

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
Tehran, Iran
Islamic Azad University, Science and Research Branch
• 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** Sep 2024 – Present
ECE @ University of Tehran
Intelligent Information Systems Lab
• 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)** Sep 2025 – Present
ECE @ University of Tehran
Course Website
• Instructor: Dr. Heshaam 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)** Sep 2025 – Present
ECE @ University of Tehran
Course Website
• 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 [🔗](#)
- Quantization-Aware Reasoning and Text-to-SQL Agent Design using ReAct and LangGraph [🔗](#)
- ChatFood: Building a ReAct-based Conversational Food chatbot with LangGraph and Gemini [🔗](#)
- Conversational Search with RAG: Dataset Construction and Multifaceted Evaluation [🔗](#)
- Developing a RAG pipeline for oil and gas drilling chatbot for Binvest Co. [🔗](#)
- Deep Learning for Sequence Labeling and Text Summarization with RNNs and Attention [🔗](#)
- Sentiment Classification of IMDB Reviews using Text Preprocessing and Classical IR Techniques [🔗](#)
- Relevance Classification using BERT for Query-Document Pairs in IR Tasks [🔗](#)
- Semantic Clustering of StackOverflow Questions using Sentence Embeddings [🔗](#)
- Forecasting Community Dynamics in Social Graphs using Multi-Task GNNs [🔗](#)

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, Unslloth, 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