Saman Khamesian

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🎓 Education

Arizona State University (ASU) — Tempe, U.S.
Ph.D. Computer Science - Artificial Intelligence — *2024 – 2029*
❯ GPA: 4.0/4.0 | Total Credits: 54/84

Shahid Beheshti University (SBU) — Tehran, Iran
M.Sc. Computer Engineering - Artificial Intelligence and Robotics — *2018 – 2021*
❯ GPA: 3.88/4.0 | Total Credits: 32/32

Shahid Beheshti University (SBU) — Tehran, Iran
B.Sc. Computer Engineering — *2014 – 2018*
❯ GPA: 3.64/4.0 | Last year GPA: 3.83/4.0 | Total Credits: 142/142

⚗ Research Experience

❯ Engineered an efficient **CNN-LSTM** algorithm with a **Custom Loss Function** for predicting blood glucose levels, yielding a **23% improvement** on the **OhioT1DM dataset** with an **RMSE of 23.97 ($\pm$3.77)**.

❯ Enhanced ANNs with **Self-Attention** and **Evolutionary Algorithms**, **reducing parameters by 300%** and optimizing **Atari game** performance using raw pixel input.

❯ Explored **personalized food recommendation** for Type 1 diabetes management, utilizing **prompt engineering for large language models (LLMs)** to tailor dietary suggestions based on user data.

💻 Work Experience

Mofid Brokerage — Tehran, Iran
Machine Learning Engineer — *Oct 2021 - Jun 2023*
❯ **Stock Item Recommender** using Market Trends, User History, and Neighbor Profiles.
❯ **Stock Volume Prediction** using **LSTM Networks** and Financial Indicators.
❯ **Spoof Detection** in **eKYC** Services utilizing **Anomaly Detection** Methods and **Image/Video Processing** Techniques, attaining TPR = 98% at FPR = 5% on a proprietary dataset.

⚙ Skills

- **Programming Languages and Libraries**
  Python · Kotlin (Android) · Java · C/C++ · MATLAB

- **Python Libraries**
  TensorFlow-Keras · pandas · torch · numpy · scikit-learn · matplotlib

- **Operating Systems**
  Windows · macOS · Linux (Ubuntu/CentOS)

- **Software and Tools**
  Git · LaTeX · Parallel Programming · Prompt Engineering for LLMs

- **Machine Learning**
  ❯ Proficient in Model Design, Feature Engineering, Signal Processing, Time-Series Forecasting, Image Processing, and Recommender Systems
  ❯ Experienced with popular models, including Classifiers, Neural Networks, Deep Learning, Decision Trees, and Evolutionary Algorithms
  ❯ Skilled in data pre-processing and model evaluation techniques (e.g., Curve Analysis)

- **Project and Team Skills**
  ❯ Strong communication and teamwork skills
  ❯ Proficient in Agile practices, including sprint planning, retrospectives, and stand-ups

📄 Publications

[1] P. Khorasani, S. Khamesian, A. Mamun, and H. Ghasemzadeh, "Poster: Glysigma: Personalized Glucose Forecasting Enhanced by Bayesian Optimization on CGM Data," presented at the *2024 IEEE International Conference on Body Sensor Networks (BSN)*, Chicago, IL, USA, 2024.

[2] S. Khamesian and H. Malek, "Hybrid self-attention NEAT: A novel evolutionary self-attention approach to improve the NEAT algorithm in high dimensional inputs," *Evolving Systems*, 2023.

🏆 Honors and Awards

Recipient of the IEEE BSN 2024 Travel Award — 2024
Awarded for attending the IEEE BSN Conference — *Chicago – USA*

Ranked 198th in National M.Sc. Universities Entrance Examination — 2018
Among more than 19'000 contestants — *Tehran – Iran*

Qualified for the 19th ICPC Regional (Asia Region) Programming Contest — 2017
Held by Sharif University of Technology — *Tehran – Iran*

Ranked 12th in the 18th ICPC Regional (Asia Region) Programming Contest — 2016
Held by Sharif University of Technology — *Tehran – Iran*

</> Selected Projects

Time Series Classification for Human Activity Recognition — February 2020
Abstract Developed a CNN-LSTM model for classifying accelerometer data with 88-92% accuracy.
Project Type Neural Network Final Project
Dataset Human Activity Recognition Using Smartphones Dataset
Language Python (numpy, pandas, keras, TensorFlow)

The Winton Stock Market Challenge — January 2020
Abstract Built an LSTM model to predict 5-day stock returns based on historical data.
Project Type Advanced Data Mining Final Project
Dataset Provided by Kaggle
Language Python (numpy, pandas, scikit-learn, keras, matplotlib)

Imputation of Missing Values — July 2019
Abstract Implemented a fuzzy c-means and SVR-based approach for missing data imputation, attaining a median RMSE of 0.0215 and a median accuracy of 92.03% on all six datasets with 1–25% missing data.
Project Type Fuzzy System Final Project
Dataset UCI Repository (Glass, Iris, Musk1, Wine, Yeast, and Haberman)
Language Python (numpy, pandas, scikit-learn, scikit-fuzzy)

Credit Card Fraud Detection — July 2019
Abstract Developed an HMM-based model to detect anomalous credit card transactions, reaching an 81% detection rate with a FPR = 2%.
Project Type Machine Learning Final Project
Dataset Analyzed 100,000 credit card transactions, with 1% labeled
Language Python (hidden-markov, numpy, pandas, scikit-learn)

Two-Level Genetic Algorithm for Clustered TSP — January 2019
Abstract Designed a Two-Level Genetic Algorithm (TLGA) for the Clustered Traveling Salesman Problem, delivering up to a 10% reduction in tour length and 90% faster computation compared to traditional methods on large datasets.
Project Type Evolutionary Computing Final Project
Dataset Large-scale TSP datasets (pcb442, rat783, and dsj1000)
Language C++/C

Music Genre Classification of Audio Signals — January 2019
Abstract Implemented an SVC for automatic music genre classification using timbral texture, rhythmic content, and pitch content features, achieving 61% accuracy across ten genres, comparable to human accuracy of around 70%.
Project Type Digital Speech Processing Final Project
Language Python (pandas, librosa, numpy, joblib, scikit-learn)