Danial Ramezani

Contact Information

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Rasht, Iran

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Education

M.Sc. in Industrial Engineering – Systems Optimization — **Iran-Tehran**
Kharazmi University — **2022-2024**

- **Thesis:** Novel Approaches for Portfolio Optimization and Index Tracking Problems Under Cardinality Constraints.
- **GPA**: (18.91/20) – (3.88/4)

B.Sc. in Industrial Engineering — **Iran-Tehran**
Iran University of Science and Technology — **2016-2021**

- **Thesis**: A New User-Friendly Decision-Making Website for Multi-Criteria Decision-Making for Experts and Regular Users.
- **GPA**: (15.97/20) – (3.28/4) Last Two Years: (17.41) – (3.65)

Research Interests

- **Operations Research**
- **Optimization**
- **Decision Making Under Uncertainty**
- **Data Mining and Machine Learning**
- **Data-Driven Decision Making**
- **Supply Chain and Logistics**
- **Healthcare**
- **Heuristics and Soft Computing**

Publications

- ***Ramezani, Danial***. "Data-Driven Team Selection in Fantasy Premier League Using Integer Programming and Predictive Modeling Approach." *Operational Research* – Under Review. https://doi.org/10.48550/arXiv.2505.02170
- ***Ramezani, Danial****; Abouei Ardakan, Mostafa; Dehghani Ahmadabad, Mohammadreza."* A Novel Robust Mixed Integer Linear Programming Model for Index Tracking Problem Under No Rebalancing: Heuristic Optimization Approach." *Soft Computing* – Under Review.
- ***Ramezani, Danial****; Abouei Ardakan Mostafa.* "Fast-converging and extensive search strategies for evolutionary algorithms in large-scale portfolio optimization under cardinality constraint." *Optimization and Engineering* – Under Review.
- ***Ramezani, Danial****; Abouei Ardakan, Mostafa; Dehghani Ahmadabad, Mohammadreza.* "A Novel Mathematical Model and Heuristic for Tracking Tehran Stock Exchange (TSE) Index," *Financial Research Journal – Under Review (In Persian).*

Professional and Teaching Experiences

Research Assistant — **Iran-Tehran 2022-2025**

- Assistant to *Dr. M. Abouei Ardakan*, researching optimization problems and co-reviewing manuscripts under supervision.

Teaching Assistant – Simulation and Modeling Course — **Iran-Tehran 2023**

- Assistant to *Dr. H. Izadbakhsh*, coding examples, teaching Python, and organizing projects. GitHub repository related to the course: https://github.com/danialramezani/Simulation-via-python

Quality Control Engineer–Intern — **Iran-Rasht 2021**

- ZAM-ZAM corporations.

Languages

- **English: Fluent (IELTS 7.5: Listening=8, Reading=7, Writing=7, Speaking= 7.5)** — **2025**

Academic Projects and Theses

- **Master's Thesis:** Novel fast-converging approaches for evolutionary algorithms are proposed and implemented on a Non-Dominated Sorting Genetic Algorithm (NSGA-II) for the portfolio optimization problem that can approximate better results compared to regular NSGA-II in a shorter time. In the second part, a novel, robust mixed-integer programming model and a new hybrid algorithm are proposed. This approach achieves a lower tracking error during the out-of-sample period compared to state-of-the-art formulations and outperforms commercial solvers. *Master's Thesis, Dr. M. Abouei Ardakan, M. Dehghani Ahmadabad; 2024.*
- **Blockchain in Agri-Food Supply Chains: Adoption, Opportunities, and Challenges**. *Supply Chain and Logistics Course, Dr. A. H. Gholam Saryazdi; 2023*.
- **Application of Clustering in Multi-Objective Pareto Fronts: Analyzing Solution Patterns Using K-Means and Fuzzy C-Means**. *Data Mining: Applications and Algorithms Course, Dr. M. V. Sebt; 2023.*
- **Coding and Analyzing an Optimization Model:** The Mathematical model of the paper "Vehicle routing problems with drones considering time windows" is implemented in GAMS and analyzed for improvement and mistakes. *Integer Programming Course, Dr. A. Mozdgir; 2023*.
- **Reliability Optimization with the Water Cycle Algorithm and Simulated Annealing**. *Combinatorial Optimization Course, Dr. M. Abouei Ardakan; 2022.*
- **Review of Mining Queuing System in Bitcoin's Blockchain.** *Queueing Theory Course, Dr. A. Mirzazadeh; 2022*
- **A New User-Friendly Decision-Making Website for Experts and Regular Users:** currently deployed at "de-decision" (Implemented in React JS, JavaScript). *Bachelor's Thesis, Dr. A. Makui; 2021*.
- **Designing the Industrial Unit for the Production of Jet Fan Tunnels.** *Planning Industrial Units Course, Dr. M. S. Jabalameli; 2020.*
- **Investigating the Effects of Inappropriate Use of Cell Phones on the Human Body:** A review paper. *Ergonomics Course, Dr. R. Ghousi; 2020.*
- **Comparison of Business Process Management Software (BPMS).** *System Analysis Course, Dr. M. S. Pishvaee; 2020.*
- **Iran's Economy: Analyzing GDP Growth, Infrastructure, Inflation, Population Dynamics, and Key Challenges.** *Macroeconomics Course, Dr. S. Mirzamohammadi; 2019.*

Self-Motivated Projects and Research

- **Generating Data for Drug Response Dataset Using Variational Autoencoder (VAE):** A VAE is employed to generate new data for the Drug Classification dataset using PyTorch; 2025.
- **Decoding Risk Factors in Heart Failure Prediction: A Neural Network Approach with SHAP Analysis.** PyTorch; 2025.
- **Investigating the Impact of Optimizers on Deep Learning Performance for Heart Disease Prediction:** UCI Heart Disease Dataset; 2025.
- **Explaining CNN Decisions in Classifying Fashion Clothing:** FashionMNIST dataset; 2025.
- **Predicting Diabetes Using Neural Networks:** Pima Indians Diabetes dataset; 2025.
- **Application of Autoencoders in Image Processing:** Investigating how different autoencoders (denoising, compressing, generating, convolution) can be used for handwritten digit recognition using the MNIST dataset, Tensorflow; 2024.
- **Optimization Model for Pairs Trading:** A mathematical formulation for finding cointegrated pairs of long-short portfolios alongside their optimal weights; 2024.
- **Reinforcement Learning for Cryptocurrency Trading:** TensorFlow and Open AI gym; 2024.
- **A Machine Learning Framework for Technical Trading:** A Random Forest model is implemented on customized data (using pattern recognition, technical and economic indicators for features and custom target values) to predict whether a long or short trade will be successful or not (average score of 75%); 2024.
- **Ranking Web-Developing Programming Languages with MADM Methods:** Identifying the best web development programming languages for beginners; 2021.

Skills

- **Programming Skills**
  Python, GAMS, JavaScript
- **Software and Libraries**
  Pyomo, CXVPY, TensorFlow, PyTorch, LaTeX, SciPy, Scikit-learn, Statsmodels, SHAP, Microsoft Office, Weka, Minitab, React, Node.js
- **Other skills**
  Academic Writing, Predictive Modeling, Critical Thinking, Independent Research, Problem-Solving, Feature Engineering, Analyzing Stock (Fundamental, Technical)

Related Certificates

- **Game Theory**-Stanford University **2022**

References Are Available Upon Request.