Muhammad Adeel Sultan Khan

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A competent data scientist proficient in Python, R, SQL, tableau and statistics with extensive experience in using multivariate timeseries data for statistical analysis, anomaly detection using Machine Learning & Deep Learning methods, and data engineering building ETL pipelines for moving data from various sources and creating visualizations and dashboards to transform data into actionable insights. Utilizing data science & artificial intelligence to enable customers to streamline their grain monitoring strategies and minimize grain spoilage worth millions of dollars.

Associated with the data science team of Silicon Valley technology start-up for last 3 years and involved in the design, validation and implementation of algorithms that translate customer's grain management needs and requirements into real life business solutions. Also have prior 8 years treasury/finance experience at a large international bank managing (forex, money market & liquidity). Aspire to help building sustainable and inimitable competitive advantages using my data science skills and experience

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EXPERIENCE

TeleSense **San Jose, CA**

Data Analyst/Data Scientist **Sep 2018 to Present**

Having generated $10.2M in series B funding, TeleSense is focused on software & AI based grain monitoring

Customer Data Analysis Dashboard

- Designed and built web analytical data applications using dash and shiny frameworks in Python and R
- Managed dashboard using pycharm to add new features and enhance user experience
- Developed timeseries data visualizations to incorporate in the dashboard
- Created multi-tab sections in the dashboard to categorize customers, experiment sites and partners data
- Managed git branching, merging & version control in building python dashboard

Hotspot (Anomaly detection) Algorithm

- Worked on providing proactive alerts to customers about potential anomalies in grain storage units
- Designed a mathematical logic using statistics to analyze trends, patterns and calculate alerts
- Applied fast fourier transform and dynamic time warping to calculate temperature deviations
- Designed data science algorithms to detect anomalies, hotspots and aeration fan operations
- Implemented algorithms in Python for validation to fine tune models

Piles Animated Contour Plots

- Created animated gradient/contour plots to provide trends using plotly color schemes
- Developed temperature and humidity timeseries contour plots using x and y coordinates for sensor locations
- Incorporated the animated contour plots in the customer data analysis dashboard

Customer Data Analysis Reporting & Visualizations

- Performed weekly customer data analysis using Python, SQL and R to identify trends, patterns and relationships
- Provided insights to executive team for strategic decision making & engineering changes
- Developed customer data analysis reports to provide technical findings & visualizations to customers
- Created timeseries figures in Python line charts, bar charts, heatmaps, candlestick and bollinger bands
- Integrated multiple data sources in the charts including weather data from external api
- Performed technical data analysis using tsfresh and ta-lib python packages for timeseries feature extraction
- Analyzed vibration data from triaxial accelerometer with vector sum techniques to calculate magnitude
- Designed SQL/PostgreSQL queries to extract and transform data for data analysis

Partner Data Integration

- Collected data from multiple sources & extract, transform & load data for predictive analytics & ETL processes
- Utilized data warehouse architectures, data modeling and infrastructure components in writing ETL pipelines
- Used Pentaho ETL platform for data transformation and data integrations tasks

Predictive Analytics using ML & Deep Learning

- Developed timeseries classification models using LSTM, SAX-VSM & dimensionality reduction techniques PCA
- Detected anomalies in time-series data using deep learning like LSTM, Autoencoders, SARIMA, prophet

- Built and deployed variational auto-encoders for time series data anomaly detections
- Performed hypothesis testing, feature engineering and testing accuracy of algorithms
- Performed hyperparameter optimization with grid/random search cross validation

Santa Clara University, Law School (Technology Helpdesk & Entrepreneurship Clinic) **Jan 2017 - May 2018**

- Assisted and supported law faculty, students and staff IT resources
- Helped law school analyzing legal services performed using Clio software

Habib Bank Limited, HBL **Dubai, UAE**

Senior Dealer / Manager Treasury Front Office **2005 – 2013**

- Managed treasury functions in UAE, Oman & Bahrain & made annual profits between $1-2 Million
- Managed $218 M money market volume & used Credit Suisse Prime Trade & HSBC platforms
- Worked on T-bill, bond auction, OMO and liquidity injection activities in interbank market

TECHNICAL SKILLS

- **Tools & Platforms:** Python, R, Pentaho, Tableau, PostgreSQL, Jupyter, MySQL, PyCharm, timescaledb, azure, sagemaker
- **Data Science:** plotly, ggplot, dash, shiny, pandas, numpy, seaborn, scikit-learn, classification, logistic regression, clustering, ARIMA, Prophet, sqlalchemy, psycopg2, dash, tensorflow, twitter sentiment analysis, tf-idf, stumpy

EDUCATION

M.S. Information Systems (MSIS), Data Analytics, Santa Clara University CGPA: 3.7 **Dec 2019**

Thesis: "**Optimizing Uber services"**: Used ARIMA & Poisson Distribution in R to reduce supply-demand imbalance

MBA, Finance & Data Science, San Jose State University CGPA: 3.75 **May 2015**

CFA (Chartered Financial Analyst) Level 1, CFA Institute **Dec 2010**

MBA (MIS), Institute of Business Administration **Dec 2004**

BCS, Software Engineering, Institute of Business Administration **Dec 2003**

SPECIALIZED CERTIFICATIONS

Coursera Deep Learning Specialization

- **Sequence Models** – Speech Recognition, Natural Language Processing (NLP), Machine Translation using RNNs, GRUs, LSTMs
- **Convolutional Neural Networks** – Computer Vision for image recognition, autonomous driving, visual detection
- **Neural Networks & Deep Learning** – Neural Networks, forward/backward propagation, gradient descent, activation functions
- **Structuring Machine Learning Projects** – Transfer Learning, Machine Learning Projects, Error Tuning, Training/dev/test sets
- **Improving Deep Neural Networks: Hyperparameter tuning, Regularization &** Optimization – bias/variance, gradient descent, early stopping, L1/L2 regularization, dropout, lasso & ridge regression, vanishing/exploding gradient, batch normalizations
- **Python for Data Science** - data camp Dec 2017
- **Natural Language Processing with Classification & Vector Spaces** – Coursera Mar 2022

KEY PROJECTS

- **Information Systems Policy & Strategy:** Analyzed NVIDIA's strategic goals in GPU products and identified competitive risks
- **Data Science Analysis with Python :** U.S. Healthcare & Marketing analytics datasets (customer churn rate)
- **Machine Learning:** Predicting Credit Card Defaults using Classification and Logistics Regression, Seattle housing & Iris datasets
- **Software Project Management** : Docker's Moby container software development analysis and review
- **Enterprise Resource Planning Systems:** Process Mining analysis and implementation at large organizations

ADDITIONAL INFORMATION

Interests: Deep Learning, Neural Networks, Data Mining, Time-Series classification & pattern matching, Business Intelligence, Statistics, animated visualizations and