

Nona Ghazizadeh

Tehran, Iran

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Education

Sharif University of Technology

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

- Overall **GPA: 3.88/4.0** (18.8/20)
- Last two years **GPA: 4.0/4.0** (19.53/20)

Tehran, Iran

September 2019 - present

Mehraein High School

DIPLOMA OF MATHEMATICS

- Overall **GPA: 4.0/4.0** (19.85/20)

Tehran, Iran

September 2016 - July 2019

Honors & Awards

- 2019 **Ranked in the top 0.6%**, among more than 165,000 participants in Nation-Wide University Entrance Exam (Konkour) in Mathematics Branch for fully funded BSc period in Iran.
- 2016 **Ranked 2**, in the spaghetti tower competition (SBUSS) held in Shahid Beheshti University
- 2016 **Ranked 3**, in the spaghetti tower competition (ModCup) held in Iran University of Science and Technology

Tehran, Iran

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Research Interests

- Natural language processing
- Modern Information Retrieval
- Software Engineering for AI-Based Systems
- Machine Learning
- Artificial Intelligence

Research Experience

Utilizing Large Language Models for Medical Question Answering in Persian and English

Dr. Asgari

RESEARCH ASSISTANT AT SHARIF UNIVERSITY OF TECHNOLOGY

July 2023 - present

- Developing a model to answer **medical queries in English and Persian**. It uses **Large Language Models (LLMs)** to create a dataset with disease names in both languages, which is then used to **fine-tune small-100 translation model**. The model utilizes the **PubMed QA dataset**, **Bio-Bert**, and **ElasticSearch** for document retrieval and summarization. The documents are summarized using **Bio-Bert**, **T5**, and **LLMs**, with the last two models fine-tuned using the **PubMed summarization dataset**.

Utilizing Large Language Models for Multilingual News Question Answering

Dr. Asgari

RESEARCH ASSISTANT AT SHARIF UNIVERSITY OF TECHNOLOGY

August 2023 - present

- Developing a model that uses a generated persian news dataset in three different periods to answer questions in **all languages**. **Fine-tune the small-100 translator** for accurate translations in various languages. It uses **tsdae-bert-base-dv-news-title** for embeddings and **ElasticSearch** for vector search, yielding numerous news documents. These documents are then summarized using **T5** and **Large Language Models (LLMs)**, with the **T5 model being fine-tuned**.

Bug Issues Ranking

Dr. Heydarnoori

RESEARCH ASSISTANT AT SHARIF UNIVERSITY OF TECHNOLOGY

August 2022 - present

- The model being introduced sorts **GitHub project issues** based on their methods using a **call graph** and other features. It prioritizes issues linked to **frequently used methods**, those with **high reaction rates**, and those displaying **negative sentiment**. The model crawls and pre-processes methods from important GitHub projects, builds a call graph, computes issue sentiment, and extracts reaction statistics. It uses **FastText**, **TF-IDF**, and **transformer** models to find methods related to each issue based on their priority.

Unique Approach for Node Identification, Weighted Tree for HTML Page, and Difference Calculation in DOM Trees (HDNA)

Dr. Heydarnoori

RESEARCH ASSISTANT AT SHARIF UNIVERSITY OF TECHNOLOGY

June 2023 - present

- The provided context describes a method for identifying differences in **HTML pages** by assigning a unique identifier, called **HDNA**. This identifier is based on the **structure and arrangement of tags** on the page. The method is designed to efficiently capture changes in **DOM trees**, even with **dynamically generated content**. It does this by analyzing **hierarchical relationships**, **node attributes**, and **content variations**. This could potentially enhance website performance, user experience, and security.

Developing Automated Medical Report Generation for Fundus Fluorescein Angiography Images (A Novel Approach in Ophthalmology Research)

Dr. Razzak & Dr. Naseem

RESEARCH ASSISTANT AT UNIVERSITY OF NEW SOUTH WALES

June 2023 - present

- The model uses Fundus Fluorescein Angiography Images and reports from **FFA-IR datasets** to generate patient reports. It uses a **Convolutional Neural Network (CNN)** to extract image features, aligns these with textual features through **cross-modal mapping**, and records the mappings in **shared memory**. A **reinforcement learning (RL)** strategy is used to enhance feature alignment, guided by the reports. This approach improves the alignment of visual and textual data in generated reports.

Industrial Experience

Yektanet

FRONT-END DEVELOPER

Tehran, Iran

April 2021 - September 2021

- Designing and implementing numerous web pages for Najva email marketing and designing and implementing a full Najva SMS marketing and implementing some UI components for usual use in other teams

Languages

Persian Native

English Proficient

Teaching Assistant Experience

Machine Learning

DR. SHARIFI-ZARCHI

- Designing projects
- Correcting projects

Modern Information Retrieval

DR. SOLEYMANI

- Designing projects
- Correcting projects

Compiler Design

DR. GHASSEM SANI

- Correcting assignment
- Correcting projects
- Correcting final exams

Modern Information Retrieval

DR. BEIGY

- Designing assignments
- Correcting assignments

Linear Algebra

DR. RABIEE & DR. RAMEZANI

- Designing assignments
- Correcting assignments
- Hold a TA class

Electrical and Electronic Circuits

DR. KOOHI

- Designing quizzes
- Correcting quizzes
- Correcting midterm & final exams

Electrical and Electronic Circuits

DR. HEMMATYAR

- Designing assignments
- Correcting assignments

Engineering Probability and Statistics

DR. SHARIFI-ZARCHI

- Designing assignments
- Correcting assignments

Advanced Programming

DR. SALMANI

- Designing project
- Correcting project

Skills

Programming Languages

Python, Java, JavaScript, C++, Latex

Frameworks

React, Vue, GraphQL

Databases

PostgreSQL, Redis

Operating Systems

Ubuntu, MacOS, Windows

Other Technologies

Git, Numpy, Pytorch, Nginx, Pandas, SciPy, matplotlib, Jupyter Notebook

Soft Skills

Teamwork, Flexibility, Responsibility, Self-Learning, Desire to learn, Problem solving

Relevant Courses

Natural Language Processing

Dr. Asgari

20/20

Compiler Design

Dr. Sani

20/20

Modern Information Retrieval

Dr. Asgari

20/20

Artificial Intelligence

Dr. Abdi Hejrandoost

20/20

Machine Learning

Dr. Sharifi-Zarchi

20/20

Object Oriented Design

Dr. Ramsin

20/20

Linear Algebra

Dr. Rabiee & Dr. Ramezani

20/20

Computer Architecture

Dr. Sarbazi Azad

20/20

Academic Projects

For more details about these projects, as well as other projects, feel free to visit my [homepage](#).

News retrieval search engine

SOURCE CODE

A search engine for crawled persian news using Boolean, TF-IDF, Fasttext, Transformers and Elasticsearch methods and use classification, clustering and link analysis for persian news. It contains back-end and front-end sections which can deploy on server with pleasing UI.

News document and token classification

SOURCE CODE

The project involves two main parts: Document Classification and Token Classification, using methods like Naive Bayes and Transformers. The models take a text and a question, providing an answer extracted directly from the text. The final component, NER, identifies and categorizes named entities in unstructured text into predefined categories, and evaluates the performance of the true and predicted outputs.

Gender bias detection

SOURCE CODE

This study investigates gender and racial biases in machine learning models, specifically Bert and XLM-RoBERTa models, using job titles in Persian and English. The models' performance was scored, improved through fine-tuning, and then reassessed to evaluate the effectiveness of the modifications.

Personal info hider

SOURCE CODE

Personal Info Hider is a tool that encrypts and hides personal data like name, address, and credit card details to protect online privacy. It safeguards against hackers, identity thieves, and advertisers, and prevents online activity tracking. It uses datasets from Parsi io, regex, and part of speech tagger to identify various personal information parts.

Illegal word recognition

SOURCE CODE

We're developing a system to detect altered illicit Persian words, even when interspersed with non-Persian letters, numbers, and special characters. It also recognizes abbreviations and contextually equivalent words.

Volunteer Work

Recurrent Neural Networks and Contextual Embedding Lecture Note

Created a detailed lecture note for a Natural Language Processing course, covering advanced topics like Recursive Neural Networks and Contextual Embedding models such as TagLM, ELMo, and ULMFit. These models, which consider word context, represent a significant advancement in the field.

Contributed to the Creation and Development of Persian Wikipedia Pages for Key Machine Learning Concepts

Created a Wikipedia page on the T-SNE Dimensionality Reduction Algorithm and improved an existing page on Anomaly Detection, enhancing machine learning understanding for Persian speakers.

Design Patterns Workshop Contributor and Content Creator

Contributed to a workshop on design patterns, creating comprehensive Persian PDF materials covering Behavioral, Creational, and Structural patterns. These resources enhanced participants' understanding of these concepts.

Teaching Discrete Math in Mehraein High School

Guided 12th graders through complex concepts, solved mathematical problems in class, and helped students debug their solutions, creating an interactive learning environment.

Crafting Bracelets for Charity with Hands-on Marketing and Customer Engagement

Designed and handcrafted unique bracelets, which I then marketed and sold, managing all aspects of customer interaction. The funds raised from the sale of these bracelets were donated to a charity organization.

Extra Curricular Activities

- Alpine Skiing
- Running & Walking
- Gymnastics
- Photography
- Coding
- Watching Movies

References

Ehsaneddin Asgari

(1) Postdoctoral Researcher

(2) NLP Lead, AI Experts@AI Innovation

📍 (1) Department of Computational Biology, Helmholtz Center for Infection Research

(2) Data:Lab Munich, Volkswagen AG

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GholamReza Ghassem-Sani

Associate Professor

📍 Department of Computer Engineering, Sharif University of Technology

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Abbas Heydarnoori

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