ASHWIN BALASUBRAMANIAM

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EDUCATION

Master of Science in Industrial Engineering (Operations Research) **Aug 2019 - Present**
***North Carolina State University**, Raleigh, NC, USA* (**GPA - 4.0/4.0)**
Courses : Algorithms for Data Guided Business Intelligence, Statistical Programming(SAS), Database in Industrial and Systems Engineering, Experimental Statistics II , Lean Six Sigma.

Bachelor of Technology in Mechanical Engineering **Aug 2015 - May 2019**
***SRM Institute of Science and Technology**, Kancheepuram, India* (**GPA - 81.4/100)**
Courses : Process Control and Cost Estimation, Total Quality Management, PHP and MySQL, Probability and Statistics, Engineering Management.

TECHNICAL SKILLS

Languages/Software: CC++, Python, PHP, VBA ,SQL, R, MATLAB ,
Library/Framework : Spark, Hadoop, TensorFlow, Keras, SciKit-learn ,AWS, Matplotlib, OpenCV , pytorch
Analytical Skills: Multiple Regression, CART, SVM, Neural Network, Clustering, Stochastic Modelling, Time Series Forecasting, Hypothesis Testing, Optimization, Testing, K-Means, ANOVA, CNN, RNN, LSTMs, Decision Trees, Natural Language Processing , Computer Vision , Econometric Modeling, Quantitative Analysis, GANs

RESEARCH EXPERIENCE

AI Peer Assessment System | Research Assistant | NC State University **Dec 2019 – Present**

- Implemented several neural network approaches (CNN, RNN, HAN) and traditional NLP Methods(SVM , Naïve Bayes) to detect suggestions/problem statements in Peer Assessments and achieved **91.7 % F1**.

PROJECTS/ACADEMIC EXPERIENCE

Facial Image and Digit Classification using Convolutional Neural Network (CNN) | Python

- Obtained test accuracy of **99.69%** for the LFW dataset and test accuracy of **99.31%** for the MNIST dataset
- Developed CNN Architectures using Keras and TensorFlow for MNIST & facial image dataset, i.e.,LFW
- Performed tuning of hyperparameteres such as learning rate, regularization rate, epoch size, activation functions to check for optimum performance.

Analysis of customer behavior in a bike sharing system | R

- Analyzed user behavior data to design and develop a predictive model on the number of riders per season.
- Computed different models using linear regression, multivariate regression using complex interactions.
- Performed best subset selection methods like forward, backward, best subset selection to generate models.
- Performed Advanced shrinkage methods such as Lasso, Ridge regression with use of K-fold to select the best model. Random Forest, Boosting and Bagging models were generated, and best model was fit.
- Generated reports on the factors influencing the customers daily ridership and the trends.

Industrial Engineering Lab Inventory Management Application | SQL , VBA

- Built Complex SQL Queries to audit over **$200 thousand dollar** worth of materials for over 200 records and currently in use by the department.
- Developed an Inventory Management tool for placing orders, managing inventory, calculating expenditure.
- Features include secure login, real-time update on servers, notification and emails.

Exploratory Data Analysis on S&P 500 companies| Python

- Scraped S&P 500 index from Google Finance, performed data preprocessing and determined stationarity.
- Performed Time Series analysis using ARIMA models and ETS to forecast **AAPL** stock prices.

Online Task Management | PHP , SQL

- Developed an online administrative platform using MySQL, PHP configured through Apache HTTPS server.
- Collected and ranked user data according to the clearance of the company with each clearance having better control over the administrative part. Tasks were grouped and assigned to the group members.
- Used HTML, CSS and Javascript for client-side scripting of login, messaging, logs and groups forms.

Experimental Design and Analysis of Fiber Optical Attenuation| JMP

- Built a model to predict the attenuation from the significant factors with a **desirability of 99.96%.**
- Designed and analysed an experiment for the minimization of fiber optical signal attenuation.
- Performed and optimized the problem **saving around $16,000** in the allotted budget.

Sentimental Analysis on Movie Reviews using Recurrent Neural Networks (RNN) | Python

- Implemented LSTM model with GloVe embeddings and achieved an accuracy of **85.40%**
- Performed data preprocessing, exploratory data analysis on Kaggle's IMDB Review dataset to gain insights.
- Preprocessed the text of reviews by removing stopwords, tokenizing words and padding sequences.

AWARDS & ACCOLADES

Governor Awardee, Indian National Scouts and Guides | Committee Head (Discipline) – DSA SRM.