

ERFAN SHAHABI

NLP, LLM Researcher

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Research Interests

Natural Language Processing, Large Language Models, Strategic Reasoning and Behavior of LLMs, Social Intelligence, Computational Social Science, Machine Behavior

Education

M.Sc in Information Technology Engineering, GPA: 4.00/4.00
(18.15/20)

Sep 2024 – Present
Tehran, Iran

University of Tehran, School of ECE

- Supervisors: Dr. Azadeh Shakery, Dr. Yadollah Yaghoobzadeh
- Thesis: An Investigation and Enhancement of Strategic Behavior of Large Language Models in Social Context

B.Sc in Industrial Engineering, GPA: 4.00/4.00 (18.07/20)

Sep 2019 – Aug 2023

Islamic Azad University, Science and Research Branch

Tehran, Iran

- Supervisor: Dr. Abbas Saghaei
- Thesis: Used Car Price Prediction Using Machine Learning Methods

Publications

- **ProDAKD: A Profile-based Dialogue Agents Knowledge Distillation Approach for User Simulation in Conversational Recommender Systems**

Under Review at ECIR 2026 Main Conference 🔗

E Shahabi*, A Roshandel*, M Sadeghi, V Rahimzadeh, A Shakery (*equal contribution)

Professional Experiences

Researcher

Intelligent Information Systems Lab

Sep 2024 – Present
ECE @ University of Tehran

- Supervisors: Dr. Azadeh Shakery, Dr. Yadollah Yaghoobzadeh
- Research Area: Strategic Behavior and Social Reasoning of LLMs

Teaching Experience

Teaching Assistant, Natural Language Processing (Graduate Level)

Course Website

Sep 2025 – Present
ECE @ University of Tehran

- Instructor: Dr. Hesham Faili
- Designed TravelBot assignment: a conversational travel assistant using ReAct architecture and LangGraph for flight search, hotel booking, and trip planning
- Implemented RAG pipeline for retrieving destination information and generating personalized travel recommendations
- Led workshops mentoring students on LangChain and LangGraph frameworks for building the agent-based system

Teaching Assistant, Intelligent Information Retrieval (Graduate Level)

Course Website

Sep 2025 – Present
ECE @ University of Tehran

- Instructor: Dr. Azadeh Shakery
- Designed assignments on conversational search, RAG systems, and multi-agent architectures
- Conducted workshops on probability theory and machine learning foundations for information retrieval
- Led technical workshops on LLMs in IR, covering LangChain, LangGraph, and ReAct patterns
- Guided students in implementing practical retrieval systems using state-of-the-art language models

Selected Projects

- Fine-Tuning LLaMA-3.2 using ORPO and DPO for Human-Preference-Based Alignment [!\[\]\(467d80e979964f7f8c752fb22248b5b7_img.jpg\)](#)
- Quantization-Aware Reasoning and Text-to-SQL Agent Design using ReAct and LangGraph [!\[\]\(b71552d33dbf62adf5e5199a70ee02bf_img.jpg\)](#)
- ChatFood: Building a ReAct-based Conversational Food chatbot with LangGraph and Gemini [!\[\]\(03134b765d1473836ff001925b1b0550_img.jpg\)](#)
- Conversational Search with RAG: Dataset Construction and Multifaceted Evaluation [!\[\]\(aed6947356668967079310026052edc0_img.jpg\)](#)
- Developing a RAG pipeline for oil and gas drilling chatbot for Binvest Co. [!\[\]\(e61aeb0d9066d5d9e54d9b655f50da3d_img.jpg\)](#)
- Deep Learning for Sequence Labeling and Text Summarization with RNNs and Attention [!\[\]\(f7af41ce0777e13bda91fa715111c02a_img.jpg\)](#)
- Sentiment Classification of IMDB Reviews using Text Preprocessing and Classical IR Techniques [!\[\]\(476ddb2354d4ad1cb23a2236b1e49873_img.jpg\)](#)
- Relevance Classification using BERT for Query-Document Pairs in IR Tasks [!\[\]\(1d505a46c82c5cefa23b88c2eee900ce_img.jpg\)](#)
- Semantic Clustering of StackOverflow Questions using Sentence Embeddings [!\[\]\(3a98690f11ee4baf67262bd776464219_img.jpg\)](#)
- Forecasting Community Dynamics in Social Graphs using Multi-Task GNNs [!\[\]\(35522fe6386206890679adb7b63391b6_img.jpg\)](#)

Courses

Natural Language Processing

University of Tehran

Instructor: Dr. Hesham Faili

- Progressed from fundamental NLP to advanced techniques; Implemented chatbot using tool-use strategies with APIs, Transformers, Hugging Face, Langchain, Langgraph, and agents

Large Language Models

University of Tehran

Instructors: Dr. Yadollah Yaghoobzadeh, Dr. MJ Dousti

- Gained strong skills with LLMs through practical projects; Worked with APIs, Transformers, Hugging Face, and agent frameworks

Intelligent Information Retrieval

University of Tehran

Instructor: Dr. Azadeh Shakery

- Covered ad-hoc retrieval methods, embeddings, BERT models, and LLMs in retrieval-augmented generation (RAG)

Advanced Data Mining

University of Tehran

Instructor: Dr. Azadeh Shakery

- Learned data fundamentals, data cubes, classification, clustering, and deep learning applications in real-world datasets

Social Networks

University of Tehran

Instructor: Dr. Masoud Asadpour

- Studied graph theory, centrality measures, and community detection; Applied concepts in real-world network analysis

Technical Skills

- **Soft Skills:** Teamwork, Meeting Tight Deadlines
- **Programming Languages:** Python
- **Large Language Models:** Hugging Face, LangChain, LangGraph, LangFuse, Unsloth, PEFT, Datasets, TRL
- **Databases:** SQL, LanceDB
- **Machine Learning:** PyTorch, Scikit-Learn, Evaluate, TensorFlow
- **Retrieval:** Sentence Transformers, Lexical Retrieval, Semantic Retrieval, BM25

Honors and Awards

- Ranked 14 in Nationwide Graduate Level University Entrance Test of Information Technology Engineering

Languages

- **Persian:** Native
- **English:** Fluent