Rahul Sangole, Data Scientist.

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Profile

Data scientist with Six Sigma Black Belt certification and 11 years of work experience delivering value in a Fortune 500 companies. 5 years of experience leading teams solve business problems in areas of engineering, service, quality and product management.

Experience

Apple, 2019 – Present

Data Scientist, Jul 2019 – Present

- Develop time series statistical forecasting models for hardware resources for Apple's internal applications which allows the business to right-size hardware purchases
- Develop interactive dashboards (using *R Shiny)* exposing KPIs and opportunities for business analysts to right-size resource allocations for Apple's engineering teams
- Develop production ready *Docker* images for reproducible code development by the data science team
- Develop internal R packages which perform data extraction from internal APIs, used by the data science team
- Develop automation (Continuous Integration) to unit test packages, deploy data pipelines, deploy analytical solutions

Cummins, 2008 – 2016

Data Science Manager, Aug 2016 - May 2019

- Led a team of data scientists to deliver algorithms that alert engineers upon anomalous engines behavior reducing unscheduled operational downtime for mining customers resulting in financial savings of $1m+
- Developed unsupervised anomaly detection schemes using statistical tests, robust regression filters, process control methods, cusum control charts, ranked permutation transformation on multivariate datasets
- Deployed algorithms in production-ready R packages using functional, defensive programming using *trycatch*, *assertive*, *testthat*, *log4r*, *RevoScaleR* on an Azure HDInsights cluster with Hive and Azure Blob Storage
- Generated new insights on engine usage patterns across customers by application of *t-SNE* to high dimensional datasets that impacted the solution strategy of a major prognostics initiative
- Developed a failure prediction model on high class imbalance problem using lasso regression and *xgboost* models
- Developed analytics functional excellence practices: project chartering processes, CRISP-DM adoption, coding guidelines, R repos, common utility packages, version control practices (gitflow), company-wide technical sessions, monthly trainings etc
- Co-lead an initiative to investigate research publications for engine specific prognostics and anomaly detection methods
- Developed data science position profiles and competency definitions required to setup a new data science function within Cummins

Six Sigma Black Belt, Nov 2014 – Aug 2016

- Led high complexity and big impact projects using 6 sigma for quality, product management, supply chain and engineering with financial impact from $150,000 to $10 million. Received numerous awards.
- Solved business problems using inferential statistics, null-hypotheses testing, regression, measurement systems analysis, control charts etc.

Senior Structural Analyst, Mar 2010 – Nov 2013

- Drove $2 million cost reduction via improved engine component designs on numerous new product launches.
- Developed calibrated finite element analyses (2-10% error) to predict on-engine failures.

Product Validation, Jan 2008 – Mar 2010

- Led 7-step problem-solving teams of engineers, data analysts, suppliers & customers to address high customer impact issues through root cause analysis using six sigma tools.
- Delivered annual savings cumulative of $250,000 to the business.

Skills

- R, Python, SQL, Azure Databricks
- Visualization – plotly, ggplot2, lattice, matplotlib, seaborn
- Packages – data.table, tidyverse, caret, xts, pandas, scikit-learn
- RStudio, Anaconda, docker, shell, git, SAS JMP, Minitab, PostgreSQL

Education

Master of Science in Predictive Analytics, Northwestern University
Regression & Multivariate Analyses, Generalized Linear Models, Machine Learning, Deep Learning, Time Series Forecasting, Marketing Analytics, Experimental Designs, Text Analytics, Statistical Quality Control

Master of Science in Mechanical Engineering, University of Michigan, Ann Arbor

Achievements

- 2015 Chairman's Quality Award
- 2014 Chairman's Quality Award nomination
- Best Practice Awards for four Six Sigma Green Belt projects
- 2009 Most Valuable Player Award
- KVPY Scholar, Aero Department, IIT Bombay, 2003 - 2006