Mohammad Reza Soufivand

Researcher in fluid mechanics

I have a thorough understanding of aerodynamics, robust problem-solving skills, and extensive experience in experimental and numerical research. I am motivated and enthusiastic to be in a great learning environment. I am also experienced in coordinating with coworkers. I have the unique ability to apply technical solutions to scientific-practical projects. I am seeking a full-time position in the field of fluid mechanics and aerodynamics, where I can utilize my knowledge and skills for continuous improvement.

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Rome, Italy

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Education

Ph.D. Student in Energy and Environment;
Sapienza University of Rome

M.Sc. in Mechanical Engineering- Energy Conservation;
Azad University of Najaf-Abad Branch
09/2013 – 08/2016 *GPA: 3.81/4.00*
Courses: Turbulence Modeling, CFD, Advanced Fluid Mechanics
Thesis: Experimental Investigation of Flow Field around the Cross-Section of an Insect Wing at Low Reynolds Number Using the PIV Technique

B.Sc. in Mechanical Engineering- Heat and Fluids;
Azad University of Sanandaj Branch
09/2009 – 07/2013 *GPA: 3.18/4.00*
Dissertation: Hybrid Car Design

Research Experience

- Seven-hole probe calibration
- Calibration and setting up of 6-component balance system (Force and Torque)
- Design and build of a subsonic wind tunnel
- Implementation of PIV measurement technique
- Simulation of airflow driven vertical wind turbine
- Simulation of static and dynamic dragonfly wing flow field (with Pitch and Plunge motion)
- Simulation of thrust vector control in a supersonic nozzle using protuberance, secondary injection, and auxiliary flow

Publications

Published Book:

- **M.R. Soufivand,** M. Tavakkoli, Introducing Hybrid Cars (In Persian), 2021, ISBN number: 978-622-7492-57-6.

Books in Progress (Publishing up to the next six months):

- Plasma and Electric Propulsion (In Persian)

Published ISI Paper:

- M. Hojaji, **M. R. Soufivand**, R. Lavimi, "An Experimental Comparison between Wing root and Wing tip Corrugation Patterns of Dragonfly Wing at Ultra-Low Reynolds Number and High Angles of Attack", *Journal of Applied and Computational Mechanics*, 2020.
- M. Najafian, A. Esmaeili, A. Nikkhoo, H. Jin, **M. R. Soufivand**, "Numerical study of heat transfer and fluid flow of supercritical water in twisted spiral tubes", *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 2022.

ISI Papers in Progress:

- Thrust Vector Control of a Sonic Nozzle using the Coanda Effect: Challenges
- Thermo-hydraulic performance and entropy generation of hybrid nanofluid in a shell-and-tube heat exchanger with two different types of cross-sectional baffles using the two-phase Eulerian-Eulerian model
- Investigation of entropy generation, PEC, and efficiency of parabolic solar collector containing water/Al2O3-MWCNT hybrid nanofluid in the presence of finned and perforated twisted tape turbulators using a two-phase flow scheme

Conference Papers:

- Numerical and Experimental Calibration of Probe Seven-hole, "The Fourteenth Conference of Iranian Aerospace Society"
- Experimental Investigation of Drag Coefficient for Square and Circle Geometries Using the Hot-wire and PIV Techniques at Low Reynolds Numbers, "The 3rd National Conference and 1st International Conference on Applied Research in Electrical, Mechanical and Mechatronics Engineering"
- Visualization and Experimental Study of the Flow Field of the Mixing opponents Elevated Jets into Crossflow, "The Fifteenth International of Iranian Aerospace Society"
- Visualization and Experimental Study of the Flow Field of the Multiple Jets into Crossflow, "The Fifteenth International of Iranian Aerospace Society"
- Experimental study of the Effects of Secondary Injection on Thrust Vectoring in a Convergent-Divergent Micro Nozzle, "The First National Conference on Advances and Challenges in Science, Technology and Engineering"
- Compare the Kinematic Motion of Falling two Maple Seed, Pulled and Circular, "The Sixteenth International of Iranian Aerospace Society"

Software Skills

- Programing: Python, Matlab, Fortran; *Intermediate*
- Computer Aided Design: Catia; *Familiar*
- Simulation and Analysis: Openfoam, Ansys Fluent; *Proficient*

Field of Interests

- Unsteady Aerodynamics, Aeroacoustics, CFD, Turbulence Modeling, Plasma Physics, LBM

Work Experience

Branch Manager &Technical Inspector (Full time);
Tehran International Experts Co., *Isfahan- Esfahan*
March 2019 - Present
Main Duties: Managing the internal affairs of the branch, communicating with other branches, marketing and concluding contracts, handling finances, reviewing certificates, and performing technical inspections such as: Dimensional and corrosion control, welding and coating inspection of pipes and fittings of the Sarnei Water Treatment Plant, Isfahan refinery, ethylene transfers pipeline, seawater carbon steel pipeline for the Zolal Iran Company, National Petrochemical Company, Bu Ali Sina Petrochemical Unit and Mobin Petrochemical.

Researcher (Part time);
A.F.M.A. Lab., *Azad University of Najaf-Abad Branch*
Aug 2014 – Present
Main Duties: Running computer simulations, designing and running experimental hardware, analyzing data, presenting results to the lab supervisor, and writing research papers.

Executive Director (Self-employed);
Faraz Pouyan Avesta Company, *Isfahan- Najaf-Abad*
June 2016 - February 2019
Main Duties: Design and simulation of systems related to casting, and consulting on new ideas for renewable energy equipment

Certificates

- Installation supervisory of mechanical equipment (rotating and stationary)
- Supervisory of piping
- Quality management system (ISO 9001) awareness
- Energy management system (ISO 50001) requirements
- Advanced image processing in aerospace engineering
- Artificial intelligence optimization using the Matlab software
- Plasma technology and its applications
- Sampling and inspection of imported and exported commodity
- Sampling of petroleum derivatives
- Paint and coating inspection level 1 and 2 ASNT
- Welding inspection (VT) level 1 and 2 ASNT

Membership

- Member of Scientific Association of Mechanical Engineering, Azad University, Sanandaj Branch
- Honorary member of Aerospace Engineering Scientific Association of Azad University, Najaf-Abad Branch
- Member of Young Researchers Club of Azad University, Najaf-Abad Branch
- Member of the American Society of Mechanical Engineers
- Member of the Scientific Committee and Referee of the Fourth International Conference on Science and Technology with a Sustainable Development Approach
- Member of the Scientific Committee and Judge of the 18th National Conference on New Research in Science and Technology
- Member of the Iranian Association of Mechanical Engineers
- Member of Isfahan Construction Engineering Organization
- Member of Iranian Science Promotion Association
- Member of the Iranian Energy Consumption Management Scientific Association

Languages

- Persian
  Native Proficiency
- English
  Fluent