Ali Pakdel Samadi

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Education

College of Electric and Computer Engineering, University of Tehran Tehran, Iran
B.Sc. in Computer Engineering (Software Engineering Major) *Sep. 2019 - present*

- Cum. GPA: 18.26/20 (3.85/4)
- Related Courses: Artificial Intelligence: 19.2/20(4/40), Discrete Mathematics: 20/20(4/4), Engineering Probability and Statistics: 17.8/20(4/4), Real Time Embedded Systems: 18.5/20(4/4), Internet Engineering: 18.3/20(4/4)

College of Psychology and Education, University of Tehran Tehran, Iran
Minor Study in Educational Science *Sep. 2021 - Jul. 2023*

- Cum. GPA: 18.81/20 (4.0/4.0)
- Related Courses: Introduction to Psychological Tests (specialization): 20/20(4/4), Educational Sociology: 19/20(4/4), Educational Psychology: 18/20(4/4), Basics of Qualitative and Quantitative Research Methods: 17.5/20(4/4)

Allame Helli 4 High School Tehran, Iran
Diploma in Mathematics and Physics *2013 - 2019*

- GPA: 19.39/20
- As a part of the National Organization for Development of Exceptional Talents (NODET)
- Ranked 161 (Top 0.1%) in Konkour, National Organization of Educational Testing (NOET)

Research Interests

- Cognitive Science
- Computational Cognitive Science
- Neuroscience
- Brain–computer interfaces
- Human-computer Interaction
- AI in Health

Research Experience

Under the supervison of Prof. H. Moradi University of Tehran
Reseach Assitant *May 2023 - present*

I actively participated in the creation of two distinct Unity-based games as part of our cognitive sciences research initiatives. One of these games was tailored to assess the cognitive abilities of elderly individuals by targeting neuron-related tasks. The second game was specifically designed to measure tapping frequency, with the primary objective of collecting data for the study of Parkinson's disease. These projects reflect our commitment to advancing our understanding of cognitive function and neurological conditions through interactive gaming.

Under the supervison of Prof. H. Kebriaei University of Tehran
Reseach Assitant *Jul. 2023 - present*

I've been actively involved in a research project that aims to advance trading strategies through the fusion of reinforcement learning and machine learning techniques. Our work focuses on developing innovative methods to make trading more effective and efficient.

Teaching Experience

University of Tehran

Supervising Teaching Assitant | Discrete Mathematics, Prof. S. Mohammadi — *Fall 2022 - Spring 2023*

Teaching Assitant | Database Design, Prof. A. Shakery — *Spring 2023 - Fall 2023*

Teaching Assitant | Data Structures and Algorithms, Prof. H. Faily — *Spring 2023 - Fall 2023*

Teaching Assitant | Discrete Mathematics, Prof. S. Mohammadi — *Spring 2021 - Fall 2022 - Spring 2022*

Allameh Helli 4 High School — *Jul. 2019 - Oct 2019*

Study Guide

Work Experience

ZarinPal — Tehran, Iran

Software Developer — *Jul. 2022 - Aug. 2023*

I conducted extensive research on global and Iranian cryptocurrency exchanges, leading to the creation of a proprietary library. This tool identifies arbitrage opportunities across eight exchanges, connecting various trading platforms. As a result, we now have over ten automated trading bots generating profits.

I also led efforts to integrate Iranian exchanges with Hummingbot for advanced market-making strategies. Our collaboration is in the final testing stages, demonstrating my commitment to advancing cryptocurrency trading and fostering innovation.

Certificates

Fundamentals of Reinforcement Learning University of Alberta — Aug. 2023

How to be a Teaching Assistant University of Tehran — Nov. 2022

Notable Academic Projects

Baloot | *A Fully Functioning Amazon Clone* — Internet Engineering

- A complete implementation of a website from scratch by me and my teammate. This project was developed using Java and Spring for the back-end, and React for its front-end. We have used tools like CI/CD pipelines, JDBC, JUnit, Github Oauth apps, etc

Smart Flower Pot | *Automated Watering System with Arduino* — Real Time Embedded Systems

- This project aims to create a smart flower pot system with three Arduino boards for automating plant care based on soil moisture and temperature levels. It uses sensors and Bluetooth communication to adjust irrigation.

XV6 Kernel | *Improved XV6 Kernel* — Operating Systems Lab

- Adding some new features such as new system calls, three new custom task schedulers, and a process synchronization (using semaphore) to xv6 kernel.

Handwriting Recognition | *Neural Network* — Artificial Intelligence

- This project aims to implement and compare feed-forward neural networks from scratch and using Keras and TensorFlow. In the first phase, we implemented a feed-forward neural network from scratch using NumPy to classify handwritten numbers. In the second phase, we used the Keras and TensorFlow libraries to build a neural network model to recognize handwritten alphabets.

Music Genre Prediction | *Machine Learning Methods* Artificial Intelligence

- This project aims to predict the genre of music using machine learning methods, particularly with the Scikit-Learn library. We implemented and optimized k-nearest neighbors (KNN), decision tree, and random forest models to improve prediction efficiency.

Decoder | *Genetic Algorithm* Artificial Intelligence

- This project aims to decode encoded text using a genetic algorithm. The algorithm generates a population of candidate keys and improves it through crossover and mutation.

Image Filtering | *Multi-Threaded Processing* Operating Systems

- This project aims to implement both serial and parallel designs in C++ for applying various filters to an image and subsequently conduct a performance comparison between them.

Skills

Programming

- *High Intermediate:* C++, Python
- *Intermediate:* C, C#, Java, Verilog
- *Beginner:* GoLang, Latex

Technologies: Git, Docker, Maven, Makefile

Software Engineering: Familiar with multiple object-oriented design patterns. Efficient with function-based designs. Fully familiar with Agile development and its concepts.

Web Development: React, Spring

Game Development: Unity Engine

Operating Systems: Linux (Ubuntu), Windows

Languages

Persian Native

English Professional working proficiency