Mahdi Farsi

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Professional Summary

PhD in Mechanical Engineering with expertise in computational fluid dynamics (CFD), turbulence modeling, heat transfer, and thermal management of electronic systems. Experienced in high-performance computing (HPC) simulations, advanced modeling using Ansys Fluent and Icepak, and developing custom analysis and simulation tools in Python and Fortran.

Professional Experience

R&D Intern   Jul. 2025 – Nov. 2025
Valmet, Houston, TX

- Performing CFD simulations to evaluate and improve thermal management of the electronic box of MAXUM II gas chromatograph device using *Ansys Fluent* and *Icepak.*
- Conducted laboratory experiments to validate CFD predictions and optimized fan placement, enhancing internal airflow circulation and reducing peak temperatures on critical electronic surfaces by up to **15 °C**.

Graduate Research Assistant   Jan. 2021 – Dec. 2025
University of Houston, Houston, TX

- Developed *custom LES codes* for pollutant dispersion in atmospheric and oceanic environments.
- Designed and validated cognitive search algorithms for autonomous robots addressing *inverse problem* of pollutant source localization.
- Conducted CFD analysis for complex industrial applications such as *Master Flo Valve choke valves* and a novel design for *MOVCD reactors* using *Ansys Fluent.*
- Performed open-channel flow simulations with *two-phase modeling* in *Ansys Fluent* to assess repurposing retired wind turbine blades as bridge piers.
- Executed Particle Image Velocimetry (*PIV*) experiments to validate numerical models.

Graduate Teaching Assistant   Jan. 2021 – Apr. 2025
University of Houston, Houston, TX

- Assisted instruction for Fluid Dynamics, Heat Transfer, Thermodynamics, and Experimental Methods; mentored students and supported laboratory instruction.

Education

Ph.D., Mechanical Engineering   Dec. 2025
University of Houston, Houston, TX

M.Sc., Mechanical Engineering   Jan. 2019
University of Tehran, Tehran, Iran

B.Sc., Mechanical Engineering   Jul. 2016
Sharif University of Technology, Tehran, Iran

Technical Skills

Programming: Python, MATLAB, Fortran, C
Simulation Software: Ansys Fluent, Icepak, CONVERGE CFD
CAD Tools: SolidWorks, Ansys SpaceClaim
AI/ML Tools: TensorFlow, Keras
Experimental Techniques: Wind tunnel testing, Particle Image Velocimetry (PIV), Thermal instrumentation

Awards & Honors

- Bidani Scholarship (2024), General Scholarship (2023), ABS Academic Excellence (2022), FFP Fellowship (2021)

Publications

- **Farsi, M.**, Yang, D. (2024), Cognitive search algorithms, *APS Bulletin*
- **Farsi, M.**, et al. (2023), LES of bay–channel interactions, *APS DFD Meeting*
- **Farsi, M.**, et al. (2021), Low-speed wind energy harvesting, *Int. J. Env. Sci. Tech.*
- Khoshvaght-Aliabadi, **Farsi, M.**, et al. (2021), Minichannel heat sinks, *Int. Commun. Heat Mass Transf. 122*
- **Farsi, M.**, et al. (2021), Heat transfer in flattened tubes, *Int. J. Therm. Sci. 160*
- Khoshvaght-Aliabadi, **Farsi, M.**, et al. (2021), Modified turbulator heat transfer, *Int. Commun. Heat Mass Transf. 120*
- **Farsi, M.**, et al. (2020), Radial injection in TC–Poiseuille flow, *Numer. Heat Transf. B 77*