Venkata Kaushik Belusonti

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Summary

I bring data science and data analytics expertise, specifically in the automotive, aerospace and energy sectors. Strong ability to break down complex problems, come up with creative ideas, and use analytical problem-solving techniques to solve issues and get desired results. I'm currently pursuing masters in Engineering Data Science at University of Houston in pursuit of an internship in the Data Science sector to leverage my abilities and acquire practical experience with real-time applications.

Education

University of Houston   Aug 23 – Dec 24
Master of Science in Engineering Data Science | 4.0/4.0

Indian Institute of Technology – Bombay (IIT-Bombay)   Sep 09 – Jul 11
Master of Technology in Systems and Control Engineering | 3.4/4.0 | Jul 2011
   - All India Rank 25 in GATE, a graduate exam at national level

Skills

Programming Languages: Python (Pandas, NumPy, SciPy, sklearn, matplotlib, seaborn), R (ggplot2, Caret, Tidyverse), C & C++
Data Visualization Tools: Power BI, Tableau & MS Excel including VBA
Tools: Anaconda, MATLAB, MySQL, SQL Server, Jenkins & MS Office
Machine Learning: Data Visualization, Feature Engineering, Unsupervised Learning, Supervised Learning, Neural Networks, Deep Learning & Hypothetical Testing

Experience

Graduate Research Assistant | University of Houston   Aug 23 - Present

- Assisting Dr. Pradeep Sharma, Dean of Cullen College of Engineering, University of Houston in developing the stable diffusion models, Low Rank Adaption (LoRA), and Checkpoint models for components in the field of material science in Stable Diffusion, an open-source deep learning and text to image model.

Senior Lead Engineer | Collins Aerospace   Jul 18 - Aug 23

- Responsible for project deliverables, led a team of 6 members, collaborated with cross-functional teams to frame and carry out project deliverables.
- Designed a **predictive algorithm** incorporating prognostics and health monitoring to assess the degradation of aircraft landing gear servo-valves and estimate their remaining useful life (RUL). This innovative work led to the granting of a patent.
- Created a 6-Degree of Freedom model for a Boeing-787 aircraft's tri-cycle system using C and MATLAB Simulink. Integration of the model with the brake system controller led to a 2% improvement in braking efficiency.
- Utilized machine learning techniques to predict aircraft arrival times at Bangalore International Airport (BLR). Employed **Multilayer Perceptron (MLP)** and **Multiple Linear Regression (MLR)** models to categorize arrival times into three groups with 92% accuracy and estimate the specific arrival time with RMSE of 9 minutes.

- Conducted **Root Cause Analysis (RCA)** for a production regional aircraft braking system failure, utilizing a **Fault Tree (FT)** derived from aircraft data and domain expertise. Proposed a viable and cost-effective solution to resolve the problem.
- Created compelling **data visualizations** using tools such as Tableau and Microsoft Power BI, making sure that technical and non-technical business clients could easily access interactive and engaging insights.

Senior Engineer | Eaton Corporation   Jul 11 - Jul 18
- Developed a technique to calculate the necessary lubrication for cooling the automated transmission gear system, employing a power loss model. This method significantly reduced testing time by approximately 60%, making it a valuable efficiency improvement.
- Collaborated with Data Analytics team in pre-processing the extensive data extracted from truck sensors. Generated homogeneous sets of data with and without clutch failures. Estimated the faults that happen in tandem with clutch failure.
- Identified the prominent features resulting into the clutch failure fault using Feature Selection. Developed a Decision Tree (DT) and a predictive algorithm that can accurately estimate the Remaining Useful Life (RUL) of the clutch with a 78% accuracy rate using real-world data.
- Predicted the fuel consumption of Eaton automated transmissions for various operating scenarios using data-based and behavioral models. **Optimized** the configuration to reduce the fuel consumption and increase the performance.
- Competitive benchmark study conducted to evaluate the fuel consumption of Eaton's transmissions over competitor's transmission for medium and heavy-duty applications.

Academic Projects

Sentimental Analysis on Women's e-Commerce Clothing Reviews
- Sentimental analysis involved predicting the emotional tone of women based on the reviews provided in the Review Text. Analyzed the words within the review text to predict whether the sentiment is positive, neutral, or negative.
- Performed data cleaning including tasks such as removing STOP words and employed data visualizations to exact meaningful insights from the dataset.
- Applied machine learning and deep learning techniques methodologies such as Random Forest, Naïve Bayes, Logistic Regression, Deep Neural Network and Ensemble model, including k-cross validation, hyperparameter tuning and model evaluation metrics considered are Confusion Matrix and ROC.

Patents & Publications

- Patent Filed Application (US Patent # 17/830,025): Monitoring of Landing Gear Servo Valve Assembly
- 2 Trade Secrets and 1 Disclosure
- Published a technical paper titled, *"A Low Cost, Scalable, Virtual Control Laboratory"* in *9th IEEE International Conference on Control and Automation (ICCA), Chile in 2009*

Recognitions & Certifications

- Eaton Vehicle Group Outstanding Technology Achievement Award | 2012, 2014 & 2015
- Certified AGILE ScrumMaster
- DFSS Green Belt Certification