

Javad M Alizadeh

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PROFESSIONAL SUMMARY

- Health Informatics PhD Candidate at Temple University with a foundation in engineering.
- Proficient in applying Machine Learning, Natural Language Processing, Large Language Models, and Digital Twin technologies for health data analysis and personalized care applications.
- Skilled in Python, R, and Neo4j, with expertise in data preprocessing, predictive modeling, and visual analytics.

EDUCATION

PhD in Health Informatics, Temple University, GPA: 3.97/4 **2022 – Present**

Dissertation: A Digital Twin Framework for Personalized Care Planning in Chronic Disease

MSc in Logistics and Supply Chain Engineering, IUST, GPA 4/4 **2013 – 2016**

Dissertation: Distribution Facilities Location in Pharmaceutical Supply Chain Considering Reliability

BSc in Industrial Engineering, PNU, The last 65 semester credits: 3.37/4 **2007 - 2011**

Final Project: Design and optimization of production layout and flow using SimEvents

TECHNICAL SKILLS

Programming: Python, R.

Data Analysis: Pandas, Matplotlib, Seaborn, Folium, Plotly Dash.

Machine Learning: Sklearn, TensorFlow, PyTorch, XGBoost, CatBoost, LightGBM, Ensemble Learning.

Database: SQL, Neo4j, MySQL, PostgreSQL, MongoDB.

Interface Development: React, HTML, CSS, Streamlit, Flask, Django, Tkinter, PyQt5.

Operations Research: Mathematical Modeling, Optimization, GAMS, AMPL, IBM ILOG CPLEX, Gurobi.

PROFESSIONAL EXPERIENCE

Research Assistant, Temple University **2022 – Present**

- Developed a **framework to clean** electronic health records for **534,259 patients** with Type 2 Diabetes (T2D) and Hypertension (HTN) from Greater Philadelphia (2017-2021).
- Achieved over 80% reduction in data redundancy, over 98% completeness, resulting in **analysis-ready datasets** with 5.8M T2D and 8.5M HTN encounters ready for **predictive modeling**.
- Trained multiple machine learning models to **predict emergency department visits** by patients with type 2 diabetes, achieving an AUC ROC score of over 80%. ([Link](#))
- Developed a clinical decision support system achieving over 70% accuracy in **predicting diabetic patient readmissions** using **CatBoost**, integrated with Streamlit GUI and **LLaMA3** for generating personalized treatment recommendations.
- Designed a **digital twin framework** for personalized care planning and applied to type 2 diabetes management. ([Link](#))
- Developed a public **progressive web app** that visualizes data on interactive maps using Create React App. ([Link](#))
- Built a **chatbot**, DreamKG, for homeless individuals to find community services using **retrieval-augmented generation (RAG)** with **graph database** to ensure accurate information, featuring location-based search and directions. ([Link](#))
- Integrated applications of the Justice Group of **NSF Proto-OKN project**, DreamKG, RuralKG, NIKG, and SCALES, using multi-database query system with LLM-powered Cypher generation. ([Link](#))

Research Assistant, IUST **2016 – 2022**

- Developed mathematical models, using GAMS, AMPL, and IBM Ilog CPLEX, to **optimize health-related resource allocation**, resulting in improved efficiency and cost savings.
- Developed a **Guaranteed Service Model** for a multi-period, multi-echelon Personal Protective Equipment supply chain to **improve responsiveness** during infectious disease outbreaks (with the University of Greenwich).
- Designed and optimized a **pharmaceutical supply chain** for **Darou Pakhsh Distribution Co.** (with Shahid Beheshti University of Medical Sciences), **minimizing inventory and transportation costs** while modeling potential disruptions to improve reliability during disasters.

Warehouse Inventory Management Intern, Darou Pakhsh Distribution Co **Jan 2015 – May 2015**

- Successfully optimized a mathematical model, using AMPL and CPLEX, for the company's distribution centers, to manage complex inventory scenarios with multiple items and positive lead times.

Production Layout and Flow Design Intern, Charkheshgar Co **Jan 2011 – May 2011**

- Successfully optimized a mathematical model, using AMPL and CPLEX, for the company's distribution centers, to manage complex inventory scenarios with multiple items and positive lead times.

Publications & Presentations & Posters

1. **Javad M Alizadeh**, Mukesh K Patel, and Huanmei Wu. 2025. "DT4PCP: A Digital Twin Framework for Personalized Care Planning Applied to Type 2 Diabetes Management". In ACM/IEEE International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE '25), June 24–26, 2025, New York, NY, USA, <https://doi.org/10.1145/3721201.3725438>.
2. **Javad M Alizadeh**, Mukesh K Patel, and Huanmei Wu. 2025. "An AI-Powered Clinical Decision Support System for Patients with Diabetes: Integrating Machine Learning for Readmission Prediction and Large Language Models for Recommendation". Presented at the CPH Research and Evidence Based Practice Day at Temple University (April 11, 2025) and the Public Health Student Poster Symposium at the College of Physicians of Philadelphia (May 01, 2025), <https://doi.org/10.34944/5hmt-f779>.
3. **Javad M Alizadeh**, Jay S Patel, Gabriel Tajeu, Yuzhou Chen, and Ilene Hollin, Mukesh K Patel, Junchao Fei, Huanmei Wu, "Predicting Emergency Department Visits for Patients with Type II Diabetes". Presented at AI-PHSS in Conjunction with the 22nd International Conference of the AIME (Jul 12, 2024), <https://doi.org/10.48550/arXiv.2412.08984>.
4. **Javad M Alizadeh** and Huanmei Wu, "Predicting Emergency Visits for Patients with Diabetes: Machine Learning over Integrated Demographic, Social, Vital, and Diagnostic Data". Presented at the College of Physicians of Philadelphia (May 06, 2024).
Javad M Alizadeh, Huanmei Wu, and Jay Patel, "Exploring the influence of social determinants of health for emergency department visits by patients with diabetes and hypertension". Presented at APHA's 2023 Annual Meeting and Expo (Nov 12, 2023), <https://doi.org/10.34944/x76e-ig91>.
5. Jay S Patel, Omotese Oaikhenae, Thanh T.D. Phan, H. Vo, **Javad M Alizadeh**, and Huanmei Wu, "The Landscape of Health Informatics Education in Low- or Middle-Income Countries," 2023 IEEE 11th International Conference on Healthcare Informatics (ICHI), Houston, TX, USA, 2023, pp. 652-656, <https://doi.org/10.1109/ICHI57859.2023.00113>.
6. Huanmei Wu, **Javad M Alizadeh**, Jay S. Patel, Ilene Hollin, Gabriel Tajeu, and Pricila H. Mullachery. "Artificial Intelligence Guided Clinical Workflow Improvement and Public Health Outreach for Patients with Diabetes and Hypertensions". Presented at the AMIA 2023 Artificial Intelligence Evaluation Showcase, Phase II (May 23, 2023).
7. Huanmei Wu, **Javad M Alizadeh**, Jay S. Patel, Ilene Hollin, Gabriel Tajeu, Thanh T.D. Phan, and Pricila H. Mullachery. "Prediction of Emergency Visits by Patients with Diabetes Using Integrated Social Determinants of Health with Electronic Medical Records". Presented at the AMIA 2023 Artificial Intelligence Evaluation Showcase, Phase I (Mar 13, 2023).
8. **Javad M Alizadeh**, Kamran Sarmadi, Mohammad-Saeed Jabalameli, and Hamid Reza Rasekh. "Infectious Disease Outbreak: A Responsive Personal Protective Equipment (PPE) Supply Chain" (Working paper). Will be submitted to the European Journal of Operational Research (EJOR).
9. **Javad M Alizadeh**, Mohammad-Saeed Jabalameli, Hamid Reza Rasekh, and Ahmad Makui. "Medicinal drugs' lifespan and reliability in pharmaceutical supply chain: A real-life case". Submitted to Supply Chain Forum: An International Journal.
10. **Javad M Alizadeh**, Mohammad-Saeed Jabalameli, Ahmad Makui, and Hamidreza Rasekh. "A continuous review inventory model with the positive lead time and the order splitting: A case study for a pharmaceutical distributor". Presented at the 16th International Industrial Engineering Conference (Jan 22, 2020).
11. Mohammad-Saeid Jabalameli, Saeid Yaghoubi, and **Javad M Alizadeh**. "Pharmaceutical Supply Chain Network Design Considering Reliability". Presented at the 11th International Industrial Engineering Conference (Jan 07, 2014).

Honors & Awards

- **Full Scholarship**, Temple University 2022–2025
- **Graduate Meritorious Poster Award**, Temple University April 2024
- **William Gross Scholarship** 2023–2024
- **Full Scholarship**, IUST 2013–2016
- **Half Tuition Award**, PNU 2007–2011

Leadership

President, Health Informatics Students Association (HISA), Temple University **Aug 2025 - Present**

- Lead cross-functional student organization initiatives.
- Coordinating events and communications that enhanced collaboration and technical engagement.

Vice President, Industrial Engineering Students Association, PNU **Mar 2009–Mar 2010**

- Supported the president in organizing academic programs.
- Facilitating effective communication and teamwork among students and faculty.