Seyed Mohammad Miri Joibary

Energy Engineer

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Links

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Skills

Programming Languages: MATLAB (Expert), EES (Expert), Python (Advanced), C (Advanced), Maple (Advanced)

Design Applications: CATIA (Expert), AutoCAD (Advanced), PDMS (Advanced), ICEM (Advanced), SolidWorks (Intermediate)

Simulation Applications: ANSYS Fluent (Expert), ANSYS CFX (Advanced) , Tecplot (Advanced),ASPEN (Advanced), PV Elite (Advanced), PVsyst (Advanced), CMG (Advanced), CAESAR II (Intermediate)

Summary

I am a Energy Engineer and researcher with Master degree in Energy Engineering from Politecnico di Milano. I have teaching experience in Islamic Azad University for 2 years and have conducted research in the areas of Energy Conversion and Renewable Energy.

Work Experience

Islamic Azad University

Part-time, Lecturer — Aug 2020 – Feb 2022

- Delivered over 300 lectures and practical sessions on Thermodynamics, Fluid Mechanics and Heat Transfeer to 200+ undergraduate students
- Developed and updated 15 course syllabi, 100+ lecture slides, and 50+ assignments, improving student engagement by 25
- Administered mid-term and final exams for 30 courses, grading 100+ exams per semester and providing detailed feedback within 2 weeks
- Attended 12 departmental meetings; helped redesign curriculum, boosting student pass rates by 10%.

Iran University of Science and Technology

Full-time, Researcher — Feb 2017 – aug 2022

- Conducted advanced 3D CFD simulations on PEM fuel cells with six cooling channel designs, achieving up to 7% improvement in output voltage and enhancing temperature uniformity by 15%.
- Enhanced double-pipe heat exchanger performance by applying porous media and nanofluid technologies, achieving over 100% increase in performance evaluation criteria (PEC).
- Built and validated multiphysics models integrating heat transfer, fluid dynamics, and electrochemical processes with Darcy-Brinkman-Forchheimer and two-phase mixture formulations.
- Led research contributing to 3+ peer-reviewed publications in high-impact journals, widely cited in energy conversion and thermal systems fields.
- Collaborated in interdisciplinary teams, advancing energy efficiency and passive heat transfer enhancement technologies.
- Translated two specialized technical books on heat exchanger design, improving accessibility of key engineering knowledge.

Mashin Gostar Company

Internship, Designer — May 2015 – Sep 2015

- Designed and improved wastewater recycling tools to treat company industrial waste, increasing treatment efficiency by 5% and enabling safe reuse for irrigation over 50 hectares of agricultural land.

SAM Refrigeration

Traineeship, Technical Team Member — May 2014 – Sep 2014

- Completed over 450 hours of training on operation and maintenance of refrigeration systems under the technical manager's supervision.

Languages

Persian (Mothertounge)
English (C1)
Italian (A2)
Dutch (A1)

Education

M.Sc. Energy Engineering - Green Power Energy — Milan — Sep 2022 – Jul 2025
Politecnoico Di Milano University (Top 15 universities in world) — **Grade: 25/30**

Thesis subject: CFD Modeling of Hydrogen Injection and Combustion Using Flamelet Generated Manifold in Argon Medium for Argon Power Cycle

M.Sc. Mechanical Engineering - Energy Conversion — Tehran — Aug 2016 – Feb 2019
Iran University of Science and Technology (IUST) (Top 5 universities in iran) — **GPA: 3.57 (16.42/20)**

Thesis Title: Performance analysis of double-pipe heat exchanger with simultaneous application of nanofluid and open cell metal foam. (Supervisor: Dr. Majid Siavashi) **GPA: 4**

B.Sc. Mechanical Engineering — Guilan — Aug 2012 – Sep 2016
Guilan University (Top 5 universities in iran) — **GPA: 3.55 (17.10/20)**

Thesis Title: Energy and Exergy analysis of a Latent heat storge system with phase change material for a solar collector in Iran's cities. (Supervisor: Dr. Mohammad Kalteh) **GPA: 4**

Projects

Solar Power Generation | Team Leadership, Renewable Energy, PVSyst — Sep 2023 - Feb 2024
Led team of five to design and optimize standalone PV-battery system using PVSyst; conducted load and economic analysis.

Due Diligence of 52 MW Los Cocos II Wind Farm | Data Analysis, Economic Modeling, Renewable Energy
Politecnico di Milano — Sep 2023 - Feb 2024
Collaborated with six to evaluate market, policy, wind data, and economics for a 52 MW wind farm in the Dominican Republic.

Electricity Planning for Ghana | Energy modeling, Renewable integration, Policy analysis — Mar 2023 - Jul 2023
Simulated Ghana's power system with Hypatia; evaluated capacity, renewables, and carbon tax.

The Modeling of Gas Well with CFD | CFD, FDM, Fortran, CMG, Pressure analysis — Feb 2017 - Jun 2017
Modeled well pressure using FDM in Fortran and CMG; compared method results.

3D Powerplant Piping Design and Support Analysis | PDMS, CAESAR II, Piping Design, Structural Analysis — Sep 2017 - Feb 2018
Generated 3D powerplant piping model in PDMS; evaluated support and safety with CAESAR II.

Design of Pressure Vessel | AutoCAD, Pvelit, Pressure vessel design — Sep 2015 - Feb 2016
Designed horizontal/vertical pressure vessels for safe operation using PVElite and AutoCAD.

Developing FEM Code | MATLAB, ANSYS, Finite Element Analysis — Feb 2015 - Jun 2015
Formulated 1D/2D FEM models and validated results against ANSYS simulations.

Publications

- Joibary, S. M. M., et al. *Numerical investigation of the influence of different cooling flow channels on the thermal and water saturation distribution in a real dimensional polymer electrolyte membrane fuel cell.* **International Journal of Hydrogen Energy** (2022)
- Joibary, S. M. M., and Majid Siavashi. *Effect of Reynolds asymmetry and use of porous media in the counterflow double-pipe heat exchanger for passive heat transfer enhancement.* **Journal of Thermal Analysis and Calorimetry** (2019)
- Siavashi, Majid, and Joibary, S. M. M. . *Numerical performance analysis of a counter-flow double-pipe heat exchanger with using nanofluid and both sides partly filled with porous media.* **Journal of Thermal Analysis and Calorimetry**, (2019)