

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

Intelligent Information Systems Lab

ECE @ University of Tehran

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

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 Graph Neural Networks ↗

Courses

Natural Language Processing

University of Tehran

Instructor: Dr. Hesham Faili

- Progressed from fundamental NLP concepts to advanced techniques
- Implemented a chatbot as final project using tool-use strategies
- Utilized APIs, Transformers, Hugging Face, Langchain, Langgraph, and agents

Large Language Models

University of Tehran

Instructors: Dr. Yadollah Yaghoobzadeh, Dr. MJ Dousti

- Gained strong skills working with LLMs through multiple practical projects
- Worked extensively with APIs, Transformers, Hugging Face, and agent frameworks
- Developed use cases showcasing model integration and API utilization

Intelligent Information Retrieval

University of Tehran

Instructor: Dr. Azadeh Shakery

- Started with ad-hoc retrieval methods and embeddings
- Worked with BERT models for improved retrieval performance
- Explored application of LLMs in retrieval-augmented generation (RAG)

Advanced Data Mining

University of Tehran

Instructor: Dr. Azadeh Shakery

- Learned data fundamentals including cleaning and preprocessing
- Covered data cubes, classification, clustering, and deep learning applications
- Applied techniques in real-world datasets

Social Networks

University of Tehran

Instructor: Dr. Masoud Asadpour

- Studied graph theory, centrality measures, and community detection
- Applied concepts to analyze real-world network data through projects

Technical Skills

- **Soft Skills:** Teamwork, Meeting Tight Deadlines
- **Programming Languages:** Python
- **Large Language Models:** Hugging Face, LangChain, LangGraph, LangFuse, Unislot, 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