

# Zahra Habibzadeh

GRADUTED RESEARCH ASSISTANT

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## Education

### University of Tehran

Tehran, Iran

M.Sc. IN ARTIFICIAL INTELLIGENCE AND ROBOTICS

2020 - 2023

- Supervisor: Dr. Asadpour
- Thesis: Extracting values and attitudes from social network data: A case study assessing users' satisfaction with their partner
- Overall GPA: **4/4**

### University of Mazandaran

Babolsar, Iran

B.S. IN COMPUTER ENGINEERING

2012 - 2016

- Thesis: Designing a new article site using PHP and SQL
- Overall GPA (Last two years): 3.76/4
- **2nd** Rank among graduated bachelor students based on overall GPA out of 70 students

## Research Interests

**Computational Social Science**   **Behavioral Analysis**

**Natural Language Processing**   **Knowledge Graphs, Large Language Models (LLMs), Sentiment Analysis**

## Research Experience

### Research Assistant

Tehran, Iran

LLMs LAB, TEHRAN INSTITUTE FOR ADVANCED STUDIES (TEIAS)

Apr. 2025 - present

- Conducting research on **story generation using LLMs**, with a focus on aligning narratives to cultural contexts and value systems.

### Research Assistant

Tehran, Iran

SOCIAL NETWORKS LAB, UNIVERSITY OF TEHRAN

Sep. 2021 - present

- Working with **social network data** to derive **valuable insights** into human behavior regarding social interactions.
- Developing a new approach to evaluate user contentment in their relationship by **analyzing X (formerly known as Twitter) data**.
- Comparing different methods for the Influence Maximization Problem in Social Networks in a **systematic review**. (Link)

## Publications

### Using Language Models for assessment of users' satisfaction with their partner in Persian

Jan. 2025

Z.HABIBZADEH, M.ASADPOUR

- **Accepted** at the first workshop on Language Models for Low-Resource Languages (LoResLM) at COLING 2025. (Link)

## Work Experience

### AI Engineer

Tehran, Iran

NIKAMOZ, FULL-TIME | **Retrieval-Augmented Generation (RAG)**

Sep. 2024 - Present

- Integrated **Elasticsearch** into data pipelines to improve real-time search and retrieval efficiency.
- Implemented **RAG** systems using LLMs to enhance contextual text generation by incorporating real-time Persian document retrieval.
- Developed end-to-end pipelines that integrate information retrieval and LLMs, optimizing query performance and data retrieval accuracy.
- Worked with **Milvus** and transformer models to build scalable, efficient solutions for real-time text generation.
- Improved response relevance and accuracy in user-facing applications by leveraging LLMs and retrieval techniques.

### Data Engineer

Tehran, Iran

MODAI (INTUITION), FULL-TIME | **Python, Kafka, NATS, Redis, PostgreSQL, Docker**

May. 2024 - Aug. 2024

- Collaborated on managing and processing social network data to improve AI-powered fashion discovery.
- Implemented and transitioned between **various data pipeline systems** to support the application and website.
- Mentored team members on best practices for developing and maintaining efficient data pipelines.

## Mentor

HOOSHBUZ SUMMER SCHOOL, PART-TIME

Tehran, Iran

2022 - 2023

- Group collaboration with 7 other mentors to educate 160 students during 28 workshops on Data Science, Data Analytics, Machine Learning, and Text Mining.

## Teaching Experience

### Statistical Inference

Dr. Behnam Bahrak

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLEGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN

2022

- Defining an advanced practical and theoretical assignment.

### Machine Learning

Dr. Mohammad Reza Abolghasemi

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLEGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN

2022

- Defining an advanced practical and theoretical assignment for more than 100 students.

### Data Analysis

Dr. Mohammad Amin Sadeghi

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLEGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN

2021-2022

- Defining 3 advanced projects and 3 quizzes for more than 70 students.

## Projects

### RAG for Persian PDF Documents (Link)

- Developed a **RAG system** for document-based Q&A, utilizing LLMs to enhance Persian PDF document retrieval and response generation.
- Implemented **semantic search** using LLMs to retrieve relevant content from Persian PDFs and generate context-aware answers.

### Big Data and Data Analytics Projects (Link)

- Launching a **real-time Big Data system** for the analysis of online Persian Twitter data
- Using Apache Spark for **Natural Language Processing, Log Mining, Graph Mining**, and Stock Market tasks
- Analyzing a real dataset using the **R programming language**
- Investigating the main reason for the sales decline in a wood industry factory

### Social Networks Projects (Link)

- Examining the effect of combining economic and **social analysis on the prediction** of stock price fluctuations
- An analysis of **Telegram channels** related to the dollar and its price

### Deep Learning & Machine Learning Projects (Link)

- Generating music using Long Short-Term Memory (LSTM) networks
- Classifying images using Convolutional Neural Networks (CNNs)
- Detecting Parkinson disease using signals of speech data with ensemble learning

### Bio Inspired Computing Projects (Link)

- Developing L-System Grammar
- Implementing **bio-inspired optimization** methods to enhance algorithm performance for complex problem-solving

## Skills

### Theoretical Experience

Machine Learning, LLMs, Deep Learning, Design of Algorithms, Big Data and Databases

### Programming Languages

Python, R, HTML, CSS, JavaScript, and C++

### Libraries and Frameworks

PyTorch, TensorFlow, Keras, NumPy, SciPy, Scikit-learn, Pandas, BeautifulSoup, and NetworkX

### Databases, Datastores, and Tools

MongoDB, Apache Cassandra, Elasticsearch, ClickHouse, Neo4j, MySQL, and PostgreSQL

### Big Data Platforms and Tools

Apache Spark, Apache Superset, Apache Kafka, Apache Hive, Kibana, NATS, and DBeaver

### Visualization Tools

Matplotlib, Seaborn, Plotly, Gephi, Geoplotlib, and Houdini

### Developer Tools

Git, Docker, and VS Code

### Other Tools and Skills

LaTeX, MS Office, and Adobe Photoshop

## Languages

### English

Fluent

### Persian

Native