Amir Gholizad

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Data Scientist with **2 years of experience** in developing Machine Learning, Deep Learning, and Large Language Models.
Junior Backend Developer specializing in AWS and cloud-based solutions.
Experienced in preprocessing data for machine learning models and deploying AI-based web apps and databases to the cloud.

Work Experience

Memorial University of Newfoundland, St. John's, NL, CA — September 2022 – Present
Researcher (Part-Time)

Analyzing Potential Functions Derived from Tick Data Using Machine Learning and Technical Analysis

- . Pre-processing: Use Fractional Differentiation and normality tests.
- · Estimation: Estimate probability density functions using Kernel Density Estimation.
- · Feature Extraction: Construct Potential Functions and extract unique features.
- · Indicator Creation: Build indicators based on Technical Analysis methods.
- · Correlation Analysis: Examine correlations of new indicators with SMA, RSI, MACD, etc.
- · Machine Learning: Build, test, and fine-tune a Random Forest Model to study the predictability of extracted features and their importance score.

Skills

Data Science: Numpy, Pandas, Seaborn, Matplotlib, Keras, Pytorch, TensorFlow, Scikit-learn, **OpenAI**
DevOps: **AWS** (EC2, Lambda, S3, Elastic Beanstalk, Lightsail) - Vercel - CI/CD - **Docker**
Backend and Server Management: **FastAPI** - NginX
Frontend: HTML **-** CSS
Database: **PostgreSQL**
Other: **Linux** - **Git**

Projects

CRUD Web App

- Developed a **CRUD** web application using **FastAPI** and **PostgreSQL** for database management.
- Deployed the application on an **EC2** instance, ensuring scalability and reliability.
- Implemented **Nginx** as a reverse proxy to handle incoming traffic efficiently.
- Utilized **Docker** for containerization, simplifying the deployment process.

Exploring Dimensionality Reduction Techniques for Fluid Flow Analysis

- Investigated fluid behavior using Proper Orthogonal Decomposition (POD) and Dynamic Mode Decom-
- position (DMD) techniques.
- Focused on analyzing the vorticity field of a two-dimensional flow past a cylinder at Reynolds number Re = 200.
- Applied a combination of POD and DMD methods to reduce the dimension and predict future flow modes.

Maximum Likelihood Estimators of Weibull and Uniform Distributions

- Utilized **R** programming language to estimate the parameters of Weibull and Uniform probability distributions using Maximum Likelihood Estimators (**MLE**s).

IMDB Reviews Sentiment Analysis

- Implemented a Sequential model in **Keras** with 3 **Dense** layers and **Sigmoid** Activation functions.
- Compiled the model with **categorical cross entropy** loss and **Adam** optimizer.
- Achieved **85% precision** on testing set in classifying reviews into ”positive” and ”negative” groups.

Education

Master of Science in Physics. GPA: 3.75/4.00 — Memorial University of Newfoundland, St. John's, NL, CA (2022 – 2024)
Bachelor of Science in Physics, GPA: 3.24/4.00 — Amirkabir University of Technology, Tehran, Iran (2016 – 2021)