

Mobina Sedaghat

PROSPECTIVE STUDENT

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Education

B.Sc. in Computer Science

September 2018 - September 2023

KHARAZMI UNIVERSITY

Tehran, Iran

- GPA: 3.10/4.00 | Final 2-year GPA: 3.40
- Full Scholarship (Tuition Waiver) from Kharazmi University

Research Interests

Theoretical and Applied Machine Learning and Deep Learning

Investigating the theoretical foundations and mathematical principles behind machine learning and deep learning algorithms, while applying these insights to solve real-world problems.

Computational Biology and Neuroscience

Applying computational methods to model and analyze complex biological and neurological systems, integrating these approaches with data to gain insights into various processes and functions related to biology and the brain.

Algorithmic Quantum Computing

Exploring quantum computing from an algorithmic perspective, including the development and analysis of quantum algorithms and their potential applications in solving complex computational problems.

Skills

Programming Languages | Python, Matlab, SQL, Java, C, C++

Artificial Intelligence | Machine Learning (supervised, unsupervised, DL)- Numpy, Pandas, Scikit-learn, Tensorflow, Matplotlib

Graphics, Illustration | Adobe Illustrator, Adobe Photoshop

Statistical Analysis | SPSS

Document Preparation | Microsoft Office, LaTeX

Selected Projects

Artificial Intelligence / Machine Learning:

- **Predict Student Performance from Gameplay - Kaggle Competition** (Predicting student performance during game-based learning in real-time using Random Forest, with an accuracy of 0.73.)
- **Gen AI job simulation - BCG**
- **N-Queens problem** (using Hill Climbing, Simulated Annealing, Genetic Algorithms)
- **N-Puzzle problem** (using Depth-first, A*, Hill Climbing algorithms)

Computational Biology:

- **Amino Acid Analyzer** (Bioinformatics course)
- **Molecular dynamics simulation** (Lennard Jones Potential)
- **Some of the www.rosalind.info Problems** including:
Rabbits and Recurrence Relations, Computing GC Content, Counting Point Mutations, Mendel's First Law, Translating RNA into Protein
Finding a Motif in DNA, Finding a Shared Motif, Locating Restriction Sites

Other Class Projects:

- **Airport Management System** (DataBase course Project)
- **Conway's Game of Life**
- **Connect four game** (Java Advanced Programming course)

Selected Presentations

Deep Learning

An overview of emergence and underlying mathematics of ANN and Deep Learning models

2023

Pseudo-Random number generator Based on quantum Random Walks

Presented article: "Novel Pseudo-Random Number Generator Based on Quantum Random Walks" (Yang & Zhao).
Types of Random Number Generators, Chaotic Behavior of QRW, and steps PRNGs

2022

Quantum Computing

Introduction to Quantum Computers, Qubits, their Operation/Function, Shor's Algorithm, and RSA Encryption System

2021

Big Data

Introduction, types and tools and technologies for analysis of Big Data

2021

Languages

Persian | Native

English | Duolingo English Test - Overall: 130, Literacy: 130, Comprehension: 135, Conversation: 130, Production: 105

Selected Courses and Workshops

SELECTED UNIVERSITY COURSES:

• Artificial Intelligence , Dr. Mohammad Soltanian	18.1/20
• Principles of Matrices and Linear Algebra , Dr. MohammadReza Salarian	20/20
• Data Mining , Dr. Keyvan Borna	17/20
• Database , Dr. Somaye Arabi	20/20
• Coding and Cryptography , Dr. Arash Ahadi	17/20
• Computer Simulation , Dr. Mohammad Soltanian	17/20
• Calculus III , Dr. Reza Orfi	18.25/20
• Basics of Bioinformatics , Dr. Leila Karami	19/20

OTHER COURSES:

• Reinforcement Learning From Human Feedback , DeepLearning.ai	2024
• Bioinformatics Specialization , Coursera	2024
• Data Analysis with python , Coursera	2023
• Tools for Data Science , Coursera	2023
• What is Data Science? , Coursera	2023
• Machine Learning A-Z™ , Udemey	2023
• Biology Library , Khan Academy	2022
• Deep Learning and Neural Networks , Shahid Beheshti University	2019
• Python , Kaggle	2019

WORKSHOPS:

• Sharif Neuroscience Symposium	2024
• Neuroscience Data Processing with DL methods Python , National Brain Mapping Lab	2023
• 2Day Workshop on Human Connectome Database , National Brain Mapping Lab	2023
• Deep Learning spring school , Kharazmi University	2018

Extracurricular Activities

ACM of Kharazmi University

- Participated in ACM association of Kharazmi university 2021 - 2022
- Machine Learning and Scientific Computing study group

Setar and Taar Player

- MUSIC COMMITTEE OF KHARAZMI UNIVERSITY 2019 - 2023
- Participated in Iranian traditional music band of Kharazmi university as Taar and Setar player.

References

Dr. Keivan Borna

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Dr. Mohammad Soltanian

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