AMIR MASOUD SEFIDIAN | Machine Learning Engineer

ABOUT ME

Enthusiastic ML engineer with 3+ years of experience in applying ML techniques to solve real-world problems. Passionate about learning cutting-edge technologies and developing AI solutions using Python. Attained remarkable results by delivering recommendation systems that increased user engagement. Have hands-on experience in implementing scalable parameter optimization framework for algorithmic trading systems.

WORK EXPERIENCE

Machine Learning Engineer — ParticleB, **Aug 2020 - present**

- Worked on different components of an AI-based Algorithmic Trading System:
  - Reduced the runtime of the walk-forward optimization process by **83%** by developing **"A walk-forward optimization framework for algorithmic trading strategies on cloud architecture"**.
  - Implemented a parameter optimization service that periodically finds optimal parameters for the algorithmic trading engine. Increased **Rate of Return (RoR)** of the portfolio up to **3%**.
  - Contributed to developing a **Backtesting Framework** that provides various tools for implementing and testing trading strategies such as fetching data, extracting features, training predictive ML models to generate trading signals, allocating assets, executing orders, and evaluating portfolio performance.
  - Refactored, optimized, and integrated fragmented codes into a Python package used in different services.
- Designed and developed FIDIBO Recommendation System (digital platform for Ebooks with 2M+ users):
  - Helping FIDIBO users discover new and personalized items by developing various recommendation approaches: content-based, collaborative filtering, sequence-aware, and hybrid recommender models.
  - Performed A/B Testing and Funnel Analysis to measure the effect of different recommendation methods on user engagement. Improved **Click-Through Rate (CTR)** by **22%**. Boosted the **Conversion Rate** for "Complete Purchase" and "Add Item to Favorites" actions by **14%** and **8%**, respectively.
  - Implemented evaluation dashboards (Plotly Dash) to measure performance using different metrics. Enhanced **NDCG@5**, **MAP@5**, and **Coverage** by **50%**, **33%**, and **150%**, respectively.
  - Utilized Airflow to build ETL pipelines that prepare required data, such as users' historical interactions data (e.g., purchase and rating) and items metadata, for the recommendation engine.
  - Performed Exploratory Data Analysis (EDA) to understand and summarize underlying data and provide informative insights for business stakeholders using visualization and quantitative methods.

Python Developer (Data Science, Machine Learning, Web) — Freelancer, **Jan 2014 - Aug 2020**

- Designed and implemented an AI-powered audio source separation (vocals/instruments) web application:
  - Clients can easily upload and separate a song into high-quality audio stems in less than a minute (on GeForce 960M) using deep learning instead of time-consuming and imperfect conventional methods.
- Developed a system that gives insights about metrics of an organization by performing analytical tasks such as prediction, segmentation, outlier detection, and metric importance analysis using ML algorithms.
- Developed a web-based appointments scheduling, accounting, and management system using Django:
  - Automated the laborious paper-based system and helped institute staff efficiently manage **40k+** appointments, **9k+** transactions, and **4k+** clients.
- Built several AI-based services using PyTorch:
  - Sentiment analysis service for Amazon customer reviews dataset. Achieved 82% accuracy on the test set.
  - Facial keypoint detection service that recognizes locations of 68 keypoints in an image using deep CNNs.
  - Image captioning service using an Encoder(CNN)-Decoder(LSTM) network trained on the COCO dataset.

PUBLICATIONS

- **Sefidian, A.M.**, and Daneshpour, N. (2020). *"Estimating missing data using novel correlation maximization based methods"*. **Applied Soft Computing**, 91, 106249.
- **Sefidian, A.M.**, and Daneshpour, N. (2019). *"Missing value imputation using a novel grey based fuzzy c-means, mutual information based feature selection, and regression model"*. **Expert Systems with Applications**, 115, 68-94.

EDUCATION

M.Sc. in Computer Engineering — Shahid Rajaee University, **2015 - 2017**

- **GPA: 4.00/4.00** · **Ranked** 1^{st} among all M.Sc. students.

B.Sc. in Computer Engineering — Shahid Rajaee University, **2011 - 2015**

- **GPA: 3.96/4.00** · **Ranked** 1^{st} among all B.Sc. students.

CONTACT ME

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EXPERTISE

- **Machine Learning**
- **Deep Learning**
- **Data Science**

PROGRAMMING LANGUAGES

PROFICIENT IN PYTHON:

Machine Learning: Pandas, Numpy, Scikit-Learn, PyTorch, TensorFlow, Plotly, Matplotlib

Web: Django, Flask, FastAPI

FAMILIAR WITH: Java, C++, HTML, CSS, JavaScript

TOOLS

Docker, Apache Airflow, Git, MinIO S3, Grafana, Apache Spark, Apache Kafka

DATABASES

PostgreSQL, MySQL, Redis, Elasticsearch, MongoDB, InfluxDB