

GANESHA N HOTTI

+91 8884197836

✉ ganeshahotti5112000@gmail.com

in [LinkedIn](#)

GitHub

SUMMARY

Full Stack Software Engineer with 4 years of experience designing backend APIs, data pipelines, and interactive web applications. Proficient in Python (FastAPI, Flask), JavaScript (React, Angular), Java and cloud services (AWS, Azure). Experienced in SQL optimization, microservice architecture, serverless deployment, ETL pipelines, and CI/CD automation.

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, SQL, Java, C#

Backend: FastAPI, Flask

Frontend: React, Redux, Angular, Material UI, Recharts, PyQt6

Databases: MySQL, PostgreSQL, SQL Server, Neo4j, Oracle (cx-Oracle)

Cloud & DevOps: AWS (Lambda, Glue, Athena, S3, RDS), Azure (Blob, AKS), Docker, Cloud Foundry, GitLab CI/CD

Tools: Git, Pytest, Jest, JIRA, Postman, SonarQube, Pylint

EXPERIENCE

Software Engineer

Boeing India Pvt. Ltd.

Aug 2022 – Present

Bengaluru, Karnataka, India

- Developed a FastAPI backend using Pydantic to serve Flight Configuration metrics from PostgreSQL (AWS RDS), deployed as serverless on AWS Lambda via Mangum with Terraform-managed infrastructure.
- Built server-side SQL transformations using CTEs, window functions, and pandas pivoting to aggregate revision histories into hierarchical monthly KPIs, eliminating frontend data processing.
- Co-developed a React + Redux SPA with Material UI and MUI DataGrid to unify fragmented analytics tools, owning state management for SPC and Alerting modules.
- Engineered Flask microservices using Flask-RESTX to summarize calibration work orders via LLM APIs and generate automated alerts with UCL rule-based detection across 8 statistical rules.
- Designed reliability modeling tools using Poisson-Pareto anomaly detection and Weibull regression to quantify asset risk and support data-driven maintenance prioritization.
- Developed Angular frontend for Navigation Database Services with AIRAC cycle comparison, PDF/GeoPackage export, and built a multi-module Spring Boot backend with JPA, Flyway, and JMS messaging.
- Built a multi-threaded PyQt6 desktop application for ISS thermal data visualization with temperature/heat rate analysis, time violation detection, and Excel/PDF export.
- Maintained 92% code coverage using Pytest, pytest-qt, and Jest, with GitLab CI/CD pipelines for automated build, test, and deploy stages.

PROJECTS

TICS – Engineering Data Platform (Data Mesh Lakehouse) | FastAPI, React, PostgreSQL, AWS Lambda, Terraform

- Built a Data Mesh / Lakehouse platform consolidating engineering data from MS Access, SQL Server, and file shares into cloud-native PostgreSQL on AWS GovCloud.
- Developed a React 19 Flight Configuration metrics dashboard with MUI DataGrid showing revision categories, monthly counts, and drill-down detail views.
- Created FastAPI endpoints with Pydantic models and pandas pivoting, deployed on Lambda via Mangum with environment-aware config (local vs AWS Secrets Manager).
- Implemented AWS Glue ETL using PySpark DynamicFrames and Athena federated queries, with Terraform provisioning for Glue jobs, IAM roles, and connectors.

Advanced Metrology Analytics (AMA) | React, Redux, Flask, Flask-RESTX, SQL Server, Scipy

- Architected a multi-service platform (React SPA + Flask APIs) for calibration equipment analysis with SPC control charts, UCL detection, and 8-rule alert generation with SMTP notifications.
- Built Poisson-based anomaly detection for OOT/SOOT/Defect rates with APScheduler execution, and Weibull regression life cycle cost modeling with critical age determination.
- Created AI-powered calibration note summarization via LLM API integration and N-gram word cloud generation using scikit-learn CountVectorizer for failure pattern identification.

- Implemented reliability survival analysis with multiple distribution fitting (Weibull, Kaplan-Meier, Nelson-Aalen) using Lifelines with AIC/BIC model selection.

Enterprise AI Assistant (ETE-AI) | *FastAPI, LangGraph, LangChain, Neo4j, Oracle, SSE*

- Built an enterprise AI backend using FastAPI and LangGraph that routes natural language queries to Neo4j (assets) or Oracle (work orders) via structured QueryPlanV2 orchestration.
- Developed safe parameterized query compilers for Cypher and SQL (never raw LLM queries), with critic/retry logic, vector fallback, and location normalization on failure.
- Built math post-processing (availability, MTBF/MTTR) using AST-whitelisted `safe_eval_expr`, with SSE streaming for real-time progress and slot-filling for missing information.

Navigation Database Services (NDS Reports) | *Java, Spring Boot, Angular, Azure, Maven, JMS*

- Developed Angular frontend for aviation navigation data reporting with AIRAC cycle comparison detecting changes in airports, airways, procedures, waypoints, and nav aids.
- Built multi-module Spring Boot backend (8 Maven modules) with JPA, Flyway migrations, ShedLock distributed scheduling, and QPID JMS for async report processing.
- Implemented PDF generation (OpenPDF), GeoPackage spatial export (mil.nga), Azure Blob Storage for persistence, and JWT-based role access control with Spring Security.

ISS Thermal Data Analyzer | *Python, PyQt6, Pandas, NumPy, Matplotlib, Pytest*

- Developed a PyQt6 desktop application (v3.0) for ISS thermal temperature and heat rate analysis across multiple nodes/cases with multi-threaded background processing via Qt worker signals.
- Implemented time violation detection, T-Table generation, and data visualization (time plots, scatter plots, violator plots) using Matplotlib/Seaborn with unit conversions (C/F/K, BTU/Watts).
- Designed export framework using strategy pattern for Excel (XlsxWriter) and PDF output, achieving 92% code coverage with Pytest and pytest-qt.

Enterprise Total Productive Maintenance (ETPM) | *React, Redux, Flask, Oracle, SQL Server, Recharts*

- Developed a React 18 SPA with Redux, Recharts, and RSuite MultiCascader for multi-level filtering of TPM metrics (availability, MTBF, reactive time, PM on-time compliance).
- Built Flask REST API computing maintenance metrics from Oracle (cx-Oracle) and SQL Server (pyodbc) with Pandas processing and APScheduler background refresh jobs.
- Implemented asset health scoring, annual report generation with Excel export (ExcelJS), and word cloud visualization of work order text patterns using react-wordcloud.

PUBLICATIONS

- A. P. Upadhyaya, **G. N. Hotti** et al., “Non-Intrusive System with Integrated Machine Learning Framework for Forecasting Boeing Pilot Fatigue Through Historical Data and Self-Assessed Fatigue Risk Metrics,” *Boeing Technical Journal*, AI/ML Special Edition, 2025.
- A. Sarker, C. R. Van Geystel, **G. N. Hotti**, “Anomaly Detection in Operational Risk Management (ORM) Survey Data for Enhanced Flight Safety,” *Boeing Technical Journal*, Vol. 16, Issue 2, Article 1, 2026.

EDUCATION

Ramaiah Institute of Technology
Bachelor of Engineering in Information Science

Bengaluru, Karnataka, India
Sep 2019 – Jul 2022

CERTIFICATIONS & ACHIEVEMENTS

- **Microsoft Azure Fundamentals (AZ-900)** – Microsoft, 2023
- Achieved **2nd place** in the YourStory | Snowflake Hero Challenge 2025, a nationwide data innovation hackathon.
- Awarded **Project of the Year 2022** among 50+ student projects for a Placement Management System.
- Secured all-state rank of **776** in the Karnataka Diploma CET examination.