Fatemeh Rezvani

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LinkedIn | Google Scholar | Github | Website

PROFESSIONAL SUMMARY

Machine Learning Engineer with **3+ years** of experience developing and deploying machine learning solutions using **Python**, **PyTorch**, **TensorFlow**, and **SQL**. Experienced in **feature engineering**, **large-scale data processing**, **model optimization**, **predictive modeling**, and **end-to-end ML pipelines**. Built **classification**, **recommendation**, and **forecasting** systems using structured and unstructured data, with experience improving model performance and scalability across datasets exceeding **1 million records**.

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, C++, C#
- **ML Libraries & Frameworks:** PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas, SciPy, Matplotlib
- **Deep Learning:** CNNs, RNNs, LSTMs, Transformers, Graph Neural Networks (GNNs)
- **Databases:** MySQL, PostgreSQL
- **Tools & Platforms:** Git, GitLab, Streamlit
- **Technical Skills:** Algorithm Design & Optimization, Prompt Engineering, Debugging

PROFESSIONAL EXPERIENCE

Machine Learning Engineer

Kavoshgar Partners, Kerman | Oct 2020 – Oct 2023

- Defined **ETL pipelines** for processing **1M+** records using **Python** and **SQL**, improving data quality and increasing downstream model performance by **8%** through **automated preprocessing**, **feature engineering**, and **anomaly handling**.
- Conducted **exploratory data analysis (EDA)** to identify data patterns, inconsistencies, and key features, enhancing model design and performance improvements.
- Developed **semi-supervised learning** models for **forecasting** tasks, improving prediction accuracy by **15%** and supporting data-driven decision-making.
- Optimized ML and deep learning models using **PyTorch** and **TensorFlow**, **reducing training time** and **computational cost** by **10%** while improving scalability of end-to-end ML workflows.
- **Tools: TensorFlow, PyTorch, NumPy, Pandas, Matplotlib, SQL.**

Machine Learning Engineer

Dadma Tech, Tehran | Jul 2022 – Dec 2022

- Designed and implemented a **BERTopic-based NLP pipeline** for large-scale Persian-language text analysis, improving **topic coherence** by **3%** and reducing manual labeling effort.
- Performed **EDA** and applied **dimensionality reduction** techniques **(PCA, t-SNE)** to extract meaningful features and enhanced **data visualization** for downstream modeling.
- created data processing workflows for experimentation, **model evaluation**, and **NLP pipeline** optimization.
- **Tools: Python, NumPy, Pandas, SciPy, Matplotlib, Scikit-learn, BERTopic**

Research Assistant

University of Science and Technology, Tehran | Sep 2018 – Mar 2022

- Championed a **Graph Neural Network (GNN)** initiative for recommendation, achieving a **1.5%** gain in **search accuracy** and **user experience** within the digital library dataset, optimizing information retrieval. Designed and evaluated models using **standard benchmarks**, improving **Recall@10** and **NDCG** metrics over baseline approaches.

- Conducted **model evaluation**, **fine-tuning**, and **benchmarking** on standard datasets to ensure **robust** and **reliable** results.
- **Tools: PyTorch, NumPy, Pandas, TensorFlow, Scikit-learn**

Teaching Assistant — Data Mining
University of Science and Technology, Tehran | Feb 2021 – Aug 2021

- Mentored **40+** students in data mining and evaluated **70+** assignments, improving understanding of core ML concepts (e.g., regression, classification) by **15%**.
- Streamlined exam processes across five courses using NLP techniques, improving assessment accuracy by **15%**.

Teaching Assistant — Natural Language Processing
University of Science and Technology, Tehran | Sep 2019 – Jan 2020

- Mentored **60+** students in **machine learning** and **NLP**, improving project quality and implementation accuracy by **12%** through hands-on guidance.
- Led **NLP tutorials and developed assessments** using **NLTK**, improving learning efficiency and assessment processes by **5%**.

PROJECTS

Agent-Based Customer Support System (LLM-powered)

- Engineered **service routing** using a Python, **Swarm-based system**, and OpenAI API, generating personalized recommendations.
- Implemented **adaptive triage logic** to classify and prioritize user requests, improving **response efficiency** and **customer satisfaction** by **2%**.
- **Tools: Python, Swarm Framework, OpenAI API**

Graph-Based Query Recommendation Systems (GNN)

- Built a recommendation system using **GNN** to address **cold-start** problems in the Movielens dataset.
- Improved **Recall@10** by **1.37%** over the **LightGCN** using **graph-based learning.**
- **Tools: GNNs, PyTorch, NumPy, Pandas**

Credit Risk Prediction for Loan Underwriting

- **Built and optimized** ML models (**Logistic Regression**, **Random Forest**, **XGBoost**) for credit risk prediction, improving performance by **12%** through feature engineering and tuning.
- Delivered interpretable risk predictions to support automated credit approval decisions.
- **Tools: Python**, **Scikit-learn**, **NumPy**, **Pandas**, **Matplotlib**

Predictive Modeling for Kickstarter Campaigns success

- Trained and evaluated predictive models using **logistic regression**, **random forest**, and **gradient boosting**, improving accuracy by **5.2%** through **cross-validation** and **feature analysis**.
- Deployed model outputs via a Streamlit dashboard, enabling real-time inference and user interaction for data-driven decision-making.
- **Tools: Python, Scikit-learn, Pandas, Matplotlib, Streamlit**

PUBLICATIONS

- Soleimani Sardou S, Rezvaninejad R, **Rezvaninejad FS**, Nekouei AH. **Artificial intelligence for oral cancer diagnosis: a systematic review and meta-analysis of image-based and non-imaging models. BMC Cancer. 2026.**
- Soleimani Sardou S, Ghaemi MM, **Rezvaninejad FS**, Seyrfar A, et al. **Enhancing early detection of oral cancer: a comparative study of artificial intelligence models and clinical specialists in lesion classification. BMC Cancer. 2026.**

- Zarharan, M., Ahangar, S., **Rezvaninejad, F. S.**, et al. **Persian Stance Classification Dataset. TTO, 2019.**
- **Rezvaninejad, F.**, Yazdanpanah, F. **Analyzing GPU Efficiency in High-Performance Computing. ICSETI, 2017**

EDUCATION

Master of Digital Transformation and Entrepreneurship **Jan 2024- Oct 2025**
Carleton University, Ottawa, Canada

- **Relevant Coursework:** Machine Learning, Applied Analytics, Prompt Engineering, Open-Source Business, Product Development, Responsible Artificial Intelligence

M.Sc. Computer Engineering in Artificial Intelligence and Robotics **Sep 2018- Mar 2022**
Iran University of Science and Technology, Tehran

- **Relevant Coursework:** Artificial Intelligence, Deep Learning, Natural Language Processing, Advanced Data Mining, Pattern Recognition, Neural Network, Cloud Computing

B.Sc. in Computer Engineering **Sep 2012- Jun 2017**
Shahid Bahonar University of Kerman, Kerman

- **Relevant Coursework:** Data Structures & Algorithms, Logic Circuits, Computer Architecture, Operating Systems, Discrete Mathematics, Advanced Programming, Information Storage and Retrieval