Erfan Mashayekh
Computational Engineer

- 27 March 1990
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- Erfan-Mashayekh

Programming Languages
- Object-Oriented Programming: Python (PyTorch, TensorFlow, pandas, NumPy, etc.), C++ (MPI, OpenMP, etc.)
- Procedural: FORTRAN, C

Version Control & OS
Git, Bash, Linux, Windows

Scientific Software
MATLAB, Ansys FLUENT, OpenFOAM, COMSOL

CAD & Data Representation
CATIA, SpaceClaim, DesignModeler, Paraview, Tecplot, Microsoft Excel, Word, PowerPoint, Latex, SQL

Languages skill
Persian: Mother Tongue
English: Fluent-C1
German: Basic-A2 (Improving)

Volunteer Activities
- Teaching Assistant in courses Aerodynamics (2013), and Fluid Dynamics (2012)
- Active member of the Aerospace Scientific Association at Azad University, providing mentorship and conducting workshops for aerospace students. Offered guidance and support to students in engineering and simulation software. Also spearheaded composite glider and water jet competitions, promoting innovation, teamwork, and friendly competition within the aerospace community (2010-2012)

Erfan Mashayekh
November 9, 2023

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Summary

Aerospace and Computational Engineering M.Sc. graduate with 2+ years of experience in carbon-removal and gas turbine industries, eager to apply numerical and analytical skills to develop carbon-free technologies.

Education

10/20 - 9/23 M.Sc. Computational Science and Engineering
Technical University of Munich, Germany
- GPA: 1.9
- Thesis Topic: CFD Modeling of Lab-scale Microwave Plasma Torch for Carbon Dioxide Dissociation (Thesis Link)
- Covered Topics: Advanced Programming, Parallel Programming, Computational Fluid Dynamics, Scientific Computing, Machine Learning, Deep Learning, and Reduced-order Models.

9/13 - 1/16 M.Sc. Aerospace
Sharif University of Technology, Tehran, Iran (1st rank in national universities)
- Thesis Topic: A numerical solution for 2D compressible flow with a high-order compact finite difference scheme using Immersed Boundary Method.
- Covered Topics: Gas Dynamics, Combustion, and Advanced Thermodynamics.

9/08 - 8/13 Bachelor's Aerospace Engineering
Azad University - Science And Research Branch - Tehran, Iran
- Covered Topics: Fluid Mechanics, Aerodynamics, Statics, Dynamics, and Aircraft Design.

Experiences

3/23 - 10/23 Working Student + Master Thesis   Max Planck Institute For Plasma Physics
- Developed CFD model for microwave plasma reactor at 6000 Kelvin.
- Developed models in Python and C and leveraged neural networks for simulations. (Github)
- Facilitated and oversaw team meetings, coordinating them once or twice a week, while managing project timelines.

3/23 - 9/23 Working Student   Carbon Atlantis, Munich, (Website)
- Designed initial phase of heat reduction system for flue gas of cement factory with 300,000 m³/hr flow rate.
- Collaborated on constructing lab-scale direct air capture demonstrator, involving frame construction, component assembly, and piping and instrumentation diagram (P&IDs) generation.

5/22 - 3/23 Graduate Research Assistant   Technical University Of Munich
- Modeled and optimized fluid-solid interactions (FSI) using OpenFOAM and CalculiX. Integrated PreCICE library to couple fluid and solid solvers in Python.
- Created analytical test problems to test multidisciplinary optimizations. (Github)

9/17 - 1/19 Duty Soldier   Iran Mandatory National Service, Tehran
- Exercised personal responsibility and accountability, consistently making timely decisions and taking ownership of actions.

10/16 - 9/17 Gas Turbine Engineer   Turbotec, Tehran, (Website)
- Developed, optimized and maintained FORTRAN model for 300 MW gas turbine performance prediction.
- Worked on system design integration and collaborated with various project teams.
- Coordinated input/output processes among compressor, turbine, combustion chamber, cooling systems, and structures.