

Dariush Kazemi

Tehran, Iran

✉ dariushkazemi77@gmail.com

☎ (+98) 938 634 4985

🌐 Zalius

🌐 dariush-kazemi

EDUCATION

University of Tehran

Ph.D. in Computer Science

Tehran, Iran

Oct 2024 - Present

Amirkabir University of Technology

M.Sc. in Computer Science

Tehran, Iran

Jan 2021 - Oct 2023

- **CGPA:** 17.92/20 (3.73/4.0)
- **Supervisor:** Dr. Zahed Rahmati
- **Highlighted Courses:** Advanced Algorithms, Special Topics in Artificial Intelligence (Machine Learning with Graphs), Computational Data Mining, Computational Geometry, Game Theory, Advanced Theory of Computation

University of Guilan

B.Sc in Mathematics and Applications

Rasht, Iran

Sep 2015 - Aug 2019

- **CGPA:** 15.82/20
- **Ranked 3rd in class**
- **Highlighted Courses:** Advanced Programming, Combinatorics and Applications, Probability 1, Statistical Methods

WORK EXPERIENCE

Data Engineer

OnTime

Tehran, Iran

Jan 2025 - Present

- Implemented real-time **data synchronization** between PostgreSQL and Neo4j using **Apache Kafka** with Change Data Capture (CDC) patterns
- Designed and developed a **Graph Neural Network (GNN)** recommender system for personalized event and mentor matching
- Managed successful deployment at **INOTEX 2025** (Pardis Technology Park, April 29 - May 2), handling **3500+** active users with innovative live event recommendations
- Optimized data pipelines and streaming architecture for high-throughput real-time applications

Research Collaborator

University of Tehran

Jan 2025 - Present

- Collaborated with Dr. Ali Darvishi Boloorani on a geoinformatics project involving geospatial data for hotspot analysis
- Designed and implemented **PostgreSQL + PostGIS** databases to store and analyze geodata
- Fine-tuned Llama3.2 LLM for pattern recognition and geospatial analysis, with plans to incorporate machine learning models for advanced insights in upcoming phases

Data Scientist

Colife Integrated Medical Labs

Mar 2024 - Present

- Pioneered machine learning-based analysis of genetic, phenotype, and disease-related data from sources like HPO, OMIM, and Orphanet
- Developed data-driven insights supporting research in personalized medicine and genomic analysis
- Architected and implemented a genetic whole-exome Neo4j database to power an expert advisor application, enabling efficient data retrieval and analysis
- Applied advanced ML techniques to biomedical datasets for pattern recognition and predictive modeling

AI Consultant & System Advisor

Kar Center

Feb 2024 - Mar 2024

- Provided expertise in state-of-the-art AI algorithms and methodologies to design recommender systems and fraud detection mechanisms for a dating app under development

- Researched, evaluated, and advised on advanced algorithms to enhance user experience, optimize matchmaking, and improve system integrity
- Collaborated with cross-functional teams to ensure integration of AI-driven solutions aligned with business goals

Data Engineer

Selected Geeks

Tehran, Iran

Jun 2023 - Aug 2023

- Led the development of a robust distributed data crawling system with optimized backend architecture
- Implemented efficient Point-to-Point Data Storage Systems, enhancing data retrieval and storage processes
- Strengthened team's technical proficiency through active participation in diverse backend development projects

Independent Contractor

Freelance Projects

Feb 2024 - Present

- **Federated Deep Reinforcement Learning for Spectrum Sharing:**
 - Applied Federated Deep Q-Networks (FDQN) and Federated Deep Policy Gradient (FDPG) to optimize spectrum sharing among Mobile Network Operators (MNOs)
 - Designed single-agent and multi-agent simulations, comparing methods such as EDRL-SSM, Greedy, and No Spectrum Sharing
 - Developed federated learning aggregation strategies and provided insights for future enhancements
- **Drug-Drug Interaction Management Platform:**
 - Built comprehensive drug interaction and recommendation system using Neo4j graph database and PyTorch-Geometric for graph-based analysis
 - Developed user-friendly frontend with Next.js, integrating advanced features like autocomplete, dark mode, and data visualizations
 - LoRA fine-tuned Llama3.2 LLM to interpret complex medical contexts and provide intelligent prescription recommendations

Computer and IT Technician

Gilan Pardazesh

Rasht, Iran

Jan 2015 – May 2023

Managed installation, maintenance, and repair of hardware and software components for customer computers, providing comprehensive IT support services.

Computer and IT Technician

Dana Clinic

Rasht, Iran

Jun 2018 – Sep 2018

Enhanced computer network systems and addressed software and hardware issues as part of comprehensive IT infrastructure management.

KEY SKILLS

Programming Languages: Python, Java, JavaScript, C#, MATLAB

Data Engineering: Apache Kafka, Change Data Capture, ETL Pipelines, Airflow, SQL

ML & AI Frameworks: PyTorch, PyTorch-Geometric, TensorFlow, scikit-learn

Data Analysis: Pandas, NumPy, NetworkX

Graph Technologies: Neo4j, Cypher Query Language, Graph Neural Networks

Databases: PostgreSQL, MongoDB, Redis, ClickHouse, PostGIS, SQLite

Web Development: Django, Next.js, React, HTML, CSS, Tailwind CSS

DevOps & Tools: Docker, Git, CI/CD, XAMPP, Unity

Operating Systems: Windows, GNU/Linux (Ubuntu)

Specialized Skills: Recommender Systems, LLM Fine-tuning, Geospatial Analysis

Strong Background: ML/Deep Learning, Graph Neural Networks, Mathematics, Data Structures and Algorithms, Distributed Systems

SELECTED PROJECTS (*More Projects on GitHub*)

Real-time Event Recommendation System (OnTime)

- Developed end-to-end real-time recommendation system using Apache Kafka for data streaming and Graph Neural Networks for personalized matching
- Implemented CDC patterns for seamless data synchronization between PostgreSQL and Neo4j databases
- Successfully deployed at major tech exhibition handling thousands of concurrent users

Drug-Drug Interaction Management System

- Developed comprehensive system to manage drug-drug interactions using Neo4j graph database, modeling drugs and interactions as nodes and edges
- Created intuitive frontend with Next.js, featuring advanced functionalities like autocomplete search, dark mode, and data visualizations
- Integrated fine-tuned Llama3.2 LLM to provide intelligent prescription recommendations and interpret complex medical contexts
- Implemented GNN using PyTorch-Geometric for drug categorization and alternative prescription suggestions based on interaction risk

Genetic Whole-Exome Database for Personalized Medicine

- Designed and implemented Neo4j database to store genetic whole-exome data for personalized medicine expert advisor application
- Enhanced data retrieval and analysis efficiency to support disease research and genetic insights
- Integrated machine learning models for pattern recognition in genomic data

Federated Learning for Spectrum Sharing Optimization

- Implemented federated deep reinforcement learning algorithms (FDQN, FDPG) for optimizing spectrum allocation among mobile network operators
- Designed comprehensive simulation environment comparing multiple approaches including EDRL-SSM, Greedy algorithms, and baseline methods
- Developed novel aggregation strategies for federated learning in telecommunications applications

Drug-Drug Interactions Prediction using SMILES Subgraph Approach

- Developed SMILES Subgraph approach leveraging induced subgraphs for edge prediction in molecular interaction networks
- Implemented vanilla Graph Neural Network models to handle remaining edge predictions in large-scale molecular datasets
- Applied to drug discovery and pharmaceutical interaction prediction problems

GraphSAGE + Edge Attributes on ogbl-ddi Dataset

- Trained and optimized Jing Yang's GraphSAGE + Edge Attributes model on the ogbl-ddi dataset for drug-drug interaction prediction
- Achieved competitive performance on Open Graph Benchmark leaderboard

TEACHING EXPERIENCE

Amirkabir University of Technology

Teaching Assistant, Machine Learning with Graphs

Tehran, Iran

Jan 2023 - May 2023

Instructor: Dr. Zahed Rahmati

- Prepared and delivered monthly sessions on utilizing PyTorch Geometric for machine learning with graphs
- Developed comprehensive tutorials and hands-on exercises for graph neural network implementations
- Graded and improved assignments and final projects of more than 20 students
- Mentored students in advanced graph ML concepts and research methodologies

Amirkabir University of Technology

Teaching Assistant, Design & Analysis of Algorithms

Tehran, Iran

Jan 2022 - May 2022

Instructor: Dr. Zahed Rahmati

- Conducted and presented weekly sessions on design and analysis of algorithms, referencing CLRS chapters
- Prepared comprehensive problem sets and coding assignments covering fundamental algorithmic concepts
- Graded and provided detailed feedback on assignments of more than 60 students
- Held regular office hours for student consultation on complex algorithmic problems

University of Guilan

Rasht, Iran

Instructor: Dr. Sadegh Eskandari

- Conducted weekly sessions to help students learn Java programming using various algorithms and data structures
- Designed practical programming exercises and projects to reinforce theoretical concepts
- Provided individual mentoring to students struggling with programming concepts

AWARDS AND ACHIEVEMENTS

- Received national graduate full scholarship – M.Sc. Amirkabir University of Technology (2021-2023)
- Ranked 3rd GPA among 59 undergraduate students of Mathematics and Applications (2019)
- Received national undergraduate full scholarship - B.Sc. University of Guilan (2015-2019)
- Gold Math medal in 8th International Scientific League of PAYA (Group Contest) (2015)
- National Organization for Development of Exceptional Talents (NODET) graduate
- Gauss Mathematics Competition participant (Grade 7, University of Waterloo) (2009)

CERTIFICATIONS

- Cisco Certified Network Associate (CCNA Routing and Switching), ICND1 and ICND2 - Iran TVTO, 2019
- Cisco Certified Entry Networking Technician (CCENT) Routing and Switching - Iran TVTO, 2019
- Technician of Small Networks - Iran TVTO, 2019
- Certificate of Basic Roboro Programming course – 2012
- Certificate of Participation in 2nd Guilan Student Robotic Competition - 2012

VOLUNTARY ACTIVITIES

Local ACM Competition Organizer

University of Guilan

Rasht, Iran

2018 – 2019

- Served as Test Designer (Question Designer) and Executive Committee member for local ACM programming competitions
- Designed challenging algorithmic problems and managed competition logistics for both 2018 and 2019 events
- Contributed to fostering competitive programming culture at the university level

LANGUAGES

Persian - Native **English** - Proficient **Russian** - Basic **Arabic** - Basic

REFERENCES

- **Dr. Zahed Rahmati**
Assistant Professor, Department of Mathematics and Computer Science
Amirkabir University of Technology, Tehran, Iran
zahedrahmati@gmail.com
- **Dr. Ali Darvishi Boloorani**
Associate Professor, Department of Remote Sensing and GIS
University of Tehran, Tehran, Iran
(Current research collaboration supervisor)
- **Dr. Mohammadreza Yaghouti**
Associate Professor, Department of Mathematics and Computer Science
University of Guilan, Rasht, Iran
yaghouti@guilan.ac.ir
- **Dr. Payam Bahiraei**
Assistant Professor, Department of Mathematics and Computer Science
University of Guilan, Rasht, Iran
payambahiraei.math@gmail.com