

# Amir Masoud Sefidian | MACHINE LEARNING ENGINEER

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## About Me

Machine Learning Engineer with 3+ years of experience in applying ML techniques to solve real-world problems. Attained remarkable results by delivering recommendation systems that increased user engagement. Have hands-on experience in implementing scalable parameter optimization frameworks for trading systems. Core skills include machine learning, data analysis, programming, and problem-solving.

## Work Experience

### Machine Learning Engineer • Eveince (formerly ParticleB)

Aug 2020–May 2022

- 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**. Tools: Apache Airflow, Docker Swarm, MinIO, PostgreSQL, Ansible, Optuna.
  - Implemented a parameter optimization service that periodically finds optimal parameters for the algorithmic trading engine. Tools: Apache Airflow, Docker, MinIO, PostgreSQL, InfluxDB, Grafana, Optuna.
  - 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, allocating assets, executing orders, and evaluating portfolio performance.
  - Refactored, optimized, and integrated fragmented codes into a Python package used in four different services.
- Devised and developed **FIDIBO** Recommendation System (digital platform for Ebooks, Audiobooks, and Podcasts):
  - Helping **3.5M+** users discover personalized items by developing content-based, collaborative filtering, and hybrid recommendation models.
  - Utilized Airflow to build data preparation, embedding generation, batch recommendation prediction, and post-processing pipelines.
  - Performed online A/B Testing and Funnel Analysis to measure the effect of different 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.
  - Enhanced offline performance metrics **NDCG@5**, **MAP@5**, and **Coverage** by **50%**, **33%**, and **150%** compared to the baseline, respectively.
  - Created interactive recommendation evaluation and exploration dashboards using Plotly Dash.

### PYTHON Developer (Machine Learning, Data Science, Web) • Freelancer

Jan 2015–Aug 2020

- Designed and implemented an **AI-powered audio source separation (vocals/instruments) web application**:
  - Enabled users to easily upload and separate a song into high-quality audio stems in less than a minute using deep learning instead of time-consuming and imperfect conventional methods. Tools: Deep U-Nets, PyTorch, Flask, Django, PostgreSQL.
- 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 Machine Learning algorithms. Tools: Apache Kafka, Redis, Docker.
- Built different AI-based services using PyTorch:
  - **Automatic Image Captioning** service by training an Encoder(CNN)-Decoder(LSTM) network on the MS COCO dataset.
  - **Facial Keypoint Detection** service that recognizes locations of 68 facial landmarks in an image using deep CNNs.
  - **Sentiment Analysis** service for Amazon customer reviews dataset using deep RNNs. Achieved **91.7%** accuracy on the test dataset.
- Designed and launched a web-based (Django) appointments scheduling, accounting, and management system for a consultation institute:
  - Automated the laborious paper-based system and helped staff efficiently manage **40k+** appointments, **9k+** transactions, and **4k+** users.

## Skills

**General Skills:** Machine Learning, Data Analysis, Deep Learning, Data Wrangling, Data Visualization, Predictive Modeling

**Programming Languages:**

- **Proficient in Python:** Machine Learning and Data Science (Pandas, NumPy, Scikit-Learn, PyTorch, TensorFlow, Plotly) • Web (Django, Flask)
- **Familiar with:** SQL, C++, Java, HTML, CSS, JavaScript

**Tools and Technologies:** Docker, Apache Airflow, MinIO S3, Grafana, Git, Apache Kafka, PySpark MLlib

**Databases:** PostgreSQL, MySQL, InfluxDB, Redis, Elasticsearch

## 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

2015–2017

SHAHID RAJAEI UNIVERSITY • **GPA: 4.00/4.00** • RANKED **1<sup>st</sup>** AMONG ALL M.Sc. STUDENTS.

### B.Sc. in Computer Engineering

2011–2015

SHAHID RAJAEI UNIVERSITY • **GPA: 3.96/4.00** • RANKED **1<sup>st</sup>** AMONG ALL B.Sc. STUDENTS.