Aeirya Mohammadi

Curriculum Vitae

aeiryam@gmail.com
aeirya.github.io

Reseach Interests

Languages NLP for Low-Resource Languages, Computational Linguistics, Language Variety

Social Human-Centered Computing

Other Natural Language Understanding & Reasoning, Programming Languages

Education

Since 2023 **M.Sc. in Artificial Intelligence**, *Amirkabir University of Technology (AUT)*, Iran
Thesis: Information Extraction from Text using Neural Networks and Large Language Models

2018-2023 **B.Sc. in Computer Science**, *Sharif University of Technology (SUT)*, Iran
- CGPA 17.05/20 (3.68/4)

Selected Projects

Language Technology Course Projects

2023 **Natural Language Understanding**
- Fine-tuning BERT for classification
- Sequence-to-sequence modeling using RNN encoder-decoder with attention

2023 **Information Retrieval**
Recommendation systems and retrieval using traditional, language-model-based & neural methods.

2022 **Natural Language Processing**
- Developed NLP pipeline tools for Gilaki, a very low-resource Iranian language.
- Compared syntax of Sorani Kurdish and Gilaki words after crawling Wikipedia.

Research

2021-2022 **Research in Systems Biology**, *Sharif Optimization and Applications Laboratory*, Dr. Tefagh
Worked on finding minimal sets of essential subnetworks for a metabolic network, using Julia language.

2021-2022 **Analysis of Blockchain Consensus Protocols**, *Algorithmic Game Theory Course*, Dr. Tefagh
- Researched on Byzantine fault-tolerant consensus protocols in Blockchain.
- Implemented a multi-agent game theory framework and simulated two games.

Other Selected

2023 **WikiNest**, *Personal Open-Source Hobby Project*
Website with semantic and TF-IDF search

2023 **Application & Compiler Development**, *Part-time University Work Project*
- Designed a programming language for algebraic modeling.
- Developed a latex-to-AML transpiler, for mathematical optimization problems.
- Developed a web app using REST API.

2022 **Big Data Engineering**, *Customer Data Platform & Mini Projects*
- 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 other tasks using the shell.

2020 **Image Processing**

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

Note **Some project codes are available on my GitHub**

Programming Skills

Proficient Python, Java, C#, C++, MIPS assembly

Familiar Julia, Scala, C, Z Shell, SQL, MATLAB, JS, LaTeX

DataScience {PyTorch, Scikit-learn}, {OpenCV}, {NumPy, Pyplot}, {Kafka, Cassandra, Docker}

Other {Unity3D}, {Flask}

Selected Courses

Ongoing Natural Language Processing, Speech Processing, Deep Learning

Teaching Assistant

2023 Advanced Programming, Machine Learning, Computer Networks

2022 Computer Networks, Operating Systems, Advanced Programming, Princ. of Computer Systems

2021, 2020 Principles of Computer Systems, Fundamentals of Programming

Tasks
- *Managed TA teams*
- *Held coding and troubleshooting sessions and workshops and gave lectures*
- *Designed and evaluated assignments and projects*
- *Developed auto-checkers*
- *Prepared lecture slides*

Voluntary Activities

2023 **Instructor**, *Neuromatch Workshop*, *Connected* Neuroscience Group, University of Tehran

Covered the first week of the Neuromatch course. It was an introduction to Python, plotting, linear algebra, probability, and more.

2021 **Presenter**, *Minimal Cut Sets*, Systems Biology Journal Club, SUT

Attended and presented weekly seminars in groups. Article: Minimal cut sets in biochemical reaction networks (Klamt).

Attended Workshops and Online Courses

Expected **Deep Learning Course**, *Neuromatch Academy*, Advanced Summer School (2024), 3 Weeks

2022 **NLP Workshop**, *Loop Academy*, Beginner - 12 hours

Project: Sentiment analysis on real-life Digikala comments.

Languages

Native Persian

Proficient English *TOEFL IBT 101*

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

Very Basic **German, Turkish, Norwegian, Chinese, Spanish, Esperanto, Kurdish, Ukrainian, more**

I like studying language structures a lot. Nothing is more fascinating than finding out how similar and yet different they are and how they trace back to the human mind, history, and culture.

More

Other Interest Fields & Hobbies

Language Learning, Chemistry, Cognitive Science,
Basketball, Yoga, Swimming, Musical Instruments, Chess, Board & Video games, Cooking

Other Projects

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

2022 **Machine Learning Project**, *ML Course*

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

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

References

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