HARSHITH GADE
AI/ML Engineer | Machine Learning Engineer | Data Scientist
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PROFESSIONAL SUMMARY

AI/ML Engineer with 3+ years of experience designing and deploying machine learning solutions across automotive manufacturing, industrial AI, and financial services. Proven expertise in predictive maintenance, computer vision, NLP, and MLOps with hands-on experience in building scalable AI systems on cloud and edge environments. Skilled in Generative AI, LangChain, real-time AI, and delivering measurable business outcomes. Adept at collaborating with cross-functional teams, mentoring junior talent, and driving AI innovations that transform operations.

TECHNICAL SKILLS

Programming & Scripting: Python, SQL, PySpark, R, Bash

Machine Learning & Deep Learning: scikit-learn, TensorFlow, PyTorch, Keras, XGBoost, LightGBM, CatBoost, YOLOv5, CNN, RNN, LSTM, Isolation Forest, Transformers, Ensemble Methods, AutoML

Natural Language Processing & Generative AI: Hugging Face Transformers, LangChain, Prompt Engineering (Zero-shot, Few-shot, Chain-of-Thought), Retrieval-Augmented Generation (RAG), BERT, OpenAI API, spaCy, NLTK, Named Entity Recognition (NER), Text Summarization, Sentiment Analysis, Document Intelligence

Computer Vision: YOLOv5, OpenCV, Grad-CAM, Image Classification, Defect Detection, OCR Automation

Big Data & Distributed Computing: Apache Spark, Databricks, Polars, Kafka, Hive, Hadoop, Snowflake, Pandas, NumPy

Cloud Platforms & Services: AWS (SageMaker, Lambda, S3, EC2), Azure (ML Studio, Data Factory, Synapse), GCP (basic exposure)

MLOps, CI/CD & Model Deployment: MLflow, Feast (Feature Store), Kubeflow, Docker, Kubernetes, Airflow, Prefect, Jenkins, GitHub Actions, Azure DevOps, Edge AI Deployment, Model Monitoring, Fairness & Bias Detection, AI Ethics

Experiment Tracking & Evaluation: Weights & Biases (W&B), MLflow, A/B Testing, Cross-Validation, Hyperparameter Tuning, Model Drift Detection, Explainability (SHAP, LIME, Grad-CAM)

Vector Databases & Search: Pinecone, FAISS, ChromaDB, Neo4j, OpenSearch

API Development & AI Agent Frameworks: FastAPI, Flask, Azure Functions, ReAct Framework, AI Agent Orchestration

Data Visualization & Business Intelligence: Power BI, Tableau, Matplotlib, Seaborn, Plotly, Executive Dashboards

Business Impact & Communication: ROI Tracking, Cost Optimization, Process Automation, Agile/Scrum Collaboration, AI Solution Storytelling

PROFESSIONAL WORK EXPERIENCE

Ford Motor Company| AI/ML Engineer | Dearborn, MI Mar 2024 – Present

Responsibilities:

- Designed and deployed **predictive maintenance models** using **LSTM**, **XGBoost**, and **Isolation Forest** to forecast equipment failures in automotive manufacturing, reducing downtime by approximately **30%** and optimizing maintenance schedules.
- Built **computer vision pipelines** with **YOLOv5** and **OpenCV** for **real-time defect detection** in vehicle assembly lines, achieving over **35% improvement** in inspection accuracy and reducing manual quality control efforts.
- Automated **IoT sensor data ingestion and processing** using **Apache Spark**, **Databricks**, and **AWS SageMaker**, supporting scalable model training and real-time inference for high-frequency telemetry streams.
- Developed and productionized AI models using **MLflow**, **Docker**, **Kubernetes**, and **GitHub Actions**, ensuring **continuous delivery (CI/CD)** and deployment across **cloud and edge environments**.
- Created interactive dashboards in **Power BI** and **Tableau** to visualize **real-time equipment health, production metrics**, and **AI-driven insights** for executive and plant management teams.
- Integrated advanced **feature engineering** techniques and implemented **cross-validation, A/B testing, and model drift detection** to maintain high model performance and compliance with industry standards.
- Applied **LangChain**, **Prompt Engineering**, and **Hugging Face Transformers** to enhance **NLP-based quality report analysis** and automate service log interpretations in manufacturing operations.
- Collaborated with **cross-functional engineering, operations, and data teams** in **Agile sprints** to deliver AI solutions that drive operational efficiency and cost savings.
- Documented **model architectures, MLOps workflows, and validation protocols** to ensure **reproducibility, audit readiness**, and team knowledge sharing.
- Implemented **model monitoring pipelines** to track **performance drift**, enabling proactive model updates and minimizing operational risk.
- Applied **fairness checks and bias detection** techniques to ensure **responsible AI deployment** in manufacturing decision systems.

- Applied **SHAP** and **Grad-CAM** to improve **explainability** and **interpretability** of AI models for enhanced transparency in decision-making.

Environment: Python, SQL, Apache Spark, Databricks, AWS SageMaker, YOLOv5, OpenCV, Transformers, LangChain, Prompt Engineering, MLflow, Docker, Kubernetes, Airflow, Tableau, Power BI, Model Validation, Feature Engineering, A/B Testing, Agile, CI/CD, Edge AI

Cognizant Technology Solutions | AI/ML Engineer | India Jun 2021 – Jul 2023

Responsibilities:

- Developed an **AI**-based document automation system using **NLP** tools such as **spaCy** to efficiently extract and classify **financial** documents at scale.
- Developed robust **ETL pipelines** using **PySpark** to streamline **data processing** and enhance document workflow, which supported more accurate **analytics** and timely decision making.
- Built and deployed **supervised machine learning** models with **scikit-learn** and **TensorFlow** to identify anomalies in banking transactions, providing **reliable** early warnings for **potential fraud**.
- Automated **data cleansing** and feature **engineering** procedures in **Python** and **SQL**, enhancing **data reliability** and model readiness for subsequent **analytics**.
- Set up **deep learning** models as **RESTful APIs** using **Docker**, allowing users to make real-time **predictions** in a **banking** analytics system.
- Used **GitHub Actions** and **Jenkins** to help automate and manage regular updates and releases of **models** into production.
- Built interactive dashboards with **Power BI** and **Matplotlib** for **visualization** of **risk** patterns and **model performance**, empowering business stakeholders with actionable insights.
- Implemented **model validation** protocols including **statistical hypothesis testing**, **cross-validation**, and **drift** detection to ensure regulatory compliance and stability.
- Managed **version control**, documentation, and **code reviews** on **GitHub**, ensuring **quality**, traceability, and collaboration across distributed teams.
- Collaborated with **cross-functional** product teams using **Agile methodologies** for requirements **gathering**, sprint planning, and **project delivery**.

Environment: Python, SQL, PySpark, scikit-learn, TensorFlow, spaCy, Hugging Face Transformers, Power BI, Matplotlib, Docker, REST APIs, GitHub Actions, Jenkins, Model Validation, Data Engineering, Agile

EDUCATION

- **Master of Science (M.S.), Data Science**
  New Jersey Institute of Technology, Newark, NJ — Dec 2024
- **Bachelor of Technology (B.Tech.), Electronics and Communication Engineering**
  Geethanjali College of Engineering and Technology, Hyderabad, India — May 2021

PROJECTS:

- Developed machine learning models (LSTM, ARIMA) for stock prediction with sentiment analysis, achieving high forecasting accuracy.
- Designed an end-to-end image classification pipeline using AWS EC2, S3, SQS, and Rekognition for real-time processing and scalable deployment.

More projects: github.com/HARSHITH21

Certifications:

- **AWS Certified Machine Learning – Associate**