical Engineering Department Faculty of Engineering, University of Porto (FEUP), Porto, Portugal Supervisor: Prof. Fernando Pinho Project title: Developing an LES model for inhomogeneous wall-free turbulent viscoelastic fluid flows
2012 – 2017	Researcher & Lecturer at The Mechanical Engineering Department Payam Nour University of Rasht. Teaching activities: Thermodynamics, Heat and Mass Transfer, Advance English, Industrial Drawing.
2012 – 2017	Inspector at Mechanical Installation Group Guilan Construction Engineering organization, Rasht

Education

2018-2021	PhD: Mechanical Engineering, Fluid Dynamics Faculty of Engineering, University of Porto (FEUP), Porto, Portugal Supervisor: Prof. Fernando Pinho Thesis: An LES model for inhomogeneous wall-free turbulent flows and flow characteristics in laminar wall-free and wall-dominated viscoelastic fluid flows
2007 – 2010	Master of Science: Aerospace Engineering, Aerodynamics Tarbiat Modares University, Tehran Supervisor: Prof. Kiumars Mazaheri Thesis: Non-reflecting Boundary Condition in Reactive-Flow Simulation.
2002 – 2007	Bachelor of Science: Mechanical Engineering, Thermal and Fluid Mechanics Guilan University, Rasht, Guilan Thesis: Tidal Power System

Research Interests

Data-driven Methods (Machine learning), POD, DMD.
Turbulence, Numerical Modelling of turbulent flows (DNS, LES)
Complex Flow, Shear-thinning and thickening, Polymeric Fluid, Constitutive equations.
Multiphase or Multi-Material Flow, (Level Set technique), incompressible and compressible flow
Laminar Boundary layer type flow (flat plate, mixing layer, jet), Similarity Solution.
Transport phenomena (Heat and Mass Transfer)

Publication in

Journal

1- S. Parvar, E. Chaparian, O. Tammisola, EVP fluid flow past Porous Media, submitted to *Journal of Fluid Mechanics*.

2-S. Parvar, A. Corrochano, S. Le Clainche, O. Tammisola, The coherent structures of EVP Fluid Flow Past a Circular Cylinder, submitted to *Journal of Fluid Mechanics*.

3- S. Parvar, K. T. Iqbal , M. N. Ardekani, L. Brandt, O. Tammisola, Elastoviscoplastic fluid flow past a circular cylinder, submitted to *Journal of non-Newtonian Fluid Mechanics.*

4- S. Parvar, C. B. da Silva, F. T. Pinho, Thermal boundary layer of laminar flow of dilute polymer solution, *International Journal of Heat and Mass Transfer*,185(1):122248, April 2022.

5- S. Parvar, C. B. da Silva, F. T. Pinho, The steady laminar planar mixing layer flow of viscoelastic FENE-P fluids, *Journal of Engineering Mathematics*, 132(1), February 2022.

6- S. Parvar, C. B. da Silva, F. T. Pinho, Large Eddy Simulations of Turbulent Planar Jets of Viscoelastic FENE-P Fluids, *Physics of Fluids*, 33(4):45110, April 2021. Presented in XX International Workshop on Numerical Methods for Non-Newtonian Flows

7- S. Parvar, C. B. da Silva, F. T. Pinho, Revisiting the flat plate laminar boundary layer flow of viscoelastic FENE-P fluids, *Physics of Fluids*, 33(2):023103, February 2021.

8- S. Parvar, C. B. da Silva, F. T. Pinho, Local similarity solution for steady laminar planar jet flow of viscoelastic FENE-P fluids, *Journal of Non-Newtonian Fluid Mechanics*, 279:104265, March 2020

9- S. Parvar, H.R. Anbarlooe A. R. Alipoor, Simulation of compressible multi-material flow by 2D hydrodynamic code, *Journal of Modaress Mechanical Engineering*, 17(2):211-220, March 2017. Nominated Paper in ISME 2015

10- S. Parvar, K. Mazaheri, Investigating the domain length for simulation of gaseous detonation, *Journal of Modaress Mechanical Engineering*, Vol 15(1):277-284, 2015.

11- Y. Mahmoudi, K. Mazaheri, S. Parvar, The Role of Hydrodynamic Instabilities and Transverse Waves in Propagation of Gaseous Detonations, *Acta Astronautica*, 91:263–282, October–November 2013.

Conferences

1- S. Parvar, K. T. Iqbal, M. N. Ardekani, L. Brandt, O. Tammisola, The numerical study of Elastoviscoplastic (EVP) fluid past a Circular Cylinder at moderate Reynolds number, EFMC14 (Athens, Greece | September 2022, Oral communications and presented by me.

2- S. Parvar, C. B. da Silva, F. T. Pinho, Developing turbulence models for Large-eddy simulation of jet flows of viscoelastic fluids, *EuroHPC Summit Week 2020*, 23 March 2020 to 27 March 2020, Porto, Portugal, (due to COVID-19, online poster).

3- S. Parvar, C. B. da Silva, F. T. Pinho, Local similarity solution for steady laminar planar jet flow of viscoelastic FENE-P fluids, June 2019, *IWNMNNF 2019 19th International Workshop on Numerical Methods for Non-Newtonian Flows*, Oral communications and presented by me.

4- S. Parvar, H. R. Anbarlooei, F. Pinho, D.O.A. Cruz, Direct Numerical Simulation of turbulent Non-Newtonain flow in a rod-roughened channel, Turbulence, Heat and Mass Transfer 2018, DOI: 10.1615/THMT-18.1000, Oral communications and presented by Prof. Anbarlooei.

5- H.R. Anbarlooe, S. Parvar, Numerical Simulation of Shocked-Induced Instabilities in Multiphase Mediums, *1st Pan American Congress on Computational Mechanics* – PANACM 2015, in conjunction with the XI Argentine Congress on Computational Mechanics – MECOM 2015, Oral communications and presented by Prof. Anbarlooei.

6- S. Parvar, H.R. Anbarlooe, Eliminating Non-Physical Oscillation in Multi-Material Compressible Flow, *the 23rd ABCM International Congress of Mechanical Engineering* - COBEM2015, Oral communications and presented by Prof. Anbarlooei.

7- H.R. Anbarlooe, S. Parvar, A. Alipoor, Non-oscillatory Approach in Multi-phase Compressible Simulation, *The 23nd International Conference on Mechanical Engineering*, ISME 2015, Iran, Oral communications and presented by me.

8- S. Parvar, H.R. Anbarlooe, A. Alipoor, Eliminating non-physical instability in compressible multi-fluid, *The 23nd International Conference on Mechanical Engineering*, ISME 2015, Iran, Oral communications and presented by me.

9- S. Parvar, A. Alipoor, H.R. Anbarlooe, Numerical Simulation of In -compressible Flows in Step Problems by Simple method & Large Eddy Simulation, *The 22nd International Conference on Mechanical Engineering*, ISME 2014, Iran, Oral communications and presented by me.

10- S. Parvar, K. Mazaheri, Y. Mahmoudi, Non-reflecting Boundary Condition in Detonation Simulation (2D), *The 10th Conference of Iran Aerospace society*, Feb 2011, Oral communications and presented by me.

11- S. Parvar, K. Mazaheri, Non-reflecting Boundary Condition in Detonation Simulation (1D), *The 3rd Fuel & Combustion Conference of Iran,* 2010, Oral communications and presented by me.

Software Skills

Programming: Fortran, MATLAB, C++, Python, Anaconda, R, Visual Studio & Visual Studio Code.
CFD Package: OpenFoam, RheoFoam, Ansys, Fluent, Gambit, AutoCAD, COMSOL.
HPC: (PBS and Slurm), MPI, OpenMp, GPU.
Other software packages: Tecplot and Paraview, Maple.

Language

English (fluent), Portuguese(intermediate), German (Beginner), Turkish(intermediate), Persian(native).

Advanced Course

Debugging and Optimization of Scientific Applications: November 2017, CINECA- Bologna offices
1st Summer School on Complex Fluid-Flows in Microfluidics, July 2017, FEUP, Porto (Portugal).
2nd Iberian meeting of OpenFOAM technology users, May 2018, Santiago de Compostela, Spain.
19th international workshop on numerical methods for non-Newtonian Flows, June 2019, Peso da Regua, Portugal.

References

Prof. Fernando Pinho	Professor of the Mechanical Engineering Department, University of Porto, Porto, Portugal. Email: fpinho@fe.up.pt; https://paginas.fe.up.pt/~fpinho/
Prof, Luca Bradnt	Professor of the Mechanical Engineering Department, The Royal Institute of Technology (KTH), Stockholm, Sweden. luca@mech.kth.se; https://www.mech.kth.se/~luca/.
Prof. Outi Tamissola	Associate Professor of the Mechanical Engineering Department, The Royal Institute of Technology (KTH), Stockholm, Sweden. outi@mech.kth.se; https://www.kth.se/profile/outi?l=en.
Prof. Hamidreza Anbarlooei	Assistant Professor of the Department of applied mathematics, Federal University of Rio de Janeiro. Email:hamid@matematica.ufrj.br; https://www.researchgate.net/profile/Hamidreza_Anbarlooei
Prof. Alexandre Afonso	Assistant Professor of the Mechanical Engineering Department, University of Porto, Porto, Portugal. Email: aafonso@fe.up.pt; https://www.researchgate.net/profile/Alexandre_Afonso2
Dr. Francisco J. Galindo-Rosales	Assistant Professor at the Chemical Engineering Department, University of Porto, Porto, Portugal. Email: galindo@fe.up.pt; https://www.researchgate.net/profile/Francisco_Galindo-Rosales