

AMIRHOSSEIN ROSHANDEL

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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:** 17.12/20

Ferdowsi University of Mashhad

B.Sc in Computer Engineering

Mashhad, Iran

Sep 2018–Jun 2023

- **GPA:** 18.31/20

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

Publications

- **ProDAKD: A Profile-based Dialogue Agents Knowledge Distillation Approach for User Simulation in Conversational Recommender Systems**
Under Review at ECIR 2026 Main Conference
A. Roshandel*, E. Shahabi*, M. Sadeghi, V. Rahimzadeh, A. Shakery (*equal contribution)

Experience

NeshanMaps

Software Engineer - Gamification Team

Mashhad, Iran

Mar 2025–Present

- Architected and deployed a Check-The-Fact (CTF) validation system, enabling daily validation of one-tenth of the data without human intervention.
- Integrated LLMs for comment moderation, achieving 78% accuracy and reducing manual review time by 60%.
- Refactored leaderboard logic to eliminate 30-minute calculation delays, enabling real-time dynamic scoring.

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 - Search Team

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.

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 OLAP, data warehousing, and frequent pattern mining (Apriori, FP-Growth).
- **Intelligent Information Retrieval (Fall 2024–Present, University of Tehran):** Assisted Dr. Azadeh Shakery. Developed projects on statistical language models for IR, query likelihood retrieval, feedback via KL-divergence EM, and smoothing methods (Jelinek-Mercer, Dirichlet prior, absolute discounting).
- **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 affiliation networks and community detection.
- **Artificial Intelligence (Spring 2022, Ferdowsi University of Mashhad):** Assisted Dr. Abrishami and Dr. Harati. Designed assignments on search algorithms (A*, BFS, DFS), heuristic methods, and automated planning.
- **Python Workshop (Spring 2022, Iranian Geophysical Society):** Taught Python programming 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:** Fluent