Avisa **Fallah**

School of Mathematics, Statistics and Computer Science, University of Tehran, Tehran, Iran.

(+98) 902-7227-467 | avisafallah2001@gmail.com | *Homepage* | avisafallah | AvisaFallah

Education

College of Mathematics, Statistics and Computer Science, University of Tehran — *Tehran, Iran*

B.Sc. in Computer Science (Major Study) — *Sep. 2019 - present*

- CGPA: 18.34/20 via 117 units (3.7/4)
- Last year GPA: 19.42/20 (4/4)

Farzanegan High School — *Tehran, Iran*

Highschool, Mathematics and Physics — *Sep 2016 - Jul. 2018*

- CGPA: 19.59/20

Negaresh High School — *Tehran, Iran*

Diploma in Mathematics and Physics Discipline — *Sep 2018 - Jul. 2019*

- CGPA: 19.61/20

Research Interests

- **NeuroScience**
- **Image Processing & Vision**
- **Artificial Intelligence in Art**
- **Generative Adversarial Network**
- **AR & VR**

Relevant Courses

- **Artificial Intelligence (20/20)**
- **Linear Algebra (19.4/20)**
- **Database Management Systems (20/20)**
- **Probability 1 (17.5/20)**
- **Statistical Methods (18.75/20)**
- **Strategic Games 1 (18.5/20)**
- **Image Processing (18/20)**
- **General Biology (20/20)**
- **Design and Analysis of Algorithms (20/20)**
- **Fundamentals of Software Design (20/20)**
- **Fundamentals of Computer Science and Programming (20/20)**
- **Advanced Programming (20/20)**

Publications

Keramati A., Fallah A., and Taghiyareh F. (2023). **"Enhanced Iranian Integrated Healthcare System Through Root Cause Analysis"**. Iranian Conference on Advances in Enterprise Architecture. Affiliated with IEEE Xplore. (under review)

Research Experience

Under the supervision of Prof. K. Kavousi — *University of Tehran*

Research Assistant at Iranian Bioinformatics Society (IBIS) — *Sep. 2023 - present*

In our current focus on mental disorders and diseases, we have initiated several new Requests for Proposals (RFPs) aimed at diagnosing and developing treatment strategies for mental illnesses. Leveraging a combination of advanced AI tools and algorithms along with bioinformatics knowledge, we are endeavoring to propose various pathways and solutions to address our knowledge gaps in assisting these patients.

Academic Experience

University of Tehran Computer Science Students' Scientific Chapter

The Deputy Head Computer Science Students' Scientific Chapter — *Dec. 2021 - Apr. 2023*

Teaching Experience at University of Tehran

Calculus 1 Head Teaching Assistant — *Aug. 2023 - Present*
Discrete Mathematics Supervising Teaching Assistant — *Aug. 2023 - Present*
Database Design Teaching Assistant — *Aug. 2023 - Present*
Calculus 2 Head Teaching Assistant — *Feb. 2023 - Aug. 2023*
Introduction to Computer Science and Programming Teaching Assistant — *Feb. 2023 - Aug. 2023*
Discrete Mathematics Teaching Assistant — *Aug. 2022 - Aug. 2023*
Advanced Programming Teaching Assistant — *Aug. 2022 - Feb. 2023*
Linear Algebra Teaching Assistant — *Aug. 2022 - Feb. 2023*
Calculus 2 Teaching Assistant — *Aug. 2021 - Aug. 2022*

Academic Projects

Blood cell Classification *Image processing*
Convolutional Neural Network (CNN) *scikit-learn, Keras, TensorFlow*
I implemented four different convolutional neural networks (CNNs) to classify normal (healthy) and abnormal (unhealthy) blood cells.

Kurdish Handwritten Recognition *Image processing*
Convolutional Neural Network (CNN) *Keras, TensorFlow*
I implemented four different convolutional neural networks (CNNs) for Kurdish handwritten recognition.

English Handwritten Recognition *Mathematics Laboratory*
Neural Network *Keras, TensorFlow*
I constructed a neural network model using the Keras and TensorFlow libraries to classify the A-Z Handwritten Alphabets dataset.

Persian Handwritten Digit Recognition *Mathematics Laboratory*
Feed-Forward Neural Network *scikit-learn*
I developed a feed-forward neural network from scratch for classifying Persian handwritten digits' dataset.

The Tour De Flags Maze *Artificial Intelligence*
Q-Learning *Python, tkinter*
I trained an agent, capable of efficiently collecting multiple flags within the maze while navigating to the target cell with Q-Learning and optimized learning parameters (alpha and gamma). Finally,visualized the learning progress with graphical representation using tkinter library.

Four-Connect *Artificial Intelligence*
Minimax, Minimax with alpha-beta pruning, and Monte Carlo Tree Search *Python, pygame*
I implemented the Four-Connect game in multiple game modes, including two-player, human-AI, and AI-AI gameplay. I utilized Minimax and Monte Carlo Tree Search algorithms for gameplay logic. Additionally, I created the graphical interface using the pygame library.

8-Puzzle *Artificial Intelligence*
Search Algorithms *Pyhton*
I solved the 8-puzzle problem, focusing on minimizing execution time using various search algorithms (Heuristic, DFS, BFS, UCS, IDS, A*).

Skills

Programming Languages Python, C/C++, LaTeX, MATLAB, MySQL, R
Frameworks & Libraries NumPy, TensorFlow, Keras, scikit-learn, Pandas, PyTorch
Technical Photoshop, Blender, Illustrator
Software Engineering Familiar with multiple design patterns.
Soft Skills Creativity, Team work, Problem Solving, Social Communication

Certifications

Supervised Machine Learning: Regression and Classification DeepLearning.AI — *Aug. 2023*
Build Basic Generative Adversarial Networks (GANs) DeepLearning.AI — *Sep. 2023*
Neural Networks and Deep Learning DeepLearning.AI — *Sep. 2023*
Workshop on "How to be a Teaching Assistant" University of Tehran — *Nov. 2022*
Digital Painting Tehran Institute of Technology — *Jan. 2023*
Strategic Thinking Tehran Institute of Technology — *Mar. 2023*
Adobe Illustrator Comprehensive Course Inverse School — *present*

Blender Comprehensive Course Inverse School *present*

Interests

- **Art (Painting, Singing, Writing, Poetry, Novels)**
- **Music and Movies**
- **Sports (Volleyball, Swimming)**
- **Charity Work**

Paintings

Visit my Art Portfolio to explore a diverse collection of my original paintings, showcasing my creativity, innovation, and high passion for painting.

Languages

Persian	Native
English	Proficient
Arabic	Familiar