Mahdi Ghiasi

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RESEARCH INTERESTS

- Data Analysis
- Machine Learning
- Deep Learning
- Computational Neuroscience
- Algorithmic Graph Theory
- Business Analytics

EDUCATION

Amirkabir University of Tehran (Tehran Polytechnic) — Tehran, Iran
Bachelor of Computer Engineering; GPA: 3.48 — Sep 2018 - Jul 2023 (expected)
Bachelor thesis: Transformer for Limit Order Book (supervisor: Prof. Hamed Farbeh)

Shahid Beheshti exceptional talents' school — Tehran, Iran
Diploma of Mathematics and Physics; GPA: 4 — Sep 2014 - Jun 2018

RESEARCH AND WORK EXPERIENCE

GCN for Forex data (in progress)
Predicting Stock market total index by Forex data with Graph Convolutions and Transformer networks
supervisor: Prof. Mohammad Mahdi Lotfi Heravi

NITC company — Sweden
Machine Learning engineer — Jun 2022 - Sep 2022
Adding AI features to BLM swap website

Gradient financial data processing company — Tehran, Iran
Data Science and Machine Learning intern — Jun 2021 - Sep 2021
Reading about business data analysis and implementing sample projects

Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
Teaching Assistant - Algorithm Design course - Prof. Alireza Bagheri — Feb 2021 - Jun 2021
Homework correction and teaching course materials

Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
Head instructor of assembly language lab - Prof. Hamed Farbeh — Feb 2022 - Jun 2022
Presenting assembly programming frameworks — Teaching assembly coding

Amirkabir University of Technology (Tehran Polytechnic) — Tehran, Iran
Teaching Assistant - Microprocessor course - Prof. Hamed Farbeh — Sep 2021 - Jan 2022
Homework correction and teaching course materials

SELECTED PROJECTS

- **A C programming framework for ML and DL** : In this self implemented C programming framework, you can build some simple ANN and ML models and train them by just calling a few functions. (GitHub⌗)
- **Transformer for Limit Order Book**: Predicts stock price movement direction by the limit order book data. Highly informative features are extracted by Causal Convolutional layers and then passed to Transformer Blocks. (GitHub⌗)
- **Twitter Bot Classification**: Developed an unsupervised approach to distinguish real users on Twitter from Bots and fake users
- **Evolutionary Game**: Trained an ANN as a player to play a simple game by using evolutionary algorithms. (GitHub⌗)
- **Recognizing hand written digits with a Feed Forward Neural Network**: Trained a fully connected feed forward neural network with SGD method for recognizing hand written digits. (implemented by C and Python) (GitHub⌗)
- **Whose poem is this?**: A language model is built through train data for each poet. Then those models are used to guess whose a given unseen poem is this. (GitHub⌗)
- **Search Engine**: A dictionary is made by the documents and its words are used as inverted indexes. Then documents are mapped into indexes' space by using tf-idf term before being clustered into certain groups. Queries are mapped into the same space and responded through seeking among documents in the relevant cluster by calculating the cosine similarity and inserting them into a max-heap. Finally top K relevant documents are retrieved from the heap and displayed in console. (implemented by Java) (GitHub⌗)

- **A simple Social Media's Database**: Built a Relational Database according to a proposed Entity Relationship model for an imaginary simple social media's database in MySQL. (GitHub⚲)
- **classification mini projects with KNN, Naive Bayes, DT, RF, SVM**: Ran classification methods including KNN, Naive Bayes, DT, RF and SVM on different sample data sets. (GitHub⚲)
- **Clustering**: Executed K-means and C-means clustering algorithms on some sample data sets. (GitHub⚲)
- **XV6-OS (Kernel Programming)**: Programming the system calls and kernel of a tiny operating system. (GitHub⚲)
- **JPotify (music player)**: Building the JPotify music player application with its whole real properties. (implemented by Java) (GitHub⚲)

TECHNICAL SKILLS

- **Programming Languages**: Python, C/C++, Java, JavaScript
- **Machine Learning tools**: PyTorch, TensorFlow, Scikit-Learn, NumPy, Matplotlib, Pandas, OpenCV
- **Databases**: MySQL, PostgreSQL, ElasticSearch, GraphQL
- **Operating Systems**: Windows, Linux (Ubuntu)
- **Other**: Git, Latex, ARM assembly, Keil, postman Arduino, Verilog, VHDL, ModelSim

CERTIFICATIONS

- AI for everyone (Andrew Ng)
- Machine Learning specialization (Andrew Ng)
- Deep Learning specialization (Andrew Ng)

SELECTED COURSES

- **Linear Algebra**: A
- **Graph theory**: A
- **Data structure and Algorithms**: A
- **Advanced programming**: A

- **Research and Technical Presentation**: A
- **Data Mining (Data Science)**: A
- **Database Design Lab**: A
- **Cloud Computing**: A

HONORS AND AWARDS

- **Ranked in the top 0.5 percent** in the Nationwide University Entrance Exam for B.Sc. - Jun 2018
- Became accepted in the exceptional talents' school entrance exam. - Sep 2014
- Winning the gold medal of adolescent age group chess competition in Tehran province. - 2011

VOLUNTARY ACTIVITIES

- Official member of the environmental NGO at Qaemshahr, Mazandaran
- Official member of the culture and art working group at Qaemshahr, Mazandaran
- Official member of Association of Sustainable Development Advocates.

REFERENCES

- **Hamed Farbeh**
  Faculty of Computer Engineering at Amirkabir University of Technology
  Email: farbeh@aut.ac.ir
- **Mohammad Mahdi Lotfi Heravi**
  Faculty of Management and Economics at Amirkabir University of Technology
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- **Ahmad Asadi**
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- **Alireza Bagheri**
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- **Bardia Rahmani**
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