Curriculum Vitae

Morteza Kolivand

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EDUCATION

M.S.c in Energy System Engineering (Energy Technologies) Sep. 2020 - June. 2023

Sharif University of Technology, Tehran, Iran **CGPA:** 17.62/20 (3.88/4.0)

Thesis title: Security Analysis and Reliability Evaluation of Energy Internet
Supervisor: **Dr. Abbas Rajabi Ghahnavieh**

B.Sc. in Physics Sep. 2014 - June. 2019

Arak University, Arak, Iran **GPA (Last 3 Semesters):** 16.11/20.0

Thesis title: : Quantum Information and Quantum Computing: Basics and Challenges
Advisor: **Dr. Amin Faraji Astaneh**

FIELDS OF INTEREST

- Graph-based routing algorithms for power transmission in energy internet and smart grids
- Modeling uncertainties and stochastic optimization in energy applications
- Reliability and risk assessment
- Renewable energy resources integration

PUBLICATIONS

Journal

- Danook, Suad H., Vijayanandh Raja, **Morteza Kolivandi**, Ali Aghadadashi, and Mohammed Al-Bahrani. "Investigations of Performance Improvements on the Evacuated Tube Solar Collector with and Without the Incorporation of Preheater through Various Engineering Approaches." IET Renewable Power Generation 17 (2023) doi.org/10.1049/rpg2.12615

Conference

- **Morteza Kolivandi**, and Abbas Rajabi Ghahnavieh. "Numerical and Analytical Approaches to Assessing the Reliability of Routing Algorithm in Energy Internet." 7th International Conference on Reliability and Safety Engineering (ICRSE 2023)

  September 26, 2023

- **Morteza Kolivandi**, Masoud Kishani Farahani, and Abbas Rajabi Ghahnavieh. "Probabilistic Energy Routing Algorithm Enabling Reliability Assessment in Local Energy Internet." 9th International Conference on Technology and Energy Management (ICTEM 2024) February, 14, 2024

- Masoud Kishani Farahani, **Morteza Kolivandi**, and Abbas Rajabi Ghahnavieh. "Comparative Analysis of Energy Efficiency Evaluation Methods for Buildings: ISO 13790 vs. EnergyPlus Simulation." 9th International Conference on Technology and Energy Management (ICTEM 2024) February, 14, 2024

TEACHING EXPERIENCES

Reliability and Risk Analysis (spring semester 2023)

Department of Energy Engineering, Sharif University of Technology, Tehran, Iran
Conducting regular review sessions, assisting in the instruction and delivery of the course, and grading assignments, exams, and projects.
Lecturer: Dr. Abbas Rajabi Ghahnavieh

Process Engineering (fall semester 2022)

Department of Energy Engineering, Sharif University of Technology, Tehran, Iran
Teaching mass balance and Thermodynamics, revising homework ́nd project reports, and working as a group project advisor.
Lecturer: Dr. Akram Avami

Energy Management in Building (fall semester 2022)

    Department of Energy Engineering, Sharif University of Technology, Tehran, Iran

    Preparing and conducting weekly tutorials for classes, and homework and project reports revision.

    Lecturer: Dr. Abbas Rajabi Ghahnavieh

SELECTED PROJECTS

Investigation of Reliability Evaluation in the Energy Internet and Proposal of Applicable Index: A Case Study IEEE 9 Bus Network

Course: Reliability and Risk Analysis   June. 2022

Utilizing Supercritical CO_2 Cycle and Compression Refrigeration for Energy Recovery from Municipal Waste Incineration: Electricity, Heat, and Cooling Generation

Course: Process Engineering   Feb. 2022

Stochastic Optimization in Multi-Carrier Energy Hub Considering Electrical Energy Storage Degradation

Course: Applied Optimization in Energy System (github)   Feb. 2022

Mathematical Modeling of Semi-Transparent Photovoltaic Panels and Investigation of Integrated Systems in the Greenhouse and Building Applications

Course: Advanced Energy Conversion   June. 2021

Optimization in Net-Zero Energy Buildings Using Multi-Objective Mixed-Integer Linear Programming

Course: Energy Modeling (github)   June. 2021

Academic Research Project

◇ The Prediction of Average Rainfall and Average Temperature for Iran Using Machine Learning.(github)

◇ Fault Detection of Supermarket Refrigeration Systems Using Machine Learning.

◇ Scenario Generation and Reduction for Stochastic Optimization Using Monte Carlo Simulation: Forward and Backward Method.(github)

◇ Development of a linear programming code - Revised simplex method- in MATLAB .(github)

SELECTED COURSES

Graduate

- Reliability and Risk Analysis (19.8/20)

- Energy Management in Building (19/20)

- Applied Optimization in Energy System (18.6/20)

- Process Engineering (18.3/20)

- Energy Modeling (18.2/20)

Udergraduate

- Astrophysics (19.25/20)

- Fundamental Particles (19.5/20)

- Plasma (18/20)

- Renewable Energy (16/20)

- Mathematical Physics 1 and 2 (17.4 and 18/20)

- Geophysics (18.75/20)

- Thermodynamics and Statistical Mechanics (17.75/20)

Language Skills

- English: Fluent (TOEFL iBT, Overall Score: -),
    R: -, L: -, S: -, and W: -

- Persian: Native

Honors and Awards

- Best poster award in 9th International Conference on Technology and Energy Management; Feb 2024.
- Ranked 68th (top 1.7%) among more than 4000 participants in the Iranian University Entrance Exam for master degree.
- Ranked 17th (top 1.1%) among more than 1500 participants in the Photonics Entrance Exam for master degree.

Skills and Experties

- **Technical Software**: GAMS, Aspen Hysys, MATLAB, PVsyst, EnergyPlus
- **Programming Languages**: Python (Tensorflow, sklearn, Pyomo, Numpy, Pandas, Matplotlib, Seaborn, ...), Fortran
- **General Software**: LaTeX, Microsoft Office Suite

Hobbies and Interests

- Playing Setar (Classical Persian instrument)
- Sports: Football, Running
- Books: Poetry, Sci-fi, and Philosophy

References

- **Abbas Rajabi Ghahnavieh**

  Assistant Professor,
  Department of Energy Engineering, Sharif University of Technology
  Email: Rajabi@sharif.edu

- **Akram Avami**

  Associate Professor,
  Department of Energy Engineering, Sharif University of Technology
  Email: Avami@sharif.edu

- **Amin Faraji Astaneh**

  Assistant Professor,
  Department of Physics, Sharif University of Technology
  Email: Faraji@sharif.edu