

PARSA KHAVARINEJAD

Tehran, Iran

+989036277666 [Gmail](#) [LinkedIn](#) [GitHub](#) [Skype](#)

Education

Tarbiat Modares University **Sep. 2022 - Present**

M.S. in Operations Research, GPA: 3.3/4 *Tehran, Iran*

- MSc Thesis: A Deep Learning Approach for Echocardiography Video Super-Resolution and Denoising.

University of Tehran **Sep. 2017 - Mar. 2022**

B.S. in Applied Mathematics, GPA of the last 2.5 years: 3.41/4 *Tehran, Iran*

- BSc Thesis: A Hybrid Deep Learning Approach for Stock Price Prediction.

Research Interests

- Medical Image Processing
- Deep Learning
- Computer Vision

Attended Coursework

Computer Science and Statistics

- Fundamentals of Computer Science and Programming
- Advanced Programming
- Probability and Statistics
- Design Of Experiments
- Deep Learning
- Multivariate Statistical Analysis
- Graph Theory
- Data Mining
- Combinatorics
- Mathematical Laboratory

Operations Research and Optimization

- Linear Programming 1, 2
- Basic and Advanced Linear Algebra
- Game Theory 1 and 2
- Facility Layout
- Non-Linear Programming
- Numerical Analysis
- Sequencing Theory
- Integer Programming
- Queuing Theory
- Engineering Economics

Research

Thesis: A Deep Learning Approach for Echocardiography Video Super-Resolution and Denoising **Ongoing**

- Researching novel deep learning and GAN and Diffusion-based techniques for super-resolution of Echocardiography videos to advance medical imaging and enhance diagnostic precision.

Neuroimage Synthesis with Incomplete Multi-Modality Data **Ongoing**

- Collaborating and researching with experts in neuroimaging to advance the synthesis of neuroimages with incomplete multi-modality data for comprehensive insights and improved medical diagnostics.

Seminar on the Application of AI in Echocardiography **June 2023**

- Researched AI applications in echocardiography, analyzing insights from 40+ scholarly articles.

Modeling queuing theory for aircraft arrivals at a single airport **July 2023**

- Researched queuing theory to optimize aircraft arrivals at an airport.

Single machine scheduling to minimize earliness and tardiness costs **Jan. 2023**

- Researched single-machine scheduling to minimize earliness and tardiness costs, optimizing scheduling efficiency.

A review of the p-facility median location problem **Jan. 2023**

- Reviewed the p-facility median location problem, enhancing facility location optimization understanding.

Time-Series Models Research **Dec. 2022**

- Explored diverse models like ARIMA, VARIMA, StatsForecastAutoArima, NHITSModel, TCNModel, TFTModel for regression trading, aiming to identify effective approaches for predicting special market trends.

Deception-based Game Theoretical Approach to Mitigate DoS Attacks **May 2021**

- Researched on employing deception tactics within a game-theoretical framework to counter Denial-of-Service (DoS) attacks, providing innovative strategies to bolster cybersecurity.

Using Game Theory for Los Angeles Airport Security **Jan. 2020**

- Conducted research on innovative Game Theory strategies to enhance security at Los Angeles International Airport.

Projects

- Breast Cancer Image Segmentation and Classification** | *Python, Pytorch* **Dec. 2023**
• Worked on a breast cancer image segmentation and classification project for the deep learning in healthcare course.
- Breast Cancer Image Generation and Representation** | *Python, Pytorch* **Dec. 2023**
• Worked on a breast cancer image generation using GAN and representation using AutoEncoder project for the deep learning in healthcare course.
- TSP and mTSP Optimization Using Pyomo** | *Python, Pyomo* **Dec. 2023**
• Coded the Traveling Salesman Problem (TSP) and Multi-TSP using Python and the Pyomo library.
- Database Development for Crypto Exchange Data** | *Python, Postgresql, pgAdmin* **April 2023**
• Developed a cryptocurrency database, implementing instance calculations for features such as OHLCV, candle derivatives, and technical indicators.
- Bank Marketing Analysis using Python** | *Python* **July 2023**
• Accomplished Bank Marketing Analysis project using statistical techniques such as logistic regression, discriminant analysis, and PCA.
- Classification of Heart disease** | *Python, Scikit-Learn* **Jan. 2023**
• Developed a heart disease classification system using machine learning for early detection and intervention.
- A Heuristic Algorithm for Distributed and Flexible Jobshop Scheduling Problem** | *Python* **Jan. 2023**
• Coded a Python heuristic for efficient Distributed and Flexible Jobshop Scheduling.
- Electrocardiogram classification using one-dimensional CNN** | *Python, Tensorflow* **Jan. 2022**
• Developed a project involving ECG classification using a one-dimensional CNN, showcasing deep learning's effectiveness in enhancing accuracy and diagnostic capabilities in ECG analysis.
- Renewable Energy Competition: Bayesian Cournot Games and Engineering Economic** **June 2021**
• Explored the fusion of Bayesian Cournot Games and Engineering Economics in a Renewable Energy Competition, offering insights into strategic market dynamics and economic implications.
- Data-stream mining** | *Python, Scikit-multiflow* **Jan. 2021**
• Executed a data-stream mining project. Emphasizing classification and clustering for real-time analysis of dynamic data streams.
- Game Theory and the Export booms** **Jan. 2020**
• Explored the connection between Game Theory, Export Booms, and economic concepts, analyzing dynamics of export-driven economic growth.
- Class Management App** | *Python, OOP, DataBase* **Jan. 2021**
• Coded a comprehensive class management app designed for students, professors, and courses as part of the Advanced Python course.

Teaching Experiences

- Data Mining** | *Tarbiat Modares University* **Fall 2023**
• Teaching Assistant, Dr. Toktam Khatibi
- Calculus 2** | *University of Tehran* **Winter 2020**
• Teaching Assistant, Dr. Gholamreza Rokni Lamouki
- Differential Equation** | *University of Tehran* **Fall 2020**
• Teaching Assistant, Dr. Gholamreza Rokni Lamouki
- Game Theory 1** | *University of Tehran* **Fall 2020**
• Teaching Assistant, Dr. MahdiReza Darvishzade
- Calculus 1** | *University of Tehran* **Fall 2020**
• Teaching Assistant, Dr. Gholamreza Rokni Lamouki
- Calculus 1** | *University of Tehran* **Fall 2019**
• Teaching Assistant, Dr. Gholamreza Rokni Lamouki
- Differential Equation** | *University of Tehran* **Fall 2019**
• Teaching Assistant, Dr. Gholamreza Rokni Lamouki

Presentations

- Disease-specific Neuroimage Synthesis with Incomplete Data.** | *University of Tehran* **Dec. 2023**
- Explore "Disease-specific Neuroimage Synthesis" for precise diagnostics from incomplete data, uncovering transformative applications in medical imaging
- CNN and RNN Code Workshop** | *Tarbiat Modares University* **Dec. 2023**
- Hosted a hands-on session on Convolutional and Recurrent Neural Network code using Keras for the Computer Vision class.
- EfficientNet V2** | *Tarbiat Modares University* **Dec. 2023**
- Discussed EfficientNet V2, and its applications, and provided code examples.
- Seminar on the Application of AI in Echocardiography** | *Tarbiat Modares University* **June 2023**
- Presented AI applications in echocardiography and discussed potential research directions for further advancements.
- Time-Series models** | *Bitex, Accretive team* **March 2023**
- Presented Temporal Convolutional Networks (TCNs) and Temporal Fusion Transformer (TFT) models, highlighting their architectures and diverse applications.
- Introduction to Markov Chains** | *Tarbiat Modares University* **June 2023**
- Presented Markov Chains basics in an easy-to-understand manner.
- Python for Data Mining** | *Tarbiat Modares University* **March. 2023**
- Hosted a hands-on Python for Data Mining workshop.
- Electrocardiogram classification using one-dimensional CNN** | *University of Tehran* **Jan. 2022**
- Presented 1D CNN's application in ECG data analysis, emphasizing its effectiveness in feature extraction for accurate interpretation.
- Stone-Weierstrass Theorems** | *University of Tehran* **Jan. 2020**
- Presented the Stone-Weierstrass Theorem, delving into its key aspects and implications within mathematics.

Job Experiences

- AI Developer** **Aug. 2022 - Aug. 2023**
Bitex *Tehran, Iran*
- Collaborated with experts to develop a crypto market AI trader bot, utilizing machine learning and data analysis,
 - Researched time series machine learning algorithms to optimize trading models, achieving increased profitability.
- Co-Founder and Product Lead** **Sep. 2020 - Aug. 2022**
Nilwood *Tehran, Iran*
- Co-founded Nilwood, a home and kitchen accessories company.
 - Met market demands through accessory development.

Honours and Awards

- National University Entrance Exam for BSc** **2017**
- Ranked 613 out of almost 150,000 participants.
 - Majoring in Maths and Physics
- National University Entrance Exam for MSc** **2022**
- Ranked 135 out of almost 10,000 participants.
 - Majoring in Industrial Engineering

Skills

Languages: English: Advanced, Persian: Native

Development: Python, SQL, Github, Docker, Linux, Matlab

AI: Scikit-Learn, Keras, TensorFlow, Pytorch, OpenCV

Data Analysis and Visualization: Pandas, Numpy, Matplotlib, Seaborn, Minitab and SPSS, Power BI

Document Preparation: L^AT_EX, MS Office

References

Available upon request