Mohammad Mahdi **Rahneshin**

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Summary

Bachelor's in Computer Engineering with experience in AI, Machine Learning, and software development. Demonstrated effective leadership as head exercise designer for national- and university-level Data Structures contests and led teaching assistant teams across multiple semesters. Developed notable projects in predictive maintenance of VRLA batteries, advanced data structures, and deep learning, and completed the graduate-level course *Neural Networks and Deep Learning* during undergraduate studies. Passionate about deep learning and NeuroAI, and committed to advancing cutting-edge research and innovation.

Research Interests

- Deep learning & Machine Learning
- Neuroscience
- NeuroAI
- NLP & Large Language Model
- ML for Healthcare
- Data Mining

Skills

Programming Languages: C, C++, Java, Python (Proficient) - HTML/CSS, JS, Lua (Familiar)

Database: MySQL, SQLite, PostgreSQL

Libraries: PyTorch, Pandas, Dask, Numpy, Scikit-learn

Tools and Frameworks: Junit, Django & DjangoRestFramework, Jupyter Notebook, Git

Soft skills: Leadership and Management, Teamwork

Operating Systems: Windows, Linux

Education

B.Sc. in Computer Engineering - FERDOWSI UNIVERSITY OF MASHHAD (FUM) 2019 – 2025 Mashhad, IRAN

- Total GPA: **3.44 / 4 (16.21 / 20)**
- Selected Courses:
  - Artificial Intelligence Fundamentals and Applications 18.5/20
  - Applied Linear Algebra 19.5 / 20
  - Differential Equations 18 / 20
  - Principles of Compiler Design 20 / 20
  - Operating Systems 19.21 / 20

High School Diploma in Mathematics and Physics - Shahid Beheshti High School 2016 – 2019 Gonabad, IRAN

- Total GPA 18.42 / 20
- Affiliated with National Organization for Development of Exceptional Talents (NODET)

Teaching Experience

Teaching Assistant (Team Leader), Data Structures by Dr. Ghiasi-Shirazi, FUM 2022 - 2025 (5 semesters)

Teaching Assistant (Team Leader), Algorithm Design by Dr.Nouri-Baygi, FUM 2022 – 2025 (5 semesters)

Selected Projects

Predictive Maintenance of VRLA Batteries in BTS Systems – Implementation of Existing Method 2025

Bachelor's final project in collaboration with Nian Electronics, implementing the method from *"Predictive Maintenance of VRLA Batteries in UPS towards Reliable Data Centers"* using Gradient Boosted Decision Trees to forecast battery degradation.

Pure Parity Seeking 2-3 Red Black Binary Tree 2024

Implemented the data structure based on the paper *"Revisiting 2–3 Red–Black Trees with a Pedagogically Sound Yet Efficient Deletion Algorithm: Parity-Seeking."*. Designed based on object-oriented principles for reusability and inheritance, like a library.

Data Integration and Cleaning for Video Game Analysis 2024

Merged and cleaned video game datasets using Python and pandas. Tasks included removing duplicates, dropping unnecessary columns, and preparing data for analysis.

Presentation: Competition-Level Code Generation with AlphaCode by DeepMind 2024

Did a presentation on AlphaCode's LLM-based architecture, large-scale sampling, and filtering techniques for solving competitive programming problems as the final project for the graduate-level *Neural Networks and Deep Learning* course.

Automatic Scoring System for Programming Competition "Sepehr" 2023

The project was initially implemented by Dr. Kamaledin Ghiasi-Shirazi, and I further developed it for use in the Dataleague contest and programming exercises in both the Data Structure and Algorithm Design courses.

Age Prediction with Transfer Learning 2023

Project for the graduate-level *Neural Networks and Deep Learning* course. Implemented an age prediction model using transfer learning with VGG16 and PyTorch. Added custom ReLU and dropout layers, fine-tuned select layers, and preprocessed facial images to reduce noise.

Seizure Signal Classification 2022

Developed a seizure signal classification system using SVM, Random Forest, and CNNs: preprocessed EEG data, optimized features, and validated models with K-fold cross-validation and performance metrics.

Game Player Agent in Abalone Game 2022

Developed a smart agent to play Abalone using the GDScript language and the Minimax Alpha-Beta Pruning algorithm in the Fundamentals of Artificial Intelligence course.

Work Experience

Dataleague[2] Data Structures National-level Contest (Exercise Design Team Lead) 9/2024 – 3/2025 Mashhad, IRAN

Led an exercise design team for a national Data Structures contest with Sepehr, an automatic scoring program that I developed, and occasionally contributed to exercise implementation, all supervised by Dr. Kamaledin Ghiasi-Shirazi.

Dataleague[1] Ferdowsi University Data Structures Contest (Exercise Design Team Lead) 11/2023 – 3/2024 Mashhad, IRAN

Served as lead exercise designer, supervised design team, implemented exercises (e.g., AVLBinaryTree, IndexedLinearList, BinaryTree), and helped develop the Dataleague website, all supervised by Dr. Kamaledin Ghiasi-Shirazi.

Part Research Institute Summer 2023 Mashhad, IRAN

Developed an automatic scoring system, Sepehr, for programming assignments, especially for data structure and algorithm design problems, all supervised by Dr. Kamaledin Ghiasi-Shirazi.

Ramouz Co 1/2022 – 4/2022 Mashhad, IRAN

Interned as a front-end developer, building a messenger application with Vanilla JavaScript.

Languages

Persian (Farsi) – Native

English – TOEFL 86/120 (Listening 23 – Reading 23 – Speaking 20 – Writing 20)

References

References available upon request