MALIHE DAVARI

Email: Malihe.Davari@uvm.edu   LinkedIn: https://www.linkedin.com/in/malihe-davari/

EDUCATION

- **Ph.D. in Civil and Environmental Engineering**, *University of Vermont*   **2025 - Present**
  Advisor: Kathryn Hinkelman

- **M.Sc. in Energy Engineering**, *University of Genoa*   **2020 - 2024**
  Thesis title: Energy management system for polygeneration Microgrid of Savona Campus in Italy including District Heating System. **GPA:** 102/110
  Advisors: Michela Robba, Giulio Ferro, Antonella Priarone, Luca Parodi.

- **B.Sc. in Civil Engineering** , *Yazd University*   **2014 - 2019**

RESEARCH INTERESTS

Modeling and Simulation of Energy Systems (Buildings, Districts, Cities), Energy Conservation, Energy Management Systems, The Application of Optimization and Machine Learning in Energy Systems, Energy-efficient Buildings, and related topics.

PUBLICATIONS

- **M. Davari**, G. Ferro, L. Parodi, A. Priarone, M. Robba, M. Rossi, "Sustainable District Optimization with Coupled Power and District Heating Networks", CPES 2024, *https://doi.org/10.1016/j.ifacol.2024.07.472*.

PRESENTATIONS

- **JNES 2024**, "Energy management system for optimal operation of a solar-driven district heating and cooling network near the Lac du Bourget in France", *June 2024, Anglet, France*.
  Supervisors: Jaume Fito-De-La-Cruz, Julien Ramousse

ACADEMIC EXPERIENCE

- **Teaching Assistant,** University of Vermont   Jan 2025- Present

- **PEM-Fuel Cell Degradation Study**   Nov 2022- Feb 2023

  Participated in Prof. Magistri's real-case study on PEM-Fuel Cell degradation.

  - Deployed MATLAB code for data examination.
  - **Data denoising, clustering**, and **curve fitting**.

WORK EXPERIENCE

- **Internship, Water and Sewage Company** (*Isfahan, Iran*)   June 2018 – Sep 2018

  - Water distribution network design and **optimization** using OpenFlows WaterGEMS software for **a town** in Isfahan Province.
  - Examined the **optimality** of a sewage collector system for **two nearby towns** in Isfahan Province.

PROJECTS

- **Harvard** CS50P Final Project

  - As part of CS50's Introduction to Programming with **Python** course - Certificate
  - Included **41 exercises** around the application of Python in various fields leading to the final project (Source available on Github)

- **Machine Learning Projects on Kaggle**

  - Titanic, Housing Prices, and Digit Recognizer competitions.
  - Key tasks included managing missing data, feature selection, and the application of machine learning techniques such as **DecisionTreeRegressor** and **RandomForestRegressor**.

SKILLS

Programming
MATLAB (YALMIP), Python (Gurobi Optimizer, Numpy, Pandas, Keras, Matplotlib), Git (GitHub), GAMS (Basic), Modelica (Basic).
Software
MATLAB/Simulink, AutoCAD, LaTeX, Microsoft Office, EnergyPlus (Basic), RETScreen.

WORKSHOPS AND COURSES

- **Uncertainty** Analysis for Energy Systems (Technical University of Denmark)   June 2024

- 3rd IFAC Workshop on **Integrated Assessment Modeling for Environmental Systems**. (Genova University)   May 2024

- BIP Project: "Energy: **generation, storage and management**". (University of Seville)   May 2024
  Winner of the final project

- **Optimization** methods for Energy System Studies (Technical University of Denmark)   Apr 2024

- Data Visualization (Kaggle)   Mar 2024

- **Solar Energy for Buildings** School (Université Savoie Mont Blanc)   Nov 2023

- **Steering Committee Member**, New Materials and Structures in Civil Engineering Conference   Mar 2017- Nov 2017