

Seyyed Javad Bozorg Zadeh Razavi

Mashhad, Iran | Javad.b.razavi@gmail.com | www.bozorgzade.ir | LinkedIn

EDUCATION

M.Sc. in Computer Engineering Ferdowsi University of Mashhad, Department of Computer Engineering <i>Thesis Topic:</i> Novel Worker Recruitment Method Based on Clarity and Fairness of Requester (Score: 19/20)	Jul. 20, 2019 – Sep. 21, 2022 GPA: 4.00 / 4.00
B.Sc. in Computer Systems Architecture University of Birjand, Department of Electrical and Computer Engineering	Sep. 23, 2015 – Sep. 20, 2019 GPA: 3.50 / 4.00
B.Sc. in Software Engineering University of Birjand, Department of Electrical and Computer Engineering	Sep. 23, 2015 – Sep. 20, 2019 GPA: 3.41 / 4.00

RESEARCH INTERESTS

Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), Natural Language Processing, Question Routing, Social Computing, Crowdsourcing, Federated Learning

PUBLICATIONS

- [1] **B. Razavi, S.J.,** Sohani, S., Zhang, K., “**Fed-AdaptRAG: A Training-Free Adaptive Cascade Framework for Decentralized Retrieval-Augmented Generation,**” (Manuscript in Preparation)
This study investigates the integration of Retrieval-Augmented Generation (RAG) systems within federated learning platforms, focusing on mechanisms that enable the RAG pipeline to dynamically enhance its decentralized knowledge base and retrieval processes based on incoming user queries.
- [2] **B. Razavi, S.J.,** Amintoosi, H., Allahbakhsh, M., “**Large Language Models as Expert Recommender Engines in Crowdsourcing Platforms,**” (Manuscript in Preparation)
This article explores the application of Large Language Models (LLMs) as intelligent recommender engines to evaluate and rank workers on crowdsourcing platforms. By jointly analyzing applicants’ historical data—such as past task completions and expertise indicators—alongside task metadata (title, description, and category), the proposed approach improves task allocation efficiency, accuracy, and scalability.
- [3] **B. Razavi, S.J.,** Vatanparast, A., Allahbakhsh, M., Amintoosi, H., Mashayekhi, H., “**Grounded Clinical Reasoning with Multimodal LLMs: Bridging Deep Lesion Segmentation and Fact-Controlled Brain MRI Report Generation,**” (Manuscript in Preparation)
This framework transforms 2D brain MRI scans into structured diagnostic reports by coupling upstream PEFNet segmentation with the MedGemma-27B multimodal large language model. While non-generative report sections (Technique, Impression, and Limitations) are assembled deterministically to prevent diagnostic hallucinations, MedGemma-27B processes the MRI scan overlaid with a thin lesion boundary alongside curated geometric and signal facts to synthesize a clinically fluent Findings narrative under strict factual control.
- [4] Samari, S., Hedayatnia, P., **B. Razavi, S.J.,** Allahbakhsh, M., Amintoosi, H., “**Collaborative LLM-Based Vulnerability Detection for Smart Contract,**” *ICCKE Conference*, 2025. (Published, IEEE Index)
This paper introduces a collaborative LLM-based framework that enhances vulnerability detection robustness in smart contracts through semantic similarity-based few-shot prompting and multi-LLM reasoning. The architecture integrates diverse LLMs as worker nodes alongside an aggregator model to resolve disagreements via justification analysis and final prediction consolidation.
- [5] **B. Razavi, S.J.,** Amintoosi, H., Allahbakhsh, M., “**A Clarity and Fairness Aware Framework for Expert Recommendation in Crowdsourcing Systems,**” *Springer Computing Journal*, 2024. (Published)
This article proposes a framework for selecting suitable workers in crowdsourcing by modeling requester clarity and fairness. It employs a fuzzy inference model to evaluate task clarity and integrates these metrics with task and worker attributes, outperforming existing baseline approaches on real-world datasets.
- [6] Mousavi, A., Sirjani, M. Sadegh, **B. Razavi, S.J.,** “**SecVanet: Provably Secure Authentication Protocol for Sending Emergency Events in VANET,**” *IKT Conference*, 2023. (Published, IEEE Index)
This paper presents a provably secure authentication protocol for vehicular ad hoc networks (VANETs), ensuring reliable communication between emergency and damaged vehicles. The protocol prevents malicious spoofing attacks and false emergency signals, guaranteeing that only legitimate, authenticated messages are transmitted to enable timely emergency response routing.
- [7] **B. Razavi, S.J.,** Amintoosi, H., Allahbakhsh, M., “**A Framework for Assessing the Clarity of Contributions in the Q&A System,**” *Computer Society of Iran Conference*, 2022. (Published, In Persian – ISC Index)
Clear task descriptions are essential in crowdsourcing and Q&A platforms, as ambiguity leads to unsatisfactory worker submissions. In this article, we propose an automated framework that quantifies the clarity of a requester’s task description prior to publication.

WORK EXPERIENCE

AI, Natural Language Processing & LLM Engineer | Makan System Hooshmand Company May 2025 – Present
Architecting enterprise LLM and Retrieval-Augmented Generation (RAG) systems, including multilingual conversational business intelligence (Text-to-SQL) assistants and autonomous voice/avatar customer service agents.

Team Lead of Machine Learning and Natural Language Processing | Sahim Company Mar. 2023 – Mar. 2025
Led the development of a domain-specific LLM question-answering system for diagnosing home appliance, electronic device, and building maintenance issues.

Graduate Research Assistant | Ferdowsi University of Mashhad

Sep. 2022 – Feb. 2023

Conducted research on Expert Recommendation, Question Routing, and Large Language Models for Recommender Systems.

Product Lead, Accounting Software Division (CEO) | Arvin Pishgaman Fannavari Ronak (Uper) Aug. 2020 – Aug. 2021

Senior Back-End Developer | Arvin Pishgaman Fannavari Ronak (Uper) Jun. 2019 – Aug. 2020

- Architected software and database systems scaling to 1M+ users
- Implemented core marketplace services using .NET 5
- Engineered real-time communication pipelines over NATS & SignalR

TEACHING EXPERIENCE

Lecturer: C# Programming for Beginners (*Jan. 2017 – Jun. 2017*) | Advanced C# Programming (*Jan. 2018 – Jun. 2018*)

Teaching Assistant:

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| • Compiler Design | <i>Jan. 2023 – Jun. 2023</i> | • Introduction to C++ Programming | <i>Jan. 2018 – Jun. 2018</i> |
| • Principles of Software Design | <i>Sep. 2022 – Dec. 2022</i> | • Engineering Probability & Statistics (4 sem., 5 classes) | <i>Jan. 2017 – Jan. 2019</i> |
| • Web Programming | <i>Sep. 2022 – Dec. 2022</i> | • Intro. to Formal Languages and Automata | <i>Sep. 2017 – Dec. 2017</i> |
| • Introduction to Python Programming | <i>Jan. 2021 – Jun. 2021</i> | • Data Structures and Algorithms | <i>Jan. 2017 – Jun. 2017</i> |

SKILLS & LANGUAGES

Programming languages:	Python, C++, C#, SQL, JavaScript (JS), MATLAB
LLMs, RAG & NLP:	Large Language Models (Text & Multimodal), Retrieval-Augmented Generation (Adaptive & Decentralized RAG), Embedding Models, Semantic Similarity Search, Few-Shot Prompting, Multi-LLM Reasoning, Question Answering & Routing
ML & Federated Learning:	Federated Learning, Privacy-Preserving LLM Fine-Tuning, Efficient LLM Serving, Recommender Systems, Fuzzy Modeling, Machine Learning in Python
Backend & Web Dev:	.NET Core / .NET 5, ASP.NET Core, WPF, NATS, SignalR, HTML, CSS, Bootstrap, jQuery
Databases & Architecture:	PostgreSQL, MSSQL Server, Access Patterns: MVC, MVP, Object-Oriented Programming (OOP)
Tools & Environments:	Git, Visual Studio, VS Code, Qt Creator, Unity3D, Android Studio, Trello
Languages:	Persian: Native TOEFL iBT: 93 (<i>Aug. 26, 2023 – R: 27, L: 23, S: 20, W: 23</i>) IELTS: 6.5 (<i>Feb. 11, 2022 – R: 7, L: 6.5, S: 6.5, W: 6</i>)

HONORS, AWARDS & ACADEMIC SERVICE

1. **Peer Reviewer**, International Conference on Artificial Intelligence, Computer, Data Sciences and Applications (ACDSA 2027) – University of Campinas (UNICAMP), Brazil
2. **Peer Reviewer**, International Conference on Artificial Intelligence, Computer, Data Sciences and Applications (ACDSA 2026) – University of Santo Tomas, Philippines
3. **Peer Reviewer**, International Conference on Electrical, Computer and Energy Technologies (ICECET 2026) – Politecnico di Milano, Italy
4. **Peer Reviewer**, 14th International Conference on Computer and Knowledge Engineering (ICCKE) – Ferdowsi University of Mashhad
5. **Awarded Dual B.Sc. Degrees Simultaneously** in Software Engineering and Computer Systems Architecture (*Restricted to top-ranked talented students*)
6. **Ranked 1st** among B.Sc. students in Computer Systems Architecture Engineering, University of Birjand
7. **Ranked in the Top 15%** of B.Sc. students in Software Engineering, University of Birjand
8. **Selected Valedictorian Speaker** (one of two students chosen) at the Final University Graduation Ceremony
9. **Judge**, University of Birjand Annual ACM/ICPC Programming Competitions (2018–2020)
10. **Head of the Scientific Association of Computer Science**, University of Birjand (2018–2020)
11. **Lead Organizer**, Best Regional Programming Competitions in South Khorasan Province, Iran
12. **Organizing Committee Member**, 1st Conference on Healthcare Computing Systems and Technologies (2019)
13. **Invited Lecturer**, Two C# Programming Courses, Technical and Vocational Training Organization (Fani Va Herfeii)

CERTIFICATES AND ACCOMPLISHMENTS

- Federated Fine-Tuning of LLMs with Private Data – DeepLearning.AI
- Introduction to Federated Learning – DeepLearning.AI
- Efficiently Serving LLMs – DeepLearning.AI
- Hands-On Natural Language Processing – National Association of State Boards of Accountancy (NASBA)
- Python Data Structures – Coursera
- Programming for Everybody (Getting Started with Python) – Coursera
- Basic and Advanced C# Programming Language – Center for Information Technology and Digital Media Development
- Performance Optimization and Build Size Reduction in Unity3D – Iran Computer and Video Games Foundation
- Basic and Advanced Java Programming Language – Fani Va Herfeii Organization

SELECTED PROJECTS

- **Natural Language BI Assistant:** Architected a multilingual conversational business intelligence (Text-to-SQL) platform enabling non-technical managers and C-suite executives to extract insights from complex relational databases across English, Persian, Armenian, Turkish, and Arabic using LLMs, RAG, and dynamic schema linking.
- **Autonomous Avatar Assistant for Power Grid Operations:** Architected a zero-human-in-the-loop conversational avatar

- platform integrating open-source LLMs, ASR, TTS, and RAG to automate end-to-end citizen outage reporting and real-time ticket follow-ups.
- **Sahim Smart Building Application:** Engineered a comprehensive building management platform for contracts, billing, and resident messaging, featuring an integrated domain-specific LLM assistant that answers resident queries regarding building operations and home appliance troubleshooting.
 - **Multi-Service E-Commerce & Social Super-App:** Developed a full-stack mobile and web platform integrating social networking feeds, an online marketplace, ride-hailing dispatch services, and real-time instant messaging.

REFERENCES

Dr. Haleh Amintoosi
Head of E-Learning Center
Faculty of Computer Engineering
Ferdowsi University of Mashhad
amintoosi@um.ac.ir

Dr. Mohammad Allahbakhsh
Faculty of Computer Engineering
Ferdowsi University of Mashhad
allahbakhsh@ferdowsi.um.ac.ir

Dr. Mehran Taghipour-Gorjilaie
Faculty of Electrical & Computer Eng.
University of Birjand
mtaghipour@birjand.ac.ir