Ehsan Barkhordar

+98 (930) 052 0717 | barkhordar.me@gmail.com | github.com/olivehair | olive-hair | linkedin.com/in/olivehair

Skills

Programming Python, SQL (PostgreSQL), JavaScript, HTML, CSS.
Machine Learning TensorFlow, PyTorch, Colab, Hugging Face, scikit-learn, NumPy, pandas, Plotly.
Web Django, DRF, FastAPI, SQLAlchemy, Pytest, GraphQL, Celery.
DevOps AWS, Docker, GitLab CI/CD, Sentry, ELK, Prometheus.
Miscellaneous macOS, Ubuntu, Shell (Bash/Zsh), LaTeX, Firebase, Gitlab, PyCharm, VS Code.
Soft Skills Teamwork, Outside-the-box Thinking, Problem-solving, Documentation.

Education

Amirkabir University of Technology — Tehran, Iran
M.Sc. in Computer Science — Sept 2018 - Mar 2021

Thesis: Clustering of Bank Customers using LSTM-based encoder-decoder and Dynamic Time Warping

Amirkabir University of Technology — Tehran, Iran
B.Sc. in Computer Science — Sept 2013 - Apr 2018

Experience

Data Scientist — Remote
Pishro Net Energy — Mar 2022 – Present

Developed comprehensive architecture for transferring trained ML models to production in less than an hours.
Reduced the cost of repairing cooling and heating systems of buildings by 25% with online rule-based monitoring.
Defined more than 150 energy consumption patterns are used for energy optimization suggestions.
Implemented an abnormal behavior detection system with 87% accuracy in electric diesel engines using decision trees.

Data Scientist — Tehran, Iran
Sokan Platform — Apr 2021 – Mar 2022

Proposed a customer churn prediction model using deep neural network with 82% accuracy.
Devised new operational processes such as using Kubeflow led to a 15% increase in productivity.
Doubled test speed using Pytest fixtures, Monkeypatching, and proper conftest.py functions.
Developed unsupervised anomaly detection for time series data using STL-decomposition and Auto-ARIMA.
Reduced the latency of the customer clustering algorithm from 4 minutes to less than 30 seconds by optimizing our feature selection method and Mini-batch K-means.

Senior Software Engineer — Tehran, Iran
Sokan Platform — Sept 2020 – Apr 2021

Defined asynchronous tasks in the background with Celery for long-running or compute-expensive ones.
Increased the speed of getting KPIs by about 500% using Clickhouse instead of Postgres.
Designed and implemented GraphQL APIs for the backend that solved over-fetching and under-fetching problems.
Participated in 40+ hours of sessions on how to migrate from monoservice to the new microservice architecture.
Built fully automated CI/CD pipelines in GitLab for containerized applications using Docker, which increased the speed of deployment to production by 380%.

Software Engineer — Tehran, Iran
RUNC International Banking Solutions — Feb 2019 – Sept 2020

Contributed to a decentralized app using Hyperledger Fabric that 10+ international banks use.
Collaborated in establishing a secure authentication system using asymmetric encryption and hardware tokens.
Reviewed 100+ merge requests and fixed 250+ issues in GitLab.
Designed and Improved complex CI/CD pipelines in 3 different environments.
Performed multi-step Docker files that brought the app's Docker image size down from 1GB to less than 500MB.

Software Engineer — Tehran, Iran
Bale Messenger — Jan 2017 – Feb 2019

Worked in a team of 50+ members to deliver cross-platform messaging software to 8+ million customers.
Established an easy-to-use bot SDK using Python for those interested in creating bots.
Contributed to the rewriting of microservices in Golang, which was more than five times faster than the old server.
Directed detailed monitoring system with 20+ metrics to obtain system info using Prometheus and Grafana.

Projects

Intent Prediction And Slot Annotation Using Alexa Massive Dataset

Github Repository Feb 2022 - Apr 2022

Working on the Massively Multilingual NLU 2022. I started figuring it out after forking the repository. I trained the model by changing the parameters on RTX 3090 using PyTorch. My goal was to create a general model that would provide better results without being language specific.

Real-time Anomaly Detection On Large-scale GPS Data

Github Repository Jul 2021 - Aug 2021

Our main goal in this project is to identify areas with abnormal population density with the help of large-scale GPS time series data. We used seasonal-trend decomposition using LOESS (STL) and Auto-ARIMA in Python (Dask framework). Finally, we evaluated our approach with other forecasting algorithms such as Facebook Prophet and LSTM neural networks. Our algorithm is implemented on different parts of the map in a parallel and distributed manner and detects abnormal parts as the output of the system in real time.

Shilling Attack Detection For Recommender Systems

Github Repository May 2020 - May 2020

Some users inject fake user profiles consisting of biased ratings to affect the recommendation ranking and manipulate the user's decision. RDMA, WDA, and TF IDF features extracted for all movies using their ratings. Then I used the features in three classification methods (KNN, Random Forest, SVM) in parallel. After obtaining the training results, I chose the best model to predict shilling attacks.

Stock Analysis And Trading Signals

Repository Is Private Oct 2019 - Nov 2019

First, I collected the stock market data with Scrapy library in Python. After the data clearing process, they were stored in the InfluxDB database. Next, useful metrics such as P/E Ratio, Earnings Per Share, PEG Ratio, Book Value were calculated. Finally, I visualized insights using Plotly-Dash framework.

Honors

2022 **One of the 5 selected teams**, Fusion startup event (sponsored by Divar)
2020 **28th place in 1608 participants**, Django/Python Code Cup in quera.ir
2019 **Exhibitor**, Annual Conference on E-Banking and Payment Systems
2018 **Winner**, BOT-CUP in Sharif University of Technology
2015 **Participant**, Topics in Theoretical Computer Science (TTCS)
2012 **The best article**, Conference of Young Mathematicians (Memorial of Reza Sadeghi)
2011 **Winner**, Khwarizmi Youth Award for invention an induction instant electric water heater
2010 **2nd place**, Mathematics Tournament of the Towns

Languages

English Professional Proficiency (TOEFL iBT score of 93)
Persian Native Proficiency