Prasanna Raut *Data Scientist*

prasannaraut36@gmail.com +91 9766249018 Bengaluru, India Linkedin
GitHub

Machine Learning Engineer and Aerospace Specialist with 10+ years experience. Expert in Deep Learning (DNNs), Generative AI (LLMs/RAG), and Big Data Analytics (PySpark). Proven ability to develop advanced predictive models for time series forecasting and anomaly detection in Gas Turbine Engine (GTE) systems. Specialized in cutting-edge techniques like PINNs/FNO for CFD optimization. Strong foundation in Computational Fluid Dynamics (CFD) (STAR-CCM+) and process automation, with experience leading teams and deploying solutions on GCP and Palantir Foundry.

Skills

🧠 **Machine Learning & Data Science:** Anomaly Detection, Time Series, DNN, Forecasting, Generative AI, LLM, RAG, PySpark, Big Data, Python, PINN, FNO, Agentic AI, GCP, Gemini | ⚙️**Mechanical Engineering:** Virtual Simulations with CFD & FEM, STARCCM+, ANSYS, Optimization Studies, GTE, fluid flow and thermal analsyis |
🤝 **Soft Skills:** Mentorship, Root Cause Analysis, Communication, Project Management, Client Management

Professional Experience

Airbus, Lead Data Scientist — Dec 2022 – present | Bengaluru, India

Experience in leveraging mechanical and aerospace engineering domain knowledge along with data analysis skills to drive business decisions. Collaborative leadership and project execution with extended international teams, specifically in Spain, often requiring business travel to facilitate in-person collaboration and strategic alignment.

- Advanced Analytics & Big Data: Conducted comprehensive **Root Cause Analysis** and **statistical analysis** on complex aircraft data (ATA36/ATA21), handling **big data** using **PySpark**.
- Machine Learning & Deep Learning**:** Developed and implemented advanced **time series forecasting** and **anomaly detection** using **DNNs**, created **predictive ML models** to forecast assembly line delays, and explored **Physics Informed Neural Networks** and **Fourier Neural Operators (FNO)** for CFD optimization.
- Generative AI & LLMs**:** Designed and developed an **intelligent Question-Answer bot** utilizing pre-trained **LLMs** with a **RAG pipeline**, piloted **Gemini for Google Workspace**, and created an **agentic AI framework** on **GCP** for document processing.
- Design Optimization**:** Created a **Genetic Algorithm (GA) framework** coupled with **CFD simulations** for design optimization studies, automating simulations with Starccm+ macros.
- Data Visualization & Platforms**:** Developed **interactive dashboards** for system architects using **Palantir's Foundry platform** (AWS) and am proficient with the **Skywise** aviation data environment.

Honeywell, Advanced Mechanical Design Engineer — Jul 2015 – Dec 2022 | Bengaluru, India

- **Computational Fluid Dynamics (CFD) Engineer** experienced in virtual simulations of Gas Turbine Engine (GTE) airflow and performance. Expert in **automation of CFD processes** using Java in STAR-CCM+. Structural analyses (LCF, HCF, Stress Rupture,) with ANSYS products. Product development experience includes thermal and Conjugate Heat Transfer (CHT) analysis for HP turbine components and APU installation kits in aircraft.
- **Machine Learning** experience in mentoring a 15 member team in Python and DNN. Developing an **encoder-decoder neural network** for anomaly detection in engine test cell sensor data.

Education

Indian Institute of Technology - Bombay,
Master of Technology - Computer Aided Design and Automation
Thesis: Software development for fabrication of Microstructures using Micro-Stereolithography

Indian Institute of Technology - Bombay, Bachelor of Technology

Certificates

Deep Learning Specialization: 5 courses on Artificial Intelligence and Machine Learning • Data Science Ethics • Introduction to Large Language Models (LLMs) In Python