MOHSEN SHARIFI-RENANI

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Experienced Data Scientist who performs complex time series, wearable sensor, text, and digital data integration and transformation in the database and apply novel machine learning and deep learning frameworks in the end-to-end data model and algorithm development cycle: data cleaning, modeling, training, tuning, validating, deploying on AWS, system validation, and documentation for state-of-art time series, NLP, and machine learning application solutions. I'm actively seeking an internship position in machine learning and data science in united states.

Experience

JAN 2018 – PRESENT

DATA SCIENCE RESEARCHER, DEEP LEARNING SPECIALIST, DENVER UNIVERSITY

- Developed end to end pipeline for sentiment, tone, and entity analysis of twitter stream on AWS using Amazon Comprehend, Sagemaker, Lambda, and DynamoDB.
- Developed NLP framework for topical analysis of zoom interviews using BERT and LDA with relational database integration.
- Synthetic Data Generation: A pipeline that uses variances of linear and nonlinear auto-encoders (AE) such as PCA, deep learning-based AE, VAE, Conditional VAE, and generative adversarial networks (GAN) to generated targeted synthetic kinematic and wearable signal data associated with specific patient population to train deep learning.
- Seq2Seq Joint Kinematic and Kinetic Prediction: A system that applies deep learning, data augmentation, and musculoskeletal modeling on multivariate time series (MTS) IMU signals to quantify movement mechanics in individuals performing gait activity. These parameters are widely used in the assessment of motor function, implant design, patient diagnosis, and rehabilitation prescription.
- Seq2Seq Spatial-Temporal Gait Prediction: Led and conducted an experimental study to generate a dataset of OA and TKA patients performing various activities including gait, stair, etc. The dataset includes optical motion capture, IMU, digital camera, force plate data. Signal processing, python, and deep learning were used to predict spatial-temporal gait parameters based on given MTS IMU data to improve patient care in clinical settings (accuracy of 90%).
- High vs Low-Risk Patient Classification for Hip replacement: Applied Musculoskeletal Modeling (opensim), Machine Learning (SVM, Decision Tree, SVM) to classify high vs low-risk patient for getting hip replacement using IMUs during sit to stand, sit-max flexion, and hip flexion (Accuracy 75%). This trained model eliminates the need for additional CT scans, reducing radiation exposure and resulting in faster clinical care for patients.
- Forex Market Prediction: Applied signal processing, machine learning, deep learning to predict forex trends for trading purposes.

Education

NLP and Applied AI in Health Tech (Ph.D.), **University of Denver** — Jan 2018 – Expected Dec 2022
Computational Anlysis (M. Sc.), **University of Missouri-Kansas City** — 2 years
Mechanical Engineering (B. Sc.), **Isfahan University of Technology** — 4 years

Skills

- Machine Learning: NLP, Supervised and Unsupervised Learning, Random Forest, Linear/Logistic Regression, K-Means Clustering, KNN, SVC/SVM, PCA, Predictive Modeling
- Deep Learning: LSTM, CNN, RNN, ANN, Transformer, VAE, GAN, TensorFlow, PyTorch, Keras
- Python: Scikit-Learn, NumPy, Pandas, SciPy, Matplotlib, Streamlit, Wandb
- AWS: Lambda, Cognito, DynamoDB, S3, Comprehend, Sagemaker
- Big Data Technologies: SQL, MySQL, MongoDB
- Source-Code Management: Git/Github, Pycharm
- Programming Languages and Data/Statistical Analysis: Python, MATLAB, SQL, Linux