

Alireza Keshavarzian

Ph.D. - University of Toronto - Data Science Researcher

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AlirezaKesha

in AlirezaKesha

Webpage

Toronto

Skills

- **ML & Code:** Python, C/C++, Golang | PyTorch, PyTorch Geometric, scikit-learn, JAX | LLMs: LangGraph, MCP
- **Data & Systems:** Spark/PySpark, SQL, Pandas | Kafka, Airflow, Docker, K8s | MySQL, MongoDB | AWS, Azure

Experience

Data Scientist (Clinical Time-Series ML) | University Health Network (UHN)

Dec 2020 – Present

Toronto, ON

- Led development of a 5-year clinical ML pipeline for pulmonary oscillometry data, integrating multimodal hospital records and automated quality control.
- Developed "OscilloFusion," an attention-based multi-channel architecture, achieving 80% accuracy (+5% over deep-learning baselines) in oscillometry classification under limited-data constraints.

Machine Learning Internship (CAD Automation) | DraftAid

Jun 2025 – Sep 2025

Toronto, ON

- Designed and trained a Graph Neural Network (GNN) to convert CAD drawings into structured geometric graphs, achieving 94% recall for annotation link recommendations and reducing manual expert annotation.
- Formulated drafting as conditional autoregressive graph inference, integrating a human-in-the-loop verification.

Data Scientist | SnappFood

Dec 2019 – Oct 2020

Tehran, Iran

- Engineered a hybrid recommendation engine fusing latent matrix factorization with real-time behavioral features using PySpark ML to personalize user feeds.
- Devised spatio-temporal predictive models for delivery ETA, optimized logistics, and designed A/B tests to evaluate CTR, conversion funnels, and retention using scalable Hadoop/Spark dashboards.

Software Engineer Team Lead | Atrovan

Nov 2016 – Dec 2019

Tehran, Iran

- Architected a multi-tenant IoT platform in Golang with Kafka for high-throughput async processing.
- Implemented end-to-end fleet management pipelines featuring custom GPS telemetry, ETA computation, and geospatial indexing via MySQL/MongoDB with Redis caching.

Selected Publications

- [HIERVAR: A Hierarchical Feature Selection Method for Time Series Analysis](#). IEEE MLSP 2024.
- [Time Series Classification Using Convolutional Kernel and Adaptive Dynamic Thresholding](#). IEEE ICC 2024.
- [Representation Learning of Clinical Multivariate Time Series with Random Filter Banks](#). IEEE ICASSP 2023.
- [RASTER: Representation Learning for Time Series Classification using Scatter Score and Randomized Threshold Exceedance Rate](#). IEEE MLSP 2023.
- [Modified Deep Residual Network Architecture Deployed on Serverless IoT Platform Based on Human Activity Recognition Application](#). *Future Generation Computer Systems*.

Education

PhD in Electrical and Computer Engineering | University of Toronto

2021 – 2026

Toronto, ON

Focus: Healthcare ML, Contrastive Learning, Random Representation Learning on Time-Series .

MSc in Electrical engineering | Amirkabir University of Technology

2016 – 2019

Tehran, Iran

BSc in Electrical engineering & CS (double major) | Amirkabir University of Technology

2012 – 2016

Tehran, Iran