

# MAHESH GANNEBOINA

Clermont, FL | +1 (813) 360-7716 | [Maheshganneboina3777@gmail.com](mailto:Maheshganneboina3777@gmail.com) | [LinkedIn](#) | [Portfolio](#)

---

## PROFESSIONAL SUMMARY

- Machine Learning and Generative AI Engineer with 5+ years of experience delivering production-grade ML, analytics, and decision intelligence platforms, including recent hands-on ownership of enterprise Generative AI and LLM systems in insurance and financial services environments.
- Demonstrated expertise in designing and deploying RAG pipelines, LLM-driven analytics agents, and semantic search solutions using LangChain, GPT-4, vector databases, Snowflake, Databricks, and cloud-native MLOps on AWS and Azure.
- Strong background in real-time data processing, risk and fraud analytics, feature engineering, and model lifecycle management, with proven ability to translate complex data into actionable insights for claims, underwriting, and executive decision-making.
- Experienced in enterprise security, data governance, and regulatory compliance including GDPR, SOX, and HIPAA, with a consistent record of delivering measurable business outcomes through scalable and reliable AI systems.

---

## TECHNICAL SKILLS

**Programming & ML:** Python, PyTorch, Scikit-learn, Hugging Face Transformers, LangChain, OpenAI APIs (GPT-4), Azure OpenAI, PEFT (LoRA, QLoRA), vLLM, PyMC

**Generative AI & LLM Systems:** Retrieval-Augmented Generation (RAG), Embeddings, Vector Search, Semantic Search, Prompt Engineering, Instruction Tuning, LLM Evaluation, LLMops, Knowledge-Augmented Generation, Conversational AI, Analytics Agents

**Vector Databases & Search:** Pinecone, FAISS, Weaviate, ChromaDB, Elasticsearch

**Data Engineering & Analytics:** Apache Spark, PySpark, Spark Streaming, Kafka, Airflow, dbt, Databricks, Delta Lake, Snowflake, BigQuery, Amazon Redshift, SSIS

**Cloud & MLOps:** AWS (S3, SageMaker, Bedrock, Lambda, Kinesis, IAM), Azure (Databricks, Azure Functions), GCP (AI Platform, Dataproc), Docker, Kubernetes, Terraform, Jenkins, GitHub Actions, MLflow, CI/CD for ML, Feature Stores, Model Monitoring, Great Expectations

**Databases & BI:** PostgreSQL, SQL Server, MongoDB, DynamoDB, Neo4j, Power BI, Tableau, Amazon QuickSight, Streamlit

**Security & Governance:** IAM, RBAC, OAuth 2.0, TLS Encryption, Data Encryption, Okta, HIPAA, SOX, GDPR, SOC 2, ELK Stack, Splunk

---

## PROFESSIONAL EXPERIENCE

### AI & Machine Learning Engineer

Aug 2024 - Present

#### Liberty Mutual Insurance | Florida, USA

- Built a production-grade Generative AI claims intelligence platform using LangChain, GPT-4, Pinecone, AWS Kinesis, and Snowflake, giving adjusters real-time access to policy and claim context while maintaining 99.9% system uptime.
- Reduced end-to-end claim investigation timelines by 60% by introducing Retrieval-Augmented Generation workflows that enriched adjuster decisions with relevant policy clauses and historical claim evidence.
- Enabled faster fraud triage by deploying LLM-powered analytics agents that summarized claim narratives and highlighted anomalous patterns, allowing high-risk cases to be identified earlier in the claims lifecycle.
- Increased claim severity prediction accuracy by 30% through Bayesian modeling in PyMC, embedding probabilistic outputs into settlement guidance to support more consistent and compliant payout decisions.
- Improved pipeline reliability during peak claim volumes by embedding automated data validation using Great Expectations within Airflow workflows, lowering ingestion and transformation failures by 35%.
- Shortened complex liability and underwriting reviews by over 50% by implementing semantic similarity search with Pinecone embeddings to surface comparable historical claims.
- Accelerated model iteration and release cycles by integrating Databricks, dbt, feature stores, and MLflow, enabling governed feature reuse and 25% faster deployment of production models.
- Strengthened data protection across AI-driven claim systems by enforcing AWS IAM, RBAC, Okta identity controls, and TLS encryption, contributing to a 90% reduction in unauthorized access incidents.
- Supported executive decision-making by delivering QuickSight dashboards enhanced with LLM-generated narratives, cutting insight turnaround time by 40% for emerging loss trends.

### Data Scientist - Machine Learning

Sep 2018 - Oct 2021

#### Cognizant Technology Solutions | India

- Delivered high-throughput financial analytics by building Kafka, Spark Streaming, and Flink pipelines that processed 5+ TB of trading data daily, allowing risk teams to react faster during volatile market conditions.
- Improved the quality of regulatory stress testing by applying transformer-based NLP models in PyTorch and integrating outputs into scikit-learn workflows, resulting in an 18% gain in prediction accuracy.
- Shortened regulatory reporting cycles by automating CbCR workflows on GCP AI Platform with BigQuery and Dataproc, cutting submission timelines by 45% across global finance programs.
- Enabled faster intraday risk analysis by engineering optimized BigQuery feature datasets for credit and liquidity models, reducing calculation turnaround time by 30% under peak load.
- Increased confidence in model outputs during audits through performance tuning of Databricks notebooks with Python and SQL, lowering execution variance by 25% in validation runs.
- Maintained regulatory compliance for sensitive trading data by implementing Cloud KMS encryption, access controls, and data masking, supporting ongoing adherence to GDPR, SOX, and FINRA standards.
- Strengthened platform observability by introducing ELK Stack and Splunk monitoring across analytics pipelines, reducing audit preparation effort by 50% and improving incident response speed.
- Accelerated enterprise model delivery by standardizing CI/CD workflows with Jenkins, Terraform, and GitHub Actions, increasing release velocity by 40% across distributed trading systems.

## Data Analyst Intern

Aug 2017 - Sep 2018

### Cognizant Technology Solutions | India

- Delivered business-ready Tableau and Power BI dashboards by integrating SQL Server data sources, giving stakeholders real-time KPI visibility and cutting manual reporting delays by 40%.
- Played a key role in migrating on-premise financial datasets to Azure SQL Data Warehouse, which reduced infrastructure costs by 35% and improved performance for enterprise reporting workloads.
- Ensured timely availability of operational metrics by processing batch and incremental datasets in Databricks environments, increasing data freshness by 30% for analytics consumers.
- Improved analyst productivity by redesigning SQL Server data marts with optimized indexing and partitioning, reducing query execution time by 35% for portfolio and financial analysis.
- Strengthened trust in executive reporting by automating ETL workflows with SSIS and Python data checks, lowering data reprocessing failures by 25% across scheduled runs.
- Supported faster ad-hoc and event-driven analysis by implementing MongoDB lookup patterns for transactional data, improving query responsiveness for business and analytics teams.

---

## PROJECTS

### Enterprise Generative AI Analytics Assistant

- Built an enterprise analytics assistant by integrating GPT-4 with LangChain, FAISS, and Snowflake, allowing users to retrieve governed business data through natural-language queries without direct SQL access.
- Enabled secure and scalable access by deploying API services on Azure Functions with CI/CD automation, supporting adoption by 1,000+ users across finance, operations, and executive teams.
- Improved analytical response quality by embedding semantic search with Pinecone, reducing dashboard query turnaround by 60% while increasing contextual relevance of retrieved insights.

### AI-Driven Financial Forecasting Platform

- Developed interactive Power BI dashboards connected to Snowflake and SQL Server, providing leadership with continuously updated views of revenue, expense, and profitability trends.
- Increased forecast reliability by applying Prophet and ARIMA models orchestrated through LangChain workflows, improving quarterly revenue prediction accuracy by 18%.
- Ensured timely data availability by automating refresh and orchestration using Airflow and SQL pipelines, cutting manual reporting effort by 40% across recurring executive reports.

### Generative AI Customer Insights Assistant

- Created a GPT-4-powered analytics agent with LangChain to analyze large-scale retail POS data, enabling identification of cross-sell and upsell patterns for targeted marketing execution.
- Enhanced insight retrieval by integrating Pinecone embeddings with vector search, improving association accuracy by 60% for product and customer behavior analysis.
- Delivered Tableau dashboards enriched with LLM-generated narratives, increasing campaign conversion effectiveness by 12% through clearer insight communication to marketing teams.

---

## EDUCATION

### Masters in Computer Science & Information Systems

Jan 2022 - May 2024

Saint Leo University | Tampa, FL, USA

### Bachelors in Computer Science

Sep 2014 - Aug 2017

Sabarmati University | Ahmedabad, Gujarat, India

---

## CERTIFICATIONS

- Generative AI with Large Language Models - **Coursera**
- Machine Learning Specialization - **Coursera**
- IBM AI Engineering Professional Certificate - **Coursera**
- AWS Generative AI Essentials - **Coursera**
- Databricks Generative AI Fundamentals - **Databricks Academy**
- Applied Data Science with Python - **Coursera**