SAI PAVAN ADITYA MANTRIPRAGADA

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Summary

Strategic **AI/ML Engineer** with a proven track record of architecting scalable data ecosystems and high-impact analytics solutions that drive enterprise-level decision-making. Expert in bridging the gap between robust data engineering (Snowflake, SnapLogic) and advanced ML research (Federated Learning, Differential Privacy). **Proactive leader** focused on transforming legacy descriptive workflows into predictive engines, directly enhancing operational efficiency and stakeholder ROI. Committed to delivering **privacy-first, production-grade AI** while driving cross-functional collaboration to leverage data as a core strategic asset.

Education

University of Essex   April 2024
Master of Science in Data Science (Distinction)   *Colchester, UK*
- **Specialization:** Advanced Machine Learning, Large-Scale Data Engineering, and Algorithmic AI Ethics.
- **Research Thesis:** Developed a **Privacy-Preserving ML framework** using Differential Privacy & Federated Learning to ensure GDPR compliance in decentralized datasets.
- **Achievement:** Graduated with Distinction; Specialized in cloud-native AI deployment strategies.

Osmania University   July 2021
Bachelor of Engineering in Computer Science (Distinction)   *Hyderabad, India*
- **Core Competencies:** Data Structures & Algorithms, Distributed Systems, and Artificial Intelligence.
- **Capstone Project: Augmented Reality Indoor Navigation**—Integrated Computer Vision (OpenCV) with ARKit for real-time spatial mapping (Published Research).

Technical Skills

Languages & Core: Python (Expert), SQL (Advanced), R, Bash, C++
AI & Generative Models: LLMs (GPT-4, Llama 3), Fine-tuning (PEFT/LoRA), RAG Pipelines, LangChain, Transformers, Computer Vision (OpenCV)
Machine Learning & Deep Learning: PyTorch, TensorFlow, Scikit-Learn, XGBoost, Differential Privacy, Federated Learning
MLOps & Production: CI/CD for ML, Model Monitoring (Drift/Bias), MLflow, DVC, Weights & Biases, Flask/FastAPI
Data Engineering & Cloud: Snowflake, SnapLogic, Spark, AWS (SageMaker, Lambda, S3), Docker, Kubernetes, Terraform (IaC)
Data Governance & Analytics: Vector Databases (Pinecone, Milvus), Differential Privacy Frameworks, Power BI, Advanced Statistical Modeling

Experience

Zensar Technologies   June 2025 – Present
AI − ML Engineer   *Hyderabad, India*
- **Strategic Data Architecture:** Architected end-to-end automated data pipelines using **SnapLogic and Python** to ingest high-velocity Salesforce CRM data into **Snowflake**, reducing data latency and accelerating executive reporting cycles by 40%.
- **Enterprise BI Strategy:** Spearheaded the development of a real estate analytics suite, delivering high-fidelity dashboards that provide cross-functional stakeholders with actionable insights into portfolio performance and market trends.
- **Predictive Roadmap Leadership:** Leading the technical transition from descriptive metrics to **predictive modeling frameworks**, deploying ML-driven forecasting to optimize asset management and drive long-term strategic investment outcomes.
- **System Integration:** Engineered a seamless data bridge between Salesforce and the proprietary 'Inspace' application, centralizing disparate data streams into a unified source of truth to empower real-time, data-driven operational decisions.

Greene King   April 2024 – May 2025
Inventory & Supply Chain Data Analyst   *London, UK*
- **Demand Forecasting:** Deployed an ML-driven forecasting engine using **AWS SageMaker** and Time-Series analysis, resulting in a **7% reduction in overstock costs** and significantly improving supply chain resilience across regional hubs.

- **Revenue Optimization:** Developed sophisticated customer segmentation models utilizing **Scikit-Learn**, which refined targeted marketing strategies and directly contributed to an **18% increase in campaign conversion rates**.
- **Churn Mitigation:** Architected a predictive retention framework using **XGBoost and Random Forest** to identify at-risk accounts, successfully reducing customer churn by 12% through proactive, data-informed intervention strategies.
- **Process Automation:** Optimized internal data workflows by replacing manual SQL/Python scripts with automated ETL triggers, slashing report generation time from **120 minutes to under 10 minutes** for the supply chain leadership team.

Cognizant   March 2021 – July 2022
Programmer Analyst   *Chennai, India*

- **System Reliability:** Managed critical enterprise content management systems (Documentum, xPlore), maintaining a **95% resolution rate** for complex technical issues within strict SLA parameters for global clients.
- **Workflow Engineering:** Redesigned document rendition workflows to improve conversion speeds, achieving a **30% reduction in processing errors** through systematic optimization of DocShifter and Insight platforms.
- **SAP Integration:** Facilitated the synchronization of SAP-Documentum metadata via the ASSAP framework, automating manual data entry processes and increasing overall data integrity by reducing human intervention by 40%.

Projects

Enterprise RAG Engine for Legal & Patent Intelligence | *LangChain, Pinecone, Llama-3, FastAPI, Docker*
- Architected a **Retrieval-Augmented Generation (RAG)** system to automate the summarization of 500k+ patent documents, utilizing **Vector Databases** for sub-second semantic search and context retrieval.
- Fine-tuned Large Language Models using **QLoRA** to improve legal terminology accuracy by 40%, significantly reducing the "hallucination" rate compared to out-of-the-box foundation models.
- Deployed the solution as a microservice-based architecture, reducing manual document review time by 60% and enabling scalable, real-time query handling via an optimized API for legal researchers.

Privacy-Preserving AI Framework (Production-Grade) | *PySyft, Federated Learning, Differential Privacy*
- Developed a decentralized training framework to enable model training on sensitive financial and healthcare datasets while maintaining strict **GDPR and SOC2 compliance** through Differential Privacy mechanisms.
- Implemented **Federated Averaging (FedAvg)** algorithms, allowing multiple data silos to contribute to a global model without raw data exchange, maintaining a 92% accuracy rate compared to centralized training.
- Packaged the solution into a reusable Python library for data anonymization, providing automated noise-injection and epsilon-budget tracking to prevent membership inference attacks in production environments.

MLOps Pipeline for Real-Time Predictive Maintenance | *MLflow, AWS SageMaker, Kubernetes, DVC*
- Engineered a robust **MLOps lifecycle** to automate the deployment of predictive models, integrating **CI/CD pipelines** that handle automated retraining upon detecting data drift or performance degradation.
- Utilized **Kubernetes** for container orchestration and AWS SageMaker for scalable inference, ensuring the system could handle a 300% surge in request volume while maintaining low-latency response times.
- Reduced technical debt by implementing **Data Version Control (DVC)**, ensuring 100% reproducibility of experiments and enabling seamless rollbacks of model versions in complex enterprise environments.

Autonomous Inventory Optimization Engine | *PyTorch, Transformer-based Time Series, AWS Lambda*
- Designed a high-dimensional forecasting engine using **Temporal Fusion Transformers**, outperforming traditional ARIMA/LSTM models by 25% in capturing seasonal demand fluctuations for supply chain logistics.
- Integrated a serverless inference layer using **AWS Lambda**, optimizing cloud compute costs by 30% while delivering real-time stock-out risk scores to regional warehouse management dashboards via Power BI.
- Directly influenced operational efficiency by reducing overstocking costs by 15%, providing business stakeholders with a probabilistic view of inventory needs through an interactive and scalable interface.

Leadership & Recognition

Operations Head: Established the **Matrusri Developer Space**, a technical community of 200+ members; orchestrated workshops on Cloud Computing and AI to bridge the industry-academia gap.

Open Source Contributor: Actively developing a Python-based utility for **Differential Privacy** to assist in GDPR-compliant data masking (Upcoming Publication tie-in).

Awarded: Nominated for **Best Student Award** by the Institution of Engineers (India) for excellence in technical leadership and research innovation (2021).

Certifications

Microsoft Certified: Azure AI Engineer Associate (AI-102): Validated expertise in building, managing, and deploying AI solutions using Azure Cognitive Services and Azure OpenAI.

Microsoft Power BI Data Analyst (PL-300): Certified in designing enterprise-grade BI solutions, advanced data modeling, and delivering actionable insights for stakeholders.

Microsoft Certified: Azure Data Scientist Associate (DP-100): Specialized in designing and implementing data science solutions and machine learning workloads on the Azure platform.

Snowflake Pro Core Certification: Advanced proficiency in Snowflake cloud architecture, performance tuning, and scalable data warehouse optimization in multi-cloud environments.

Publications & Research

Federated Learning for Decentralized Data Privacy | *In Press (2026)*: Developed a novel framework for cross-silo model training that minimizes communication overhead while maintaining 90%+ accuracy.

Adaptive Differential Privacy in Financial Datasets | *In Press (2026)*: Researching epsilon-budget optimization to balance data utility and privacy in high-dimensional financial records.

Augmented Reality Indoor Navigation System | *IRJMETS, Vol. 3 (2021)*: Published research on computer-vision-based localization using OpenCV and feature extraction for offline navigation.