Sina **Negarandeh**

Computer Engineering · Student

School of Electrical and Computer Engineering, University College of Engineering, University of Tehran, North Kargar st., Tehran, Iran.

(+98) 938-527-5099 | sina.negarandeh.edu@gmail.com | sina-negarandeh.github.io | sina-negarandeh | sina-negarandeh

Education

College of Electric and Computer Engineering, University of Tehran — *Tehran, Iran*

B.Sc. in Computer Engineering (Software Engineering Major) — *2018 - Now*

- **GPA of Last Two Years: 19.28/20 (4/4) | Cum. GPA: 18.29/20 (3.81/4)** | Faculty Average: 15.10/20
- Related Courses: Artificial Intelligence — 19.5/20 • Advanced Programming — 18.85/20 • Data Structure and Algorithm — 18.5/20 • Database Design — 18.34/20 • Operating System — 18.9/20 • Software Engineering — 19.2/20 • Human-Computer Interaction — 19.6/20

High School — *Tehran, Iran*

Diploma in Mathematics and Physics — *2015 - 2018*

- GPA: 19.06/20 (4/4)

Research Interests

- Artificial Intelligence
- Machine Learning
- Deep Learning
- Reinforcement Learning
- Natural Language Processing
- Data Science
- Data Analytics
- Human-Computer Interaction

I'm especially interested in applications of AI in **healthcare**.

Research Experience

Undergraduate Research Assistant — *University of Tehran*

Under Supervision of Prof. A. Shakery — *Aug. 2022 - Present*

Many methods presented for automatically detecting **hate speech** have been studied in one language and its linguistic features. Currently, we are exploring how to use high-resource languages to detect hate speech in **low-resource languages**. I have mainly read papers about using **zero-shot cross-lingual transfer** that utilizes **transformers** such as BERT, exploring ways to create a representation for a set of words connected in a **graph**, and utilizing **Graph Convolutional Networks** for text classification.

Undergraduate Research Assistant — *University of Tehran*

Under Supervision of Prof. B. Bahrak — *Jul. 2022 - Present*

We are defining a **Markov Decision Process** formulation for **Recommender Systems** while utilizing **Deep Reinforcement Learning** algorithms to deal with extremely large observation spaces to optimize online promotion and product recommendation in **online retail environments**.

Teaching Experience

Supervising Teaching Assistant Artificial Intelligence — Y. Yaghoobzadeh, H. Fadaei — *Fall 2022*

Teaching Assistant Artificial Intelligence — Y. Yaghoobzadeh, H. Fadaei — *Spring 2021, Fall 2021, Spring 2022*

Teaching Assistant Operating System — M. Kargahi — *Spring 2022, Fall 2022*

Teaching Assistant Introduction to Software Testing — E. Khamespanah — *Fall 2022*

Teaching Assistant Discrete Mathematics — S. Mohammadi — *Sprring 2022*

Teaching Assistant Introduction to Computing Systems and Programming — M. Hashemi, M. Moradisabzevar — *Spring 2020*

Teaching Assistant Database Laboratory — M. Banaie — *Fall 2022*

Related files can be found here.

Professional Development

MIT 6.S191 Introduction to Deep Learning, Alexander Amini, Ava Soleimany — *MIT*

Audited Course

This course provided foundational knowledge of deep learning algorithms and practical experience building neural networks in TensorFlow. It also covered applications of deep learning to medicine, computer vision, natural language processing, biology, and more.

Natural Language Processing, H. Faili, and Y. Yaghoobzadeh — *University of Tehran*

Audited Course

One of the most widely applied areas of machine learning is Natural Language Processing, which I learned about during this graduate course at the University of Tehran. Some of the topics that I learned about include Naive Bayes Classification and Sentiment, Neural Nets and Neural Language Models, RNN, Attention, Transformers (BERT). Moreover, I learned about Machine Translation, Constituency Parsing, Question Answering, Chatbots, and Information Extraction.

Reinforcement Learning, M. Nili *University of Tehran*

Audited Course

Through this graduate course from the University of Tehran, I discovered how RL complements other areas of machine learning, including deep learning, supervised learning, and unsupervised learning. I got familiar with concepts like Multi-armed bandits, Markov Decision Processes. I also got familiar with Dynamic Programming, Monte Carlo Methods, Policy Gradient Methods, n-step learning, Approximate Solution Methods. I am also reading Reinforcement Learning: An Introduction by Richard S. Sutton and Andrew G. Barto, which is the primary textbook for this course.

Work Experience

TAPSI *Tehran, Iran*

Back End Developer Intern *Jul. 2021 - Jan. 2022*

- TAPSI is an Iranian mobility as a service provider.
- Collaborated with a team of 7 that used agile scrum methodology.
- Helped in redesigning, and optimizing multiple scenarios.
- Investigated and resolved several issues.
- Managed migrating events from PostgreSQL database to MongoDB without down time.
- Implemented several API microservices in Node.js and python.
- Participated in process of migrating microservices to gRPC.

Student Internship Evaluation: Industrial Training — 20/20 (4/4) • My internship report can be found here.

Notable Academic Projects

Artificial Intelligence Course Projects

Python

A series of five projects. Gained knowledge on fundamental subjects such as **search** and **genetic algorithms**, and more contemporary topics such as **ML**, **NLP**, and **NN**. We utilized **genetic algorithms** to produce a logic circuit to work according to the given truth table, used **regression methods** to predict housing prices, and performed **text classification** on Persian comments. Moreover, we implemented a complete **neural network** and finally used **Tensorflow** and **Keras** to detect the presence of Covid-19 or pneumonia in CT scan images.

IEMDB

Java, JavaScript, HTML, and CSS

A website similar to IMDB was implemented entirely from scratch. This project was developed using **Java** and **Spring** for the **back-end** and **React** for the **front-end**. Tools like CI/CD pipelines, JDBC, JUnit, Github Oauth apps, and more have been used.

Computer Architecture Course Projects

SystemVerilog and Verilog

We implemented **MIPS-SingleCycle**, **MIPS-MultiCycle**, **MIPS-PipeLine**, and **ARM-based** processor in a series of projects about processors.

Systems Analysis and Design

C++

The project involves multiple phases, including **activity diagrams**, identifying complete **use cases**, drafting a **domain model** and **sequence diagram**, designing **class diagrams**, and implementing the system in C++.

Surface Scanner

Java

An **android app** that scans the surface and displays the results in a graph using **accelerometer** and **gyroscope sensors**. In implementing this app, issues such as the **inaccuracy of sensors** and **OS restrictions** have been taken into consideration.

Workshops

Teaching Assistance Training A three-hour workshop held by the School of ECE, University of Tehran

Deep Learning for AI by Yoshua Bengio A two-hour speech held by the School of ECE, University of Tehran

Skills

Programming	**High Intermediate:** Python, C/C++ **Intermediate:** Java, JavaScript, Node.js, Go, HTML, CSS, Verilog, VHDL, SQL **Beginner:** Swift, MATLAB, LaTeX
Technologies	MakeFile, Git, Docker, Kubernetes, Jupyter Notebook, Google Colab, Anaconda, Figma, MySQL, MongoDB, Neo4j
Python Libraries	NumPy, Pandas, Matplotlib, Seaborn, SciPy, Scikit-Learn, TensorFlow, Karas
Software Engineering	Familiar with various object-oriented design patterns, methodologies such as Agile, and software testing technologies.
Operating Systems	Linux(Ubuntu), macOS, Windows

Languages

Persian Native

English Professional working proficiency | **TOEFL iBT®** Test Scores: **112**/120 (R: 29 — L: 30 — S: 26 — W: 27) • Test Date: Oct 15, 2022