

# AMIRHOSSEIN ROSHANDEL

✉ roshandel2004@gmail.com 📞 +989154464099 🌐 LinkedIn

## Research Interests

Large Language Models (LLMs), Information Retrieval (IR), Conversational Recommender Systems (CRS), Computational Social Science (CSS), Personalization & User Modeling in CRS, User Intent Understanding, Recommender Systems & CRS using LLMs, LLMs in IR, LLMs in CSS, Bias & Fairness in CRS, LLM-based Agents, Cultural Studies in LLMs, Explainable Recommendations, Reasoning in LLMs

## Education

### University of Tehran 🌐

*M.Sc in Software Engineering*

**Tehran, Iran**

*Sep 2023–Present*

- **Thesis:** Personalization and Diversification of Recommendations in Conversational Recommender Systems with a Focus on User Preferences
- **Supervisor:** Dr. Azadeh Shakery 🌐
- **GPA:** 4.00/4.00 (17.12/20)

### Ferdowsi University of Mashhad 🌐

*B.Sc in Computer Engineering*

**Mashhad, Iran**

*Sep 2018–Jun 2023*

- **GPA:** 4.00/4.00 (18.31/20)

## Experience

### Neshan 🌐

*Software Engineer - Search Team*

**Mashhad, Iran**

*Aug 2021–May 2025*

- Redesigned and refactored the geocoding system, achieving a 3x increase in scalability and maintainability while reducing query latency by 15% and enhancing accuracy by 20%.
- Optimized the reverse geocoding pipeline, achieving a 10% improvement in processing speed and a 12% boost in location matching precision.
- Improved search CTR from 57% to 64% through targeted optimizations and advanced indexing strategies.
- Expanded user base from 10 million to over 30 million users, achieving more than 3 million daily active users.

*Engineering Manager - Search Team*

*Jul 2024–Mar 2025*

- Led a team of 4 developers, overseeing backend design for the Search Team.
- Implemented intelligent ad placements using ML, doubling ad revenue and enhancing personalization.
- Designed a robust suggestion system to improve user engagement.

*Software Engineer - Gamification Team*

*Mar 2025–Present*

- Architected and deployed a Check-The-Fact (CTF) validation system reducing fraudulent user behavior by 35%.
- Integrated LLMs for comment moderation, achieving 78% accuracy and 60% less manual review time.
- Refactored leaderboard logic to support dynamic scoring, increasing engagement by 45%.

## Selected Projects

### Core LLM Coursework

#### • Prompt Engineering Suite — Llama 3 + Unsloth 🌐

*Stack:* Llama 3.2 3B-Instruct, Unsloth (4-bit), Transformers, TRL, Datasets

Designed and evaluated Zero-shot, Few-shot, Chain-of-Thought, Role-Play, and Least-to-Most prompting on GSM8K; analyzed impacts on reasoning accuracy and interpretability.

#### • RAG Pipeline — LangChain + Phi-4 Mini 🌐

*Stack:* LangChain, Sentence Transformers, FAISS, Transformers, Hugging Face Hub

Built a hybrid Retrieval-Augmented Generation system (TF-IDF + dense) with structured JSON outputs; improved factual grounding and response consistency in open-domain QA.

#### • Text-to-SQL Graph Router — LangGraph + Gemini 🌐

*Stack:* LangGraph, LangChain Google GenAI, Pydantic, Python-dotenv

Implemented difficulty-aware routing and ReAct-style schema reasoning; reduced invalid queries and improved accuracy on multi-table SQL generation.

## Spring AI Workshop (Hands-on)

- *Stack*: Spring Boot, OpenAI API, Java, LangChain4j
- Developed hands-on exercises for integrating LLMs in Spring apps, covering prompt engineering, RAG, and agent workflows.
- Bridged backend engineering with LLM-based pipelines for applied AI developers.

## Teaching Assistant

---

- **Advanced Data Mining (Winter 2025-Present, University of Tehran)**: Assisted Dr. Azadeh Shakery. Designed assignments on frequent pattern mining (Apriori, FP-Growth) and classification.
- **Intelligent Information Retrieval (Fall 2024-Present, University of Tehran)**: Assisted Dr. Azadeh Shakery. Developed projects on LM-based IR and feedback via KL-divergence EM.
- **Statistical Inference (Fall 2025-Present, University of Tehran)**: Assisted Dr. Abolghasemi. Covered MLE, Bayesian inference, and hypothesis testing.
- **Social Networks (Fall 2025-Present, University of Tehran)**: Assisted Dr. Asadpour. Focused on graph algorithms and influence propagation.
- **Artificial Intelligence (Spring 2022, Ferdowsi University)**: Assisted Dr. Abrishami and Dr. Harati.
- **Python Workshop (Spring 2022, Iranian Geophysical Society)**: Taught Python to master's students.

## Skills

---

- **Soft Skills**: Teamwork, Meeting Tight Deadlines
- **Programming Languages**: Python, Java
- **LLMs**: LangChain, Unsloth, HF Trainer, PEFT, Datasets, TRL
- **Databases**: ElasticSearch, Lucene, lanceDB, Redis, PostgreSQL
- **Monitoring**: Prometheus, Grafana, Sentry
- **Tools**: GitLab, JIRA, Docker Compose, Confluence
- **Machine Learning**: PyTorch, Scikit Learn, evaluate
- **Retrieval**: Sentence Transformers, ColBERT, BM25
- **Web Technologies**: Spring Boot
- **Additional**: Code Reviewing, Repository Maintenance, Team Management

## Languages

---

**Persian**: Native, **English**: Advanced