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Mahya Khazaei

EDUCATION

B.Sc. in Computer Engineering with a concentration on AI — *Iran University of Science and Technology, Tehran, Iran*

Sep 2014 - Aug 2019

Ranked 3rd among Iran Universities based on QS Ranking

Last year GPA (44 credit): 3.34/4

Overall GPA: 3.10/4

Diploma in Mathematics and Physics Discipline — *Salam HighSchool, Tehran, Iran*

Sep 2010 - MAy 2014

GPA: 4/4

AWARDS & HONORS

Iran University of Science and Technology, Tehran, Iran

- Accepted and qualified in digikalaNEXT AI winter Camp (2019)
- Earning a certification of attending in "Chillin Wars" competition (AI competition of IUST) (2019)
- Earning a certification of attending in "AI Challenge" competition (AI competition of Sharif University of Technology) (2018)
- Executive member of Pycon (Iran python conference) (2018)
- Honorary member of the scientific association of computer engineering department (2016)
- Winning an award for being the 2nd top student of the year (2015)

Salam HighSchool, Tehran, Iran

- Being in the top **1%** (amongst 222,705 candidates) in the national university entrance exam (Aug 2014)
- Achieving the award for acceptance in the first round of international Computer Olympiads and going to the Semi-final stage (2012)
- Achieving certificate of attending in "Iran open simulation 2D - senior league" AI competition as a student (2012-2013-2015)
- Achieving certification of attending many high school junior simulation 2D leagues like "FarzCup" and "SalamCup" AI competition (2011-2012-2013)
- Achieving the award for acceptance in the first round of international Computer Olympiads and going to the Semi-final stage (2012)

RESEARCH INTERESTS

Machine learning/Deep learning
Data science and statistics
Artificial intelligence
Data Analytics
Natural language processing
Signal and time series processing

TEACHING EXPERIENCE

Discrete Mathematics — *Head of Tutors*

Feb 2019 - Jul 2019 Instructor: Dr. Vesal Hakami

Artificial Intelligence — *Tutor*

Feb 2019 - Jul 2019 Instructor: Dr. Mohammad Taher Pilevar

Foundation of computer and programming — *workshop Organizer*

Jan 2021 - Jan 2021 Instructor: Dr. Sauleh Etemadi

SKILLS

Computer Skills

- Self Learning: I think this is the most important skill of mine ,and I've learned my other skills from it.
- Programming Languages
  - *Proficient at:* *Python, Java, C++, Octave*

    - *Familiar with:* *C, C#, Matlab, assembly, Js, HTML,CSS*
- ML libraries and frameworks:
    - *Keras, Tensorflow, PyTorch, Scikit-learn, OpenCV, Pandas, Numpy, SciPy, Matplotlib, Seaborn, Plotly*
    - *Transfer learning, GAN, CNN, RNN, and LSTM*
    - *Statistic models, EDA, data analytics*
    - *Big data:* *familiar with Sparks and functional languages.*
    - *NLP tools:* *Mallet, NLTK,BERT*
    - *Signal processing:* *Pydub, Ffmpeg, Talib*
- Software libraries and frameworks:
    - *Proficient at:* *Flask, SQL, Rest, Microservices*
    - *Familiar with:* *PostgreSQL, MongoDB, Django*
- Project management tools: Trello, Jira
- Others:
    - *Proficient at:* *Linux, Git,CI/CD, Unit test and TDD, Agile, Scrum, google colab, jupyter notebook*
    - *Familiar with:* *Docker, Kafka*
    - *Math skill: 161 GRE quant reasoning score (75% percentile)*

Language Skills

Persian: Mother Tongue

English: IELTS score: 7 (all skills are above 6.5)

GRE: Verbal reasoning: 140

Soft Skills

I spent quality time in the last two years on my mental health by attending many Psychology courses, workshops, personal sessions, and Mindful fitness classes; professional therapists approve these skills:

- Effective communication skills
- group personality (Teamwork & cooperation)
- Self-awareness skills and mental strength
- Emotion recognition skills and their practical use
- self-compassion skills
- Self-control and anxiety regulation skills
- Integrative self-knowledge skills
- Empathy skills, mutual understanding, and healthy control of Emotions
- creativity and modern thinking skills

workshops based on the biopsychosocial model of health, mindfulness and mindsight theory of Daniel Siegal, Jon Frederickson's book: The Lies We Tell Ourselves, from the line of to triangle of conflict (based on ISTDP)

ACADEMIC PROJECTS

A survey and partial implementation of "Deep content-based music recommendation."

Supervisor: Dr. Sauleh Etemadi

Referee: Dr. Behrouz Minaei-Bidgoli

- Extracting latent factors of users and music (implicit collaborative filtering and non-negative matrix factorization)
- Representing music content by features(bag of MFCC) for MLP and in wave (raw) for CNN
- Comparing results of two methods

Detect the hitting of the ball to the wall

Supervisor: Dr. Mohammadreza Mohammadi

- Detect red and blue balls in variant lights in front of a white wall
- Modeling the movement and detecting the hit time and area

WebRTC

Supervisor: Dr. Vesal Hakami

- Video and audio peer to peer connection over nat (GitHub link)

Classify pieces of music by composer (Bach and Beethoven) by NLP model

Supervisor: Dr. Sauleh Etemadi

- Converting MIDI files to text
- Representing pieces of music as the words and sentences
- Using statistical language model to classify

Crime detection by decision tree

Supervisor: Dr. Behrouz Minaei-Bidgoli

- Based on Kaggle competition

Computational Intelligence Course projects

Supervisor: Dr. Nasser Mozayani

- Solving "Inverted Pendulum" using Fuzzy Logics
- Function approximation using RBF (Radial Basis Function) and MLP
- Image classification using Multi-Layer Perceptron for MNIST using Keras

Lexical analyzer generator

Supervisor: Dr. Saeed Parsa

- This code (in C) takes the operators and keywords of any programming language and gives a code (in C) to analyze codes in mentioned language lexically.

Hotel reservation system

Supervisor: Dr. Mehdi Ghatee

- Designing MySQL database and a java program to CRUD on it with details and UI.

Select migration method in VM migration with machine learning

Supervisor: Dr. Reza Entezari Maleki

- Improve models for VM migration destination and method

Improve the accuracy of f0 estimation in polyphonic music (based on this paper)

Supervisor Dr.Geoffroy Peeters

- (In progress)

COMMERCIAL PROJECTS

Generate new trading strategies via Genetic evolution algorithms

- Combining trading grammars (rules) with Genetic programming and defining a particular initial population to maximize the fitness population.
- Calculate fitness on stock or other financial time series

Auto OCR and face detection/confirmation system in online taxi system

- Make the information verification automated. Match the data in the ID card and application form.
- The system could detect the ID card's face and match it with the picture in the application form.
- Do the OCR from the ID card and check if the name, birth date, and ID number match with the information in the application form.
- This system used transfer learning.

Exploratory Data Analysis on cryptocurrency markets

- Analyze and visualize the data in bitcoin and other altcoins markets.
- Find the relation between different markets.
- Analyze the characteristics of each market via statistics and essential EDA tools.
- Find the seasonality in cryptocurrency markets by calculating the relation via feature importance tools, like various boosting methods.

Find repetitive patterns (clusters) and anomalies in finance markets.

- Use unsupervised methods to find patterns and anomalies.
- Make usable datasets from time series to apply clustering algorithms on them.
- Define destination to apply classic clustering algorithms on data.
- Solve the size and degree challenge in clustering. (patterns could happen in different time frames and uptrends and downtrends.)

ONLINE COURSES

Mathematics for Machine Learning: Linear Algebra Imperial College London

Mathematics for Machine Learning: Multivariate Calculus Imperial College London

Machine Learning Stanford

Neural Networks and Deep Learning deeplearning.ai

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization deeplearning.ai

GAN specialization (in progress) deeplearning.ai

SELECTED ACADEMIC COURSES

Game Design and Development A

Natural Language Processing A

Software Engineering A

Software Engineering lab A+

Theory of Languages and Automata A+

Database Design A

Discrete Mathematics A+

Basic Programming A

Physics A+

Final Project A+

Operating Systems A+

REFERENCES

Dr. Sauleh Etemadi — *Department of Computer Engineering*
Iran University of Science and Technology, Tehran, Iran
sauleh@iust.ac.ir

Dr. Vesal Hakami — *Department of Computer Engineering*
Iran University of Science and Technology, Tehran, Iran
vhakami@iust.ac.ir

Dr. Mohammadreza Kamrani — *CTO at Artificial Intelligence and Data Science Department*
Knowledge-based crypto exchange company YAS, Tehran, Iran
mkamrani@aut.ac.ir / m.kamrani@yas.group

INDUSTRIAL EXPERIENCE

SOKHAN, Tehran— *backend developer internship*

Oct 2018 - Dec 2018

- I was working on the "NAVA" product, which is a virtual assistant.
- I learned many things in Python backend development (asyncio)
- I dedicate quality time to get familiar with NLP and signal processing.

TAPSI, Tehran— *Quality Assurance Engineer*

Jul 2019 - Nov 2019

- Tapsi has been the fastest growing mobile transportation platform in Iran.
- I developed an automation system with "appium" to automatically run test scenarios via plugging cell phone devices.
- I take part in weekly knowledge sharing sessions of the Artificial Intelligence and Data Science department.
- I started a project at this company to read driver's ID cards automatically. The pipeline contains OCR on ID card information and the face recognition to match ID card faces and drivers' pictures.

YAS , Tehran— *Data scientist*

Jun 2020 - Present

- Yegane Ard Sourin is a knowledge-based fintech firm that has been established to deploy an exchange framework.
- I work in the data science and artificial intelligence part to develop some stock prediction tools.
- We apply statistics and machine learning methods to Exploratory Data Analysis on Markets and predict the trend and increase the profit.
- We also do research here. We consider many papers in machine learning and time-series criteria and develop them on our data.
- Some related projects
    - Predict market