

Amir Masoud Sefidian

DATA SCIENTIST · RESEARCHER

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Education

M.Sc. in Computer Engineering

2015–2017

SHAHID RAJAEI UNIVERSITY · GPA: 4.0/4.0 (19.34/20) · RANKED 1st 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:** Artificial Intelligence, Data Science, Machine Learning, Deep Learning, Data Preparation, Computer Vision.

B.Sc. in Computer Engineering

2011–2015

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

Tehran, Iran

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

Publications

- 2020 **Sefidian, Amir Masoud**, and Daneshpour, Negin (2020). “Estimating missing data using novel correlation maximization based methods”. *Applied Soft Computing*, 91, 106249.
- 2019 **Sefidian, Amir Masoud**, and Daneshpour, Negin (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.
- 2018 **Sefidian, Amir Masoud**, and Daneshpour, Negin (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).
- 2017 **Sefidian, Amir Masoud**, and Daneshpour, Negin (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 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

Programming Languages

- Proficient in **PYTHON**: Machine Learning, Data Science, Deep Learning, and Web applications.
- Familiar with: C++/C, PHP, Java, WebDev Languages (HTML, CSS, JavaScript).

Tools & Technologies

Apache Spark, Apache Kafka, Apache Airflow, Grafana, Git, Docker, L^AT_EX, Raspberry Pi.

Databases

PostgreSQL, MySQL, Elasticsearch, Redis, InfluxDB, MongoDB.

Languages

- **ENGLISH** · Fluent (Reading & Listening), Intermediate (Writing & Speaking)
- **PERSIAN** · Mother Tongue

Work Experience

Data Scientist

Aug 2020–present

PARTICLEB

- FIDIBO Recommendation System (Iran's biggest digital platform of Ebooks, Audiobooks, and Podcasts).
 - Performed comprehensive EDA to understand and summarize underlying data and give informative insights to business stakeholders using visualization and quantitative methods.
 - Designed and developed a recommendation system to help FIDIBO users discover new and relevant items by providing personalized recommendations and similar items recommendations.
 - Built ETL pipelines to prepare required data for the recommendation engine such as users' historical interactions data (purchase, reading/listening, rating, and search) and items metadata.
 - Developed and evaluated various state-of-the-art recommendation approaches: content-based, collaborative filtering, graph-based, and sequence-aware recommender models.
 - Implemented offline evaluation dashboards to measure performance based on different metrics (e.g. NDCG, MAP, Diversity, Coverage, etc). Implemented prediction dashboards to see exactly what items are being served up by different approaches alongside the list of items the user interacted with in the past.
 - Performed online evaluations: a) Funnel analysis to trace how users interact with real-time recommendations during their journey throughout the application. b) A/B tests to measure the effect of different recommendations on business metrics.
 - Developed a by-product service to assign a set of categories for a new item using NLP language models.
- Worked on different sections of an Algorithmic Trading System:
 - Portfolio management, Fund management, Order management, and Hyper-parameter optimization.

PYTHON Developer

2014–Aug 2020

FREELANCER (MACHINE LEARNING, DATA SCIENCE, AND WEB APPLICATIONS)

- Designed and developed an AI-based song's vocal/instrumental separator web application.
 - It generates separation results in less than 40 secs (for songs < 5 mins) on Nvidia Geforce 960m.
 - Tools & Technologies: Deep U-Nets, PyTorch, Flask, Django, PostgreSQL.
- Developed different AI based services using PyTorch:
 - Sentiment analysis service for Amazon customer reviews dataset using deep RNNs (82.3% accuracy on test dataset).
 - Facial keypoint detection service the location of 68 distinguishing keypoints for an image using deep CNNs (NaimishNet Architecture)
 - Image captioning service by training an Encoder(CNN)-Decoder(LSTM) network on MS COCO dataset.
- Developed an intelligent organizational data analysis system.
 - It provides analytical insights about KPIs of an organization using AI algorithms.
 - Tools & Technologies: Python, Apache Kafka, Redis, gRPC, Protobuf, Docker.
- 2D vehicle trajectory reconstruction from raw sensor data.
- Developed a multi-label disaster response message classification web application for Figure Eight dataset.
 - Built ETL and NLP pipelines to classify a message for emergency workers. Provided visualizations using Flask and Plotly.
- Developed a recommendation engine for IBM dataset.
 - It surfaces the content most likely to be relevant to a user based on the user behavior and social network data using ML techniques.
- Developed an hourly energy consumption prediction service using PyTorch.
 - It predicts hourly energy consumption (multi-variate time series) using GRU/LSTM networks.
- Developed a 2D Landmark Detection & Robot Tracking (SLAM) using Graph SLAM algorithm.
 - It creates a map and locates landmarks of an environment using sensor and motion data gathered by a self-driving car.
- Designed and developed a web-based appointments scheduling, accounting, and management system for a Consultation Institute.
 - Replaced traditional paper-based management system and helped institute staff to efficiently manage 30000+ appointments, 7000+ transactions, and 3000+ clients during two years of launching.
 - Tech Stack: Django, MySQL, HTML, CSS, JavaScript.

Full Stack PHP Developer

2013–2014

FREELANCER

- Developed first carpooling website in Iran 4paaye.ir (Winner website of 8th Iranian Web and Mobile Festival (IWMF)).

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

- 2018-2019** Best researcher of Shahid Rajaee University award.
- 2017-present** Recognized as a National Elite by [Iran's National Elites Foundation \(INEF\)](#).
- 2015-2017** **Ranked 1st** among all M.Sc. Computer Engineering students in all of semesters of studying M.Sc.
- 2015** Received direct admission to Shahid Rajaee University M.Sc. program as an elite student who achieved the highest GPA.
- 2011-2015** **Ranked 1st** among all Computer Engineering students in all of (eight) semesters of studying B.Sc.
- 2011-2015** Awarded Faculty of Computer and Electrical Engineering prize and scholarship as an exceptional talent student for four consecutive years.
- 2011** Ranked within 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 **8th** 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 **4th** *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.