SAEED ARASTEH

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SENIOR DATA SCIENTIST

♦ Determined and self-motivated data scientist and physician with expertise in medicine, biomedical engineering, analytics, and statistics.

♦ Conduct leading research with expertise in healthcare research for real-time diagnostic and therapeutic decision support applications and cutting-edge technologies to transform healthcare and life sciences challenges/projects targeted for highly confidential clinical trials.

♦ Clear thinker and adept communicator who thrives in a highly goal-oriented collaborative and interdisciplinary team of clinicians, researchers, and engineers who are passionate about developing next-generation technologies through new machine learning and deep learning solutions for life sciences and healthcare that are genuinely useful.

WORK EXPERIENCE

Senior Data Scientist, Clinical Medical and Regulatory 12/10/2021-Present

Novo Nordisk Inc. (Scientific Center of Excellence (SCoE))

- Setup disease feature databases to extract RWD Evidence from clinical trial data. New features are made based on this database and predicting ML methods apply to the data.
- Design AI models, GNN, Transformer and attention learning models to be compatible with the new definition of clinical data, such as static and dynamic variables, to fit for irregular time series.
- Explore clinical data, statistical analysis data, and data mining on the data.
- Apply innovative ML methods to the clinical data considering the medical aspects of the disease features to predict the prognosis of the disease (e.g., NASH)

Data Scientist and Machine Learning Engineer 01/01/2021 to 01/10/2021

IDIN Consulting Group

- Set up clinical protocols to develop novel insights and real-world evidence (RWE) from real-world data (RWD) generated by sensors and instruments linked to patient electronic medical records, multimodal physiological datasets, and public-controlled-access data repositories such as MIMIC-III.
- Responsible for end-to-end project leadership of assigned projects to develop and execute new AI solutions for analyses and interpretation of large-scale proprietary medical data by applying deep knowledge of disease diagnostics, clinical data standards, and data models commonly used by healthcare industry.
- Apply machine/deep learning to predict complications, disease trajectories, patient subtypes, and therapeutic effects for conditions encountered in acute and critical care settings.
- Develop scalably, custom bio-signal processing, advanced machine learning, and deep learning algorithms to decode the complex raw signal with state-of-the-art methods for non-invasive medical

signal processing and analysis of human physiological measurement, human subjects research, and management of institutional review board documentation.

Data Scientist and Algorithm Developer, 02/04/2019 to 12/30/2020
Auchinachie Capital

- Trading algorithms for forecasting Forex market direction: Designed machine learning trading algorithms for predicting Forex market direction with 63% accuracy using Scikit Learn, SVM, NLP, Linear Regression, XGBoost, Grid search, and random grid search.
- Developed and implemented analytic pipelines and big data solutions based on ML & AI methods to make predictive algorithms based on large-scale data.

Technical Skills

- **Data Science:** Python, R, MATLAB, Unix/Linux, SQL/MySQL, Tableau, Clinical Data Science
- **Machine Learning:** Time Series, Classification, Clustering, Recommender Systems, Predictive Modeling, NLP, Causal inference ML analysis, Graph Neural Network, Graph attention and transformer network.
- **Deep Learning Frameworks:** CNN, RNN, LSTM, TensorFlow, PyTorch, Keras
- **Big Data and cloud Platforms:** Hadoop, PySpark, MLlib, AWS, Databrick, SnowFlake,
- **Bioinformatics Platform:** Clinical trials design, Genomic Technologies, Genomic Data Science

Project Portfolio

♦ Atrial Fibrillation Detection

Developed a convolutional neural network (CNN) based algorithm to detect atrial fibrillation among different arrhythmia with 96% accuracy using logic works, deep learning, and 2D configuration of signals.

♦ Prediction of Insulin Concentration Using Machine Learning Algorithms

Developed a machine-learning algorithm to detect insulin in saliva with 98% of accuracy. In his method, insulin was detected using electrochemical proximity assay (ECPA), a DNA-based method.

♦ A Wearable Device for Detection of Mild Traumatic Brain Injury (Concussion) and Brain Health Monitoring

Concussion detection and monitoring system using eye motion consistency traction, virtual reality, Electroencephalography (EEG, ECG, PPG), bio-signals, time series, and classification.

♦ Skin Cancer (Melanoma) Detection

Segmentation and classification of Melanoma using VGG16, U-Net with 72 % accuracy in segmentation and 86% in classification of normal, benign, and malignant nodules using deep learning, TensorFlow, and Python.

♦ Development of A Cuffless Blood Pressure Estimation Method

Blood pressure estimation with 87% accuracy using Photoplethysmography (PPG) and Electrocardiography (ECG) via machine learning, Python, and Keras.

Papers

♦ **Fishing Vessels Activity Detection from Longitudinal AIS Data, International Conference, ACM Sigspatial Nov. 2020**

The fishing activity of vessels is detected with a state-of-the-art technique using deep learning, Python, TF, Keras, and machine learning methods CNN, SVM, RF and MLP with 94% accuracy. This model is type-independent and is compatible with real-world applications.

♦ **Fishing Vessels Gear Type Detection from Longitudinal AIS Data Using A Representation Learning Method (Under Publication)**

Fishing vessels' type is detected based on trajectory AIS data and representation learning. A deep neural network is used to achieve an accuracy of 88% for three types of vessels.

Education

Ph.D. Candidate: Engineering
Simon Fraser University (SFU)

Master of Engineering: Biomedical Engineering
University of British Columbia (UBC)

Master of Science: Biomechanics Engineering
Science and Research Branch, Islamic Azad University (SRBIAU)

M.D.: Doctor of Medicine
Tehran University of Medical Science (TUMS)

Certificates

- **AI for Medical Prognosis** Deeplearning.AI
- **AI for Medical Treatment** Deeplearning.AI
- **Machine Learning Data Lifecycle in Production** Deeplearning.AI
- **Diagnosing High-Risk Patients with NASH in Practice** WebMed Global
- **New Advances in the Diagnosis and Management of NASH** Potomac Center for Medical Education
- **SAFe Product Owner/Product Manager (5.1)** Scaled Agile, Inc.
- **Python for Genomic Data Science** Johns Hopkins University, Coursera
- **Introduction to Machine Learning in Production** Deep Learning.AI
- **Prepare Data for Exploration** Google
- **Design and Interpretation of Clinical Trials** Johns Hopkins University, Coursera
- **Introduction to Healthcare** Stanford University, Coursera
- **Introduction to Genomic Technologies** John Hopkins University, Coursera
- **Quality Assurance and Software Testing** British Columbia Institute of Technology (BCIT)

LinkedIn

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