Alireza Rafiei

Applied AI Scientist

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SUMMARY

I'm an applied AI scientist who loves to blend creativity with technology to develop innovative solutions for complex problems. With strong experience in interdisciplinary research and a solid background in designing and developing end-to-end machine learning and deep learning models, I turn data into meaningful analytics that drive smarter decisions. Communicated insights in 10+ empirical research papers and conference presentations, I'm always on the lookout for new challenges and opportunities to make technology work better for us all.

EDUCATION

Emory University

Ph.D. in Computer Science and Informatics | 2022-2027

University of Tehran

MS in Mechatronics Engineering | 2018-2021

TECHNICAL SKILLS

Programming languages
Python, R, MATLAB, SQL, C++

Machine learning frameworks
TensorFlow, Keras, PyTorch, OpenCV

Data science tools
NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn, SciPy, Tidyverse, NLTK

Embedded systems
Arduino, Raspberry PI, PIC, AVR

AWARDS

Second place and the winner of technical challenge award in FIRA RoboWorld Cup 2019 autonomous car league with UTMT team

CERTIFICATIONS

Master of Business Administration (MBA), Strategic
University of Tehran

Human Research - Data or Specimens Only Research
CITI – MIT Affiliates

HIPPA & Research
Emory University

SELECTIVE COURSES

Machine learning, Model-based machine learning, Biostatistics for machine learning, Biomedical informatics, Natural language processing, High performance computing, Machine vision, Signals and systems, Advanced mathematics, Mechatronics.

EXPERIENCE AND RESEARCH

Emory *School of Computer Science and Informatics* | *Research Assistant* | *Aug 2022 – May 2027* | *Atlanta, GA*

- Improving mixed-integer temporal modeling by incorporating synthetic training data using generative AI. *Keywords: conditional GAN, temporal data, meta-model, interpretable AI*
- Recognizing patterns in ICU medication and patients based on clustered pharmacophenotype characteristics and demographics data. *Keywords: unsupervised learning, restricted Boltzmann machine, phenotyping*
- Named entity recognition, sentiment analysis, and classification of social media posts for COVID-19-related purposes. *Related keywords: natural language processing (NLP), transformers, AWS*

Monash *Data Futures Institute* | *Research Intern* | *Feb 2022 - Jul 2022* | *Melbourne, Australia*

Developing a deep learning model for the classification of MDD individuals using EEG signals. *Keywords: time-series analysis, signal processing, waveform data*

IMRL *Lab* | *Research Assistant* | *Jun 2019 – Jun 2022* | *Tehran, Iran*

- Design, develop, and implement an innovative deep learning model for the early prediction of sepsis. Expand the research to adapt the model for integration with wearable devices. *Keywords: LSTM, genetic algorithm*
- Develop a depthwise separable convolutional neural network to detect COVID-19 using chest x-ray images. *Keywords: image processing, CNN*
- Propose a deep reinforcement learning algorithm for prediction collision avoidance. *Keywords: deep Q-network, safety enhancement*

Partineh *Company* | *Intern* | *Jul 2019 – Mar 2020* | *Tehran, Iran*

Applied AI Engineer; developing end-to-end AI systems for industrial applications.

Nikyar *Start-up* | *Co-founder* | *Dec 2017 – Jan 2019* | *Tehran, Iran*

Our goal was to introduce children to artificial intelligence and programming through play.

SELECTIVE PUBLICATIONS

Andrea Sikora, **Alireza Rafiei** et al. "Pharmacophenotype identification of intensive care unit medications using unsupervised cluster analysis of the ICURx common data model." Critical Care 27, no. 1 (2023) | **The best ACCP's 2023 critical care paper of the year**

Alireza Rafiei et al. "SSP: Early prediction of sepsis using fully connected LSTM-CNN model." Computers in biology and medicine 128 (2021)

TRAVEL GRANTS

- The Bridge2AI CHoRUS workshop | Apr 2023
- Clinical and single-cell transcriptomics for pneumonia codeathon | Oct 2023