

Achyuthuni Sri Harsha

Data Scientist, Deloitte, Imperial College London, IIMB, harshaash.com

E-mail: achyuthuni.sri.harsha@gmail.com * *Phone/Whatsapp:* +91-9019413416

Linkedin: [sri-harsha-achyuthuni](https://www.linkedin.com/in/sri-harsha-achyuthuni) * *Website:* www.harshaash.com

Work experience

Deloitte

Senior Consultant, Data Science

January 2021 - Current

Bangalore, India

Client: **Dr Reddy Labs**

- Deployed a tool that leverages warning letters given to competitor's plants by US FDA. Used Google News API, web scrapping and Generative AI (PALM 2) to find, read and extract relevant information from news articles. Deployed end-to-end process using Airflow, Vertex AI and Big Query on Google Cloud Platform

Client: **Rolls-Royce**

- Explored different unsupervised methods to predict the failure of aircraft engine parts and identified the three most promising methods
- Built a "Human with AI" machine learning tool that assists subject matter experts (SME) in identifying various performance and failure issues in aircraft engines saving 1200 man-hours
- Conceptualized and developed physics-led machine learning models to predict failure for certain parts of an aircraft engine. Led a team to deploy these in more than 1000 aircraft engines
- Predicted the ideal behaviour of 250 plus parameters for a new fleet of aircraft engines to detect anomalies during the testing phase using a novel auto-encoder-decoder model
- Created an optimisation engine that allocates suppliers, which had an impact of £180m in a single sourcing conference in 2020

Client: **Olam International**

- Built the Data CoE (centre of excellence) using Azure cloud services. Demonstrated end-to-end pipelines by building and deploying a lead time model reducing OTIF issues by 50 per cent

Tesco

Senior Business Analyst

April 2020 - January 2021

Bengaluru, India

- Collaborated with business teams, display managers and store managers to take various data-driven decisions: analysed 10+ ad-hoc requests to provide actionable insights, automated 5+ reports to facilitate better store efficiency and modelled three problems using data science methodologies

Mu Sigma

Decision Scientist

October 2017 - April 2020

Bangalore, India

Client: **Walmart International**

- Quantified the reasons causing under-stock scenarios in a store utilising hypothesis testing and statistical modelling pinpointing the two main factors (fill rate and lead time) among 14 with the most significant impact
- Designed a classification model (gradient boosting) predicting the risk of a supplier not delivering the order in full (fill-rate) with 75 per cent accuracy and 50+ per cent specificity
- Forecasted lead time applying a tree-based ensemble regression model (random forest) with 85 per cent (SMAPE) accuracy
- Optimised EOQ and reorder point using an integer programming model after correcting for fillrate and lead time discrepancies leading to revenue savings of 1.2 million dollars per month

Other clients

- Performed clean sheet cost analysis to estimate the actual cost of private brand food products

Education

Imperial College London

MSc Business Analytics

Graduated with distinction

Thesis title: Preventive Maintenance of aircraft engines

Core modules: Data Structures and Algorithms, Machine Learning, Network Analytics, Statistics and Econometrics. Student content creator

September 2020 - September 2022

London, United Kingdom

Indian Institute of Management, Bangalore

Executive Education, Business Analytics and Intelligence

Graduated with Honors, Part-time on-campus program

Capstone project: "Optimisation of Rewards and recognition contests for a life insurance company using predictive and prescriptive analytics" (Awarded highly commended project)

June 2019 - June 2020

Bangalore, India

Amrita Vishwa Vidyapeetham

Bachelor of Technology, Mechanical Engineering

Graduated with distinction, CGPA: 8.92/10

Treasurer of SAE India club. Conducted various events

June 2013 - June 2017

Bangalore, India

Technical skills

Analytics	Python, R, CPLEX
Data Engineering	SQL, Alteryx
Visualisation	Tableau, HTML, Javascript
Cloud	Azure ML, Databricks, Google Cloud platform

Publications

- *Preventive maintenance of aircraft engines* presented at the *9th International Conference on Business Analytics and Intelligence* (Best Paper award)
- *Scarecrow - Intelligent Annotation platform for Engine Health Management* presented at *AI ML Systems conference* and published in *ACM*
- *Personal analytics: Time management using Google Maps* Presented at *International Conference on Statistical Applications in Data Analytics and Data Science*
- *Parametric Study of Cantilever Plates Exposed to Supersonic and Hypersonic Flows* published in *IOP Conference Series*

Awards and Certifications

Best Paper Award	Awarded for best paper presentation at the <i>9th International Conference on Business Analytics and Intelligence</i>
Move the dot	Awarded by Deloitte for innovation
President's Bonus	Awarded to the top 5 per cent of employees globally at Deloitte in FY22
Professional Scrum Master	PSM 1 certificate by scrum.org
Star of the sprint	Awarded by Rolls Royce Data Labs for excellent work
Highly commended project	Awarded by IIMB for capstone project
Spot Award	Awarded by Mu Sigma for building POC's

Language proficiencies

English	Fluent
Telugu	Native
Hindi	Fluent

Predictive maintenance of Aircraft engines
Rolls-Royce(Client), Imperial College London(Thesis)

January 2022 - December 2022
Bangalore, India/London, UK

Problem statement

- Predict failures in an aircraft engine

Solution

- Different failure modes and degradation scenarios were observed, and three different unsupervised approaches were suggested
- Simulated data from CMAPSS was taken to test the different methods on real failure modes on aircraft engine data
- Implemented a novel autoencoder-decoder-based approach to predict the ideal behaviour of more than 250 parameters in steady and transient phases of flight
- Detected anomalies on test bed experiments using z-scores and CUSUM

Other details

- Technologies used: Python
- Publications: Preventive maintenance of aircraft engines
- Team size: 3-4 data scientists
- Awards: Best Paper Presentation

Scarecrow: AI for time series annotation
Deloitte (Client: Rolls-Royce)

January 2021 - January 2023
Bangalore, India/London, UK

Problem statement

- Assisting subject-matter experts (SME) in identifying various performance issues in an engine

Solution

- Built and presented the POC of a "Human with AI" tool called Scarecrow in a hackathon in London and got appreciated by the CEO and CTO of R2Factory (a subsidiary of Rolls Royce)
- Led the team in designing, building and deploying the "Human with AI" tool in various use cases
- Led the team in building a full-scale web-based framework that continuously learns (streaming machine learning) by observing the decisions taken by SMEs
- Built failure identification and prediction models for two parts of a type of aircraft engine and implemented them on more than 1000 engines. This was done by monitoring SME's who look at data from different sensors from aircraft engines in flight to identify the engine parts that may need maintenance or have low performance
- These models are used to predict failures among engines and provide a list of engines for SME's to focus on and assist in saving 1200 man hours

Other details

- Technologies used: Python, streaming machine learning, Data bricks, Flask
- Publications: Scarecrow - Intelligent Annotation platform for Engine Health Management; White paper: Demonstrating online learning on Rolls-Royce blogs
- Impact: Preventive maintenance identified with 15 per cent less false positivity
- Team size: 7-10 consisting of data engineers, data scientists and product developers
- Awards: Star of the sprint

Supply chain analytics
Mu Sigma (Client: Walmart International)

February 2019 - February 2020
Bangalore, India

Problem statement

- Reducing out-of-stock scenarios in stores by identifying and quantifying the different factors, predicting the failures due to various factors and optimising inventory based on them

- Reduce under-stocking in Walmart stores in Canada, Mexico, Argentina and Chile

Solution

- Quantify the reasons for under-stock scenarios by identifying different root causes like demand forecast accuracy, fill rate, markdowns, lead time, EOQ etc
- Quantified the reasons using hypothesis testing and statistical modelling to obtain the high-impact factors
- Identify the risk of a supplier delivering an order in full by developing a classification model using PO, vendor, warehouse and seasonality-based factors
- Developed a regression model using a random forest to predict the inbound lead time of a purchase order
- Deployed the solution on the cloud and created workflows to predict the risk and lead time for different purchase orders at a daily level
- Optimised EOQ and reorder point using an integer programming model

Other details

- Technologies used: R, Python, SQL, CPLEX, Google Cloud
- Impact: The potential average cost savings from a reduction in inventory and out-of-stock costs would be USD 12 Million per month
- Team size: 5-10
- Awards: Spot award

Optimization of Rewards and Recognition for a reputed insurance company using predictive and prescriptive analytics

December 2019 - June 2020

IIM Bangalore(Capstone)

Bangalore, India

Problem statement

- Building optimal Rewards and recognition contests for agents of a large life insurance company

Solution

- Quantified the lift generated due to different contest parameters by building a regression model which can explain 97 per cent variation in sales
- Clusters the agents based on factors that cause the maximum capacity of sales
- Simulated the cumulative sales for different contest parameters in each cluster of agents
- Identified the most optimal parameters based on budget and other constraints

Other details

- Technologies used: R, RShiny, Optimisation, Regression
- Team size: 5
- Awards: Highly commended project award