Danial Ramezani

Contact Information

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Education

- **Kharazmi University** — **Iran-Tehran**
  M.Sc. Industrial Engineering – Systems Optimization — **2022-2024**
  - **Thesis:** Novel Approaches for Portfolio Optimization and Index Tracking Problems Under Cardinality Constraints.
  - **GPA**: (18.91/20) – (3.88/4)

- **Iran University of Science and Technology** — **Iran-Tehran**
  B.Sc. Industrial Engineering — **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**
- **Supply Chain and Logistics**
- **Data Mining and Machine Learning**
- **Data-Driven Decision Making**
- **Healthcare**
- **Heuristics and Soft Computing**
- **Scheduling**

Publications

- **Research Papers**
  - ***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.* "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 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; Dehghani Ahmadabad, Mohammadreza.* "A Novel Mathematical Model and Heuristic for Tracking Tehran Stock Exchange (TSE) Index," *Financial Research Journal – Under Review (In Persian).*

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 the Optimization Model of the Vehicle Routing Problem with Drones and time windows:** 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*.
- **Solving Reliability Optimization Problem with 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 Trading Cryptocurrencies:** TensorFlow and Open AI gym libraries; 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.

Related Professional Experiences

- **Research Assistant** — **Iran-Tehran, 2022-Present**
  - Assistant to *Dr. M. Abouei Ardakan*, researching optimization problems and serving as a co-reviewer.
- **Teaching Assistant – Simulation and Modeling Course** — **Iran-Tehran, 2023**
  - Assistant to *Dr. H. Izadbakhsh* for a semester, 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**
  - Three months of work as a quality control engineer at ZAM-ZAM corporations.

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)

Languages

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

Related Certificates

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

References Are Available Upon Request.