

# Amir Masoud Sefidian

## MACHINE LEARNING ENGINEER

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## Education

### M.Sc. in Computer Software Engineering

Sep 2015 – Sep 2017

SHAHID RAJAEI UNIVERSITY · GPA: 4.0/4.0 (19.34/20) · RANKED 1<sup>st</sup> AMONG ALL M.Sc. STUDENTS.

Tehran, Iran

- Thesis: “Improving missing value estimation and inconsistencies detection using data partitioning techniques” (Grade: Excellent), Supervisor: Dr. Negin Daneshpour.
- **Research Interests:** Data Science, Machine Learning, Deep Learning, Reinforcement Learning, Computer Vision.

### B.Sc. in Computer Software Engineering

Sep 2011 – July 2015

SHAHID RAJAEI UNIVERSITY · GPA: 3.96/4.0 (19.15/20) · RANKED 1<sup>st</sup> AMONG ALL B.Sc. STUDENTS.

Tehran, Iran

- Thesis: “Designing an online consultation system” (Grade: 20/20), Supervisor: Dr. Hamid Reza Shayegh.

## 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.

Sefidian, A. M., and Daneshpour, N. (2018). “Applying regression models on subsets with high correlations for a better numeric missing values imputation”. *Tabriz Journal of Electrical Engineering*, 48(3), 1187-1200 (in Persian).

Sefidian, A. M., and Daneshpour, N. (2017). “Using clustering and a hybrid method to fill the numeric missing values”. *Iranian Journal of Electrical and Computer Engineering (IJECE)*, 15(3), 233-242 (in Persian).

## Academic Experience

### Researcher

2015–2020

COMPUTER SCIENCE R&D LABORATORY, FACULTY OF COMPUTER ENGINEERING, SHAHID RAJAEI UNIVERSITY

- Conducted research in the field of data preprocessing, especially the missing values imputation problem, using machine learning techniques.
- Proposed and developed three novel missing value imputation approaches.

### Teaching Assistant

2016–2018

FACULTY OF COMPUTER ENGINEERING, SHAHID RAJAEI UNIVERSITY

- “Database” (Undergraduate) · “Data Mining” and “Decision Support Systems” (Graduate) · Instructor: Dr. Negin Daneshpour.

### Reviewer

- International Journal of Uncertainty, Fuzziness, and Knowledge-Based Systems (IJUFKS)
- International Journal of Information Technology and Decision Making (IJITDM)

## Skills

**Language Skills:** English: Fluent · IELTS (Academic Module): 7.5 (Listening: 7.5, Reading: 8.5, Writing: 6.5, Speaking: 7.0)

**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

## Work Experience

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### Machine Learning Researcher · Freelancer

June 2022 – Present

- Designed and implemented a **deep learning-powered audio source separation web application** that enables users to separate a song into high-quality audio stems instead of slow and imperfect conventional methods. Tools: PyTorch, Flask, Django, PostgreSQL.
- Published 50+ posts on **Sefidian Academy** to explain and simplify concepts in machine learning, programming, and related topics.

### Machine Learning Engineer · Eveince

Aug 2020 – May 2022

- Collaborated with a team of developers and data scientists to implement components of an AI-based Algorithmic Trading System:
  - Reduced runtime of the walk-forward optimization process by **83%** by developing an **optimization framework for algorithmic trading strategies on cloud architecture**. Tools: Apache Airflow, Docker Swarm, MinIO S3, PostgreSQL, Ansible, InfluxDB, Grafana, Optuna.
  - Implemented a parameter optimization service that periodically finds optimal parameters for the algorithmic trading engine.
  - Contributed to developing a **Backtesting Framework** that provides tools for implementing and testing trading strategies, including feature extraction, predictive model training, order execution, and portfolio evaluation.
  - Refactored, optimized, and integrated codes into a Python package used in different services to improve performance and maintainability.
- Devised and developed the Recommendation System for **FIDIBO**, an online platform for Ebooks 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.
  - Enhanced offline evaluation metrics **NDCG@5**, **MAP@5**, and **Coverage** by **50%**, **33%**, and **150%**, respectively.
  - 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.
  - Created interactive recommendation evaluation and exploration dashboards using Plotly Dash.
  - Launched a service to assign a set of categories for a new item using NLP models.

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

Oct 2017 – July 2020

- Developed a system that provides insights into an organization's metrics through analytical tasks such as prediction, segmentation, outlier detection, and metric importance analysis utilizing ML algorithms. Tools: Apache Kafka, Redis, Docker.
- Built different AI-based services using PyTorch:
  - **Automatic Image Captioning** service by training an Encoder-Decoder network on the MS COCO dataset.
  - **Facial Keypoint Detection** service that employs deep CNNs to recognize locations of 68 facial landmarks in an image.
  - **Sentiment Analysis** service for Amazon customer reviews dataset utilizing deep RNNs. Achieved **91.7%** accuracy on the test dataset.
  - **Energy Consumption Prediction** service using GRU/LSTM networks.
- Designed and launched a web-based appointment scheduling and management system for a consultation institute:
  - Assisted staff efficiently manage **40k+** appointments, **9k+** transactions, and **4k+** users by automating the paper-based system.

### C/C++ Developer

2007–2011

#### KOSARAN HIGH SCHOOL ROBOTICS/PROGRAMMING TEAM

- Developed C/C++ codes to program AVR Micro-controllers for rescue robots.

## Honors & Awards

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- 2018-2019** Best researcher of Shahid Rajaei University award.
- 2017** Recognized as a National Elite by Iran's National Elites Foundation (INEF).
- 2015–2017** **Ranked 1<sup>st</sup>** among all M.Sc. Computer Engineering students in all semesters of studying M.Sc.
- 2015** Received direct admission to Shahid Rajaei University M.Sc. program as an elite student who achieved the highest GPA.
- 2011–2015** **Ranked 1<sup>st</sup>** among all Computer Engineering students in all (eight) semesters of studying B.Sc.
- 2011–2015** Awarded Faculty of Computer prize and scholarship as an exceptional talent student for four consecutive years.
- 2011** Ranked within the top 1% among more than 464,000 applicants in B.Sc. National Universities Entrance Exam, Iran.
- Nov 2009** Qualified for the final round of *Khawrazmi National Robotics Competitions - Rescue League* (Ranked **8<sup>th</sup>** in the final stage), K. N. Toosi University of Technology, Tehran, Iran.
- Apr 2009** Participated as a member of Kosaran High School Robotics Team in **4<sup>th</sup> International RoboCup IranOpen Competitions**, Qazvin Azad University, Qazvin, Iran.
- Feb 2009** Participated as a member of Kosaran High School Programming Team in *Iranian High School Students Programming (C++) Competitions*, Sharif University of Technology, Tehran, Iran.

References are available upon request.