Aeirya Mohammadi

Curriculum Vitae

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Research Interests

Computational Linguistics, NLP, Linguistics

Also interested in AI, Programming Languages, Human-Computer Interaction, Computer Architecture, Computer Networks, and Operating Systems

I aspire to make computers grasp abstract concepts and be able to understand and learn languages. I am also interested in analyzing the structures of languages and finding structural and other kinds of similarities between them.

Education

Sept 2018 - Present — **B.Sc. in Computer Science**, *Sharif University of Technology (SUT)*, Iran.
- CGPA 17.3/20 (3.8/4)
- Note: Sharif is considered Iran's leading institution for science, engineering, mathematics, and technology and is chosen first by the top students in the national university entrance exam. It is the best university in Iran in the QS 2023 Ranking.

2011-2018 — **Mathematical and Physics Diploma**, *Sampad (NODET)*, Iran.
- CGPA 19.74/20
- NODET stands for National Organization for Development of Exceptional Talents.

Projects

2022 (Ongoing) — **NLP Projects**, *NLP Course*, Dr. Ehsaneddin Asgari, SUT.
- Currently developing NLP pipeline tools for Gilaki, a very low-resource Iranian language.
- Compared syntax of Sorani Kurdish and Gilaki words after crawling Wikipedia.

2020 — **Image Processing Projects**, *Image Processing Course*, Dr. Mostafa Kamali Tabrizi, SUT.

Implemented image processing algorithms and used techniques such as image morphing, texture synthesis, blending, image manipulation, Fourier transform, k-means, and mean-shift.

2021-2022 — **Analysis of Blockchain Consensus Protocols**, *Algorithmic Game Theory Course*, Dr. Mojtaba Tefagh, SUT.

Worked on Byzantine Fault Tolerant Consensus Protocols in Blockchain. Implemented a multi-agent game theory framework and did simulations on two games.

2021-2022 — **Research in Systems Biology**, *Sharif Optimization and Applications Laboratory*, Dr. Mojtaba Tefagh, SUT.

Worked on finding minimal sets, which are subnetworks that are essential for a metabolic network. The code of the project was written in Julia.

2022 **Customer Data Platform and Mini Projects**, *Big Data Engineering Course*, Mr. Mojtaba Ostovari, SUT.
- Designed a robust system with lambda architecture in a team of 3 people.
- Implemented the tf-idf algorithm using the map-reduce framework and did the same with scala.
- Crawled the web and did simple tasks using the shell.

2022 **Decaf Compiler**, *Compiler Course*, Dr. Hadi Foroughmand, SUT.
Partly implemented a compiler using C++ and Java.

2021 **HTTP Server**, *Computer Networks Course*, Dr. Laleh Arshadi, SUT.
Implemented an HTTP server from scratch using python (and also in C, as a hobby project).

2021 **OS Project (Blitz System)**, *Operating Systems Course*, Dr. Hadi Foroughmand, SUT.
Implemented OS kernel features using a java-like language. Project Description

2021 **Mercury**.
Worked on a personal project, an app in which you could make video calls and chat, adopting microservice architecture and software design patterns, using different programming languages, including C, in a team of 3.

2020 **Game Server**, *Advanced Programming Course*, Mr. Hosein Boomeri, SUT.
Multi-threaded online game server written in Java using software design patterns, containing game logic and database.

Teaching Assistant

Fall 2022	**Principles of Computer Systems**	*Instructor: Dr. Laleh Arshadi*
Spring 2022	**Advanced Programming (Java)**	*Instructor: Dr. Mojtaba Tefagh*
Spring 2022	**Computer Networks**	*Instructor: Dr. Laleh Arshadi*
Spring 2022	**Operating Systems**	*Instructor: Mr. Mojtaba Ostovari*
Fall 2021	**Principles of Computer Systems**	*Instructor: Dr. Laleh Arshadi*
Fall 2020	**Fundamentals of Programming (Python)**	*Instructor: Dr. Issa Annamoradnejad*

Other Activities

2021 **Presentation**, *Minimal Cut Sets*, Systems Biology Journal Club, SUT.
Article: Minimal cut sets in biochemical reaction networks (Klamt).

2018-2020 **Database Management**, Bavan (Environment Recyclers Student Club).

2020 **Python Workshop**, *Chemical Engineering Learned Assocciation*, SUT.

Awards

2019,2020 Top Student Award (Ranked 3rd out of 97) – Chemical Engineering Department

2018 Ranked 539th among 143,437 Mathematics and Physics University Entrance Exam Participants in Iran.

Computer skills

Programming Languages

Proficient Python, Java, C#, C++

Familiar Julia, MIPS assembly, Z shell, MATLAB, JavaScript, C, Rust, LaTeX, SQL, HTML

Tools

{Kafka, Cassandra, Docker, HDFS},{Git, SSH, Vim, MacOS, Linux},{Unity3D}

Attended Workshops and Online Courses

2022 **NLP Workshop**, *Loop Academy*.
12-hour beginner NLP and ML workshop.
Project: Sentiment analysis on real-life Digikala comments.

2018 **Python Workshop**.
12-hour from beginner to advanced python workshop.

Selected Courses

Ongoing NLP, ML, Game Theory

Audit Regression Analysis, Online Learning

Related Compilers (17.5), Language Theory and Automata (18)

- Image Processing (16.3)
- Probability (17.8), Statistics (17.7)
- Algorithmic Game Theory (17.6), Operation Research
- Computer Networks (18.8), Operating Systems (18), Principle of Computer Systems (19.1)
- Massive Data Engineering, Advanced Programming, Data Structures (18.2)

Languages

Native **Persian**

Proficient **English** *TOEFL iBT 104*

Beginner **Arabic, French, Gilaki, Japanese** *Can understand and make very simple sentences*

Interests

Learning Languages, Linguistics, Computer Architecture, Chemistry, Psychology
Chess, Board Games, Video Games, Basketball, Yoga, Piano, Violin

References

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