Mohammad Hossein Abbaspour

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SUMMARY

I am an undergraduate student majoring in Computer Engineering with a keen interest in Artificial Intelligence, particularly in Machine Learning. Currently, my research focuses on enhancing the performance of Large Language Models (LLMs), particularly their reasoning capabilities, through multi-agent discussions and prompt engineering. By comparing agent behaviors in various scenarios and employing specific methods, I aim to improve their language responses through iterative, multi-round debates.

EXPERIENCE

Backend Web Developer   Jul 2021 - Oct 2021

- Intern at Natural Language Processing Lab IUST
- Utilized Django to improve the backend of the website
- Modified the *Fake-News* Telegram Bot

Research Assistant   Jul 2023 - Feb 2024

- Natural Languages Processing Lab at IUST Under the supervision of Dr. Sauleh Eetemadi
- Working on sentence-transformers for semantic textual similarity
- Participating in SemEval2024 (SemEval-2024, BRAINTEASER, 11% improvement compared to the baseline)

Teaching Assistant

- Software Engineering (Instructor: Dr.Behrouz Minaei-Bidgoli)   Sep 2023 - Jan 2024
- Operating Systems (Instructor: Dr.Reza Entezari-Maleki)
- Artificial Intelligence (Instructor: Dr.Mohammad Reza Mohammadi)
- Competitive Programming (Instructor: Dr.Marzieh MalekiMajd)
- Digital Logic Circuits (Instructor: Dr.Amir Mahdi Hosseini Monazzah)
- Theory of Languages and Automata (Instructor: Dr.Reza Entezari-Maleki)   Feb 2023 - Jul 2023
- Fundamentals of Database Design (Instructor: Dr.Hossein Rahmani)
- Design of Algorithms (Instructor: Dr.Marzieh MalekiMajd)
- Data Structures (Instructor: Dr.Hossein Rahmani)   Sep 2022 - Dec 2022
- Advanced Programming (Instructor: Dr.Sauleh Eetemadi)   Feb 2022 - Jun 2022
- Discrete Mathematics (Instructor: Dr.Vesal Hakami)
- Fundamentals of Computer Programming (Instructor: Dr.Mehrdad Ashtiani)
- Fundamentals of Computer Programming (Instructor: Dr.Sauleh Eetemadi)   Sep 2021 - Dec 2021

PROJECTS

RAG-System   Link to Repo

This is my project for NLP course. I had to implement 2 major components of this system: Retriever and Generator.

BERT-for-Text-Classification Link to Repo

This project is from *Coursera*. For that, I Fine tuned the *BERT* LLM for text classification on *Quora Insincere Questions* dataset.

Persian-Sentiment-Analysis Link to Repo

I fine tuned two llms, *BERT-BASE-PARSBERT-UNCASED* and *XLM-ROBERTA-BASE* on *ArmanEmo* dataset for persian sentiment analysis task.

Semantic-Segmentation Link to Repo

In this project I employed the *MobileNetV2* architecture for segmenting the solarpanel using data augmentation.

Object-Detection Link to Repo

For this project I had to detect the solarpanels in an image using *Yolov7*.

Projma Link to Repo

Projma is a project similar to *Trello* for project management and added some extra features like retro and meeting.

EDUCATION

2020 - 2025   Bachelor's Degree at **Iran University of Science and Technology**

- GPA:
    - Last 2 years: 3.91/4 (19.34/20 Iranian scale)
    - Overall (up to now) via 137 units: 3.89/4 (18.93/20 Iranian scale)
- Iran, Tehran, Tehran
- Ranked **4ᵗʰ** among Iran universities based on QS Ranking

2017 - 2020   Diploma in Mathematics and Physics Discipline at **Shahid Bahonar**

- GPA: 4/4 (19.74/20 Iranian scale)
- Iran, Kerman, Kuhbanan

RESEARCH INTERESTS

- Machine Learning / Deep Learning
- Reinforcement Learning
- Data Mining
- NLP / Signal Processing
- Computer Vision / Image Processing
- Graph Theory Algorithms

HONORS & AWARDS

Ranked within the Top 0.5% in Iranian University Entrance Exam (Konkur)   2020
- Ranked 648 among 155000 students

Ranked among the top 5% GPA in my class   2020 - 2024
- Class of about 100 students

Permitted to apply for M.Sc. program at the Department of Computer Engineering   2024
without taking the "National Entrance Exam for Graduate Schools" as an award
for exceptional talented students

SELECTED ACADEMIC COURSES

Foundations of Computational Intelligence	A+	Foundation of Computer Vision	A+
Foundations of Speech and Language Processing	A+	Deep Learning	A+
Graph Theory and Algorithms	A+	Software Engineering	A+
Advanced Computer Programming	A+	Data Structures	A+
Operating Systems	A+	Signals and Systems	A+
Theory of Languages and Automata	A+	Fundamentals of Database Design	A+
Data Communication	A+	Engineering Statistics	A+

SKILLS

Programming Languages	Python, C#, C, CPP
Libraries and Frameworks	Numpy, Pandas, Pytorch, Tensorflow, Transformers, OpenCV, Django, Django REST Framework
Databases	SQL Server, MySQL, PostgreSQL
Tools and Technologies	Git, Linux

SELECTED ONLINE COURSES

Supervised Machine Learning: Regression and Classification [Certificate Link]	Coursera
Natural Language Processing with Classification and Vector Spaces [Certificate Link]	Coursera
Natural Language Processing with Probabilistic Models [Certificate Link]	Coursera
Natural Language Processing with Sequence Models [Certificate Link]	Coursera
Natural Language Processing with Attention Models [Certificate Link]	Coursera
Neural Networks and Deep Learning [Certificate Link]	Coursera
Sequence Models [Certificate Link]	Coursera

PUBLICATION

- "IUST-NLPLAB at SemEval-2024 Task 9: BRAINTEASER By MPNet (Sentence Puzzle)" (Link)

REFERENCES

- **Dr. Sauleh Eetemadi** (Assistant Professor)
  Iran University of Science & Technology
  Department of Computer Engineering
  Email: sauleh@iust.ac.ir

- **Dr. Reza Entezari-Maleki** (Assistant Professor)
  Iran University of Science & Technology
  Department of Computer Engineering
  Email: entezari@iust.ac.ir

- **Dr. Behrouz Minaei-Bidgoli** (Professor)
  Iran University of Science & Technology
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- **Dr. Mehrdad Ashtiani** (Assistant Professor)
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