Sumit Singh

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Experience

Infosys   *Bangalore*
Senior Analyst – Data Science   *July 2022 - Present*
Clients: Rolls-Royce, Solar Turbines, Morgan Stanley

- Collaborated with cross-functional teams to develop machine learning models for SQL data of TRENT engines, utilizing Python libraries (NumPy, Pandas, Scikit-learn).
- Developed ML model for TRENT XWB-84 baseline engine predicting TGT Margin with 70% accuracy across multiple models.
- Executed complete data science pipeline from data extraction and cleaning to model training and deployment.
- Conducted gas turbine performance analysis using advanced data analysis techniques and statistical modeling.
- Led Design Iteration 13 Model building for Trent XWB-97 engine with comprehensive performance validation.
- Conducted in-depth analysis of performance data, design factors, efficiency, and reliability metrics.
- Implemented new TCCM (Tip Clearance Characterization Model) according to thermal specifications for DI14 performance model.
- Executed Propulsion System Tolerance (PST) and Ratings for SW15 of Trent XWB-97CI with complete documentation.
- Resolved BU70 extrapolation issue for Trent XWB-97CI model using MATLAB Simulink, receiving recognition from Derby team.
- Served as focal point for Non-Conformance assessments (TV, DP, DAR, Concession) ensuring compliance with quality standards.
- Ensured proper documentation of technical data consistent with engineering policies and procedures.
- Contributed to continuous improvement initiatives enhancing analysis and modeling process efficiency.

Education

Indian Institute of Technology, Goa   *Goa*
MTech in Mechanical Engineering| CGPA: 8.66   *2020 – 2022*

Indian Institute of Technology, Madras   *Madras*
Diploma in Data Science | CGPA: 8.67   *2024 - 2025*

Gujarat Technological University   *Ahmedabad*
BE in Mechanical Engineering | CGPA: 8.43   *2013 - 2017*

Technical Skills

Programming & Data Science: Python, MATLAB, SQL, NumPy, Pandas, Scikit-learn, Statistical Analysis, Data Visualization,
Cloud & Infrastructure: Docker, Git, RESTful APIs
Big Data & Cloud: Hadoop, Snowflake, ETL Pipeline Design, Data Migration, Cloud Data Warehousing
Machine Learning: Linear/Logistic Regression, Decision Trees, Classification
Development Tools: FastAPI, Typesense, Nomic Embeddings, Git, Render Deployment
Engineering Software: Phobos (Rolls-Royce Performance Model), MATLAB Simulink, SPARTA DSMC, CFD
Agile Framework: Scrum, Sprint Planning, Backlog Management

Certifications

Machine Learning by Stanford University & DeepLearning.AI on Coursera. Certificate earned at April 4, 2023

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Key Data Science Projects

Engage to Value | End-to-End ML Model Development

- Built comprehensive machine learning pipeline with Exploratory Data Analysis (EDA) and predictive modeling.
- Implemented feature engineering, model selection, and performance optimization techniques.

Data Analyst Agent | Agentic AI Framework

- Designed automated pipeline to scrape, clean, and analyze data from multiple sources.
- Generated automated visualizations and insights using advanced analytics frameworks.

Virtual Teaching Assistant | Intelligent Query System

- Created AI-powered teaching assistant answering queries using course material and discourse threads.
- Built scalable architecture with FastAPI backend, Typesense indexing, and Nomic embeddings.
- Successfully deployed on Render with full production capabilities.
- GitHub: github.com/sumitsingh105/project1_tds_virtual_TA

Awards and Achievements

- 3x Insta Award (Infosys): Excellence in Non-Conformance delivery, Trent XWB-97CI model execution, and BU70 issue resolution
- Second Rank – School of Mechanical Sciences, M.Tech, IIT Goa
- First Rank – Mechanical Department, B.E. with Certificate of Excellence

Core Competencies

- Cross-functional collaboration with engineering teams and international clients
- Advanced problem-solving and analytical thinking for complex technical challenges
- Technical documentation and compliance with engineering standards
- Data-driven decision making and performance optimization
- Effective communication and stakeholder management