SUNESH AGARWAL

SENIOR DATA SCIENTIST

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SKILLS

languages and Tools

Python, TensorFlow, PyTorch, Keras, MLFlow, Git, Azure ML, Databricks, Genie, Docker

Machine Learning

Statistical Modeling, Supervised & Unsupervised Learning, Time-Series Forecasting, Anomaly Detection, Deep Learning, NLP, Ensemble Methods

GenAI

Transformer Models, Retrieval-Augmented Generation [RAG], Prompt Engineering, LLM Evaluation, Langchain, langgraph, Huggingface, Agentic AI Workflows, AG2

EXPERIENCE

Senior Data Scientist & Lead AI Engineer

MERCEDES-BENZ R&D INDIA

02/2021 - Present Bangalore, India

Customer Experience and Next-Level Program (NLP)

- Built text-analysis models to study customer feedback and identify key experience issues.
- Developed a RAG-based chat system integrating Claude Opus 3.5 for reasoning and using Databricks Genie to dynamically select the correct databases and knowledge bases.
- Ensured the system delivered precise, context-aware answers by incorporating analytical reasoning and conversation history.
- Integrated data from 35+ internal and external sources to create a complete customer-journey view and designed dashboards for leadership to track sentiment trends.
- Delivered a cost-effective, in-house solution that replaced expensive third-party tools, reducing both costs and response time while giving more control over the system's behavior.
- Built a smart caching system that reused previous query results for exact matches, and used LLaMA models to adapt SQL queries for partial matches based on the semantic data, reducing the need for expensive external calls and cutting operational costs.

Enterprise Asset Management & Financial Operations

- Enhanced forecast accuracy by 27%, increasing financial metric accuracy using LSTM and Prophet models.
- Engineered feature extraction pipeline using lag variables and rolling statistics to capture patterns.
- Created automated data preprocessing framework with robust outlier handling and missing value imputation for financial time series.
- Implemented gradient boosting algorithms (XGBoost, LightGBM) in ensemble with neural networks to optimize prediction accuracy across asset classes.
- Designed stacked autoencoder architecture for unsupervised anomaly detection with reconstruction error threshold.
- Developed custom evaluation metrics combining financial domain knowledge with traditional statistical measures.
- Optimized model hyperparameters using Optuna study techniques to balance computational efficiency and forecast accuracy.

Predictive ML for Engineering Workflows

- Developed multi-layer neural networks with custom activation functions for vehicle subsystem prediction.
- Implemented feature transformations based on engineering principles and dimensional analysis.
- Created synthetic data generation framework using parametric bootstrapping and physical constraints.
- Designed model inference pipeline optimized for high-throughput simulation environments.
- Implemented feature attribution techniques for model interpretability and engineering insights.
- Integrated predictive models with simulation framework, reducing analysis time from 20 hours to 2 hours.

Data Scientist

MERCEDES-BENZ R&D INDIA

01/2017 - 02/2021 Bangalore, India

Method and Process Development

- Developed statistical models for window lifter mechatronics using supervised learning and time-series analysis
- Implemented signal processing algorithms with FFT and wavelet transformations for 20kHz multi-physics data
- Created automated validation framework with statistical hypothesis testing for safety-critical homologation procedures
- Designed feature extraction pipeline for sensor data combining domain knowledge with dimensionality reduction
- Engineered data integration system combining simulation outputs with physical test results for comprehensive analysis
- Developed interactive visualization dashboards enabling engineers to explore complex mechatronic performance data

KEY ACHIEVEMENTS

Process Innovation

Transformed a hardware-dependent process into a machine learning-based digital homologation system by using neural networks and 10+ years of historical car line data. This innovation reduced the need for physical hardware testing, enabled on-prem digital validation, and saved approximately €500K per car line.

CX Agent

Delivered an end-to-end Conversational AI solution in six months, integrating multiple internal data sources and cutting time to insights by **60%**, enabling faster and more informed decision-making for senior leadership.

EDUCATION

Executive post-graduate

IIIT, Bangalore

01/2021 - 01/2022 Bangalore, India

GPA
3.4 / 4.0

Bachelor of Technology

Manipal University

01/2013 - 01/2017 Manipal, India

GPA
8.45 / 10.0

PROJECTS

Machine Learning Model Pipeline | CI/CD Implementation

01/2022 Bangalore, India

End-to-end framework for model development, testing, and deployment

- Architected complete ML pipeline with modular components and configuration-driven deployment
- Implemented feature selection algorithm with mutual information criteria, improving prediction accuracy by 25%
- Developed model drift detection system using Kolmogorov-Smirnov and Jensen-Shannon divergence tests to compare prediction distributions across time periods
- Created containerized deployment workflow with version control integration