Samhitha Nuka

samhithanuka51@gmail.com | +1 812-361-5059 | SamhithaNuka | github.com/snuka75 | Samhitha Nuka

EDUCATION

MS in Data Science, *Indiana University Bloomington* Aug 2023 – May 2025 | Bloomington, United States
GPA: 3.6/4

Bachelor's of Technology in Electronics and Communication Engineering, Aug 2017 – Jun 2021 | Hyderabad, India
VNR Vignana Jyothi Institute of Engineering and Technology
GPA - 9.2/10

SKILLS

Data Engineering: ETL/ELT Pipeline Development (Databricks, Apache Spark, Informatica), Data Warehousing (Snowflake, Redshift, BigQuery), Batch & Stream Processing (Kafka, Hadoop), NoSQL Databases (MongoDB, Cassandra), Data Orchestration (Airflow), **Programming:** Python, SQL, R, Java, JavaScript, PHP, HTML, CSS, Bash, **Machine Learning & AI:** Supervised & Unsupervised Learning, Random Forest, SVM, K-Means, XGBoost, CNN, LSTM, Transformers, TensorFlow, PyTorch, Scikit-learn, **Generative AI & Agentic Systems:** LLMs (Gemini Pro, Gemma, Groq), Prompt Engineering, Retrieval-Augmented Generation (RAG), FAISS, LangChain, Autonomous Agents, Agentic AI Workflows, **MLOps & Cloud Platforms:** AWS (SageMaker, Lambda, Glue, S3, Athena), Azure (Databricks), GCP (BigQuery, Vertex AI), CI/CD for ML Pipelines, Model Deployment, Monitoring & Versioning, **Data Analysis & Visualization:** Excel (Pivot Tables, Power Query, VLOOKUP), Tableau, Power BI, Looker Studio, Pandas, NumPy, Matplotlib, Seaborn, **Web Development & APIs:** Spring Boot, Node.js, REST APIs, SOAP, OpenText Content Server 20.4

WORK EXPERIENCE

Indiana University Bloomington, *Graduate Research Assistant* Jan 2025 – present | Bloomington, United States

- Built a Python pipeline to process and label over 10,000 time-series events, preparing data for classification based on temporal sequence patterns.
- Engineered 15+ statistical features (e.g., inter-event intervals, rolling variance, delta rates) and trained Random Forest, SVM, and Logistic Regression models, achieving **92% accuracy** with **5-fold cross-validation** and **GridSearchCV**.
- Modeled temporal trends using linear regression, yielding an **average R^2 of 0.87** and identifying timing anomalies through residual analysis.
- Created 10+ visualizations with Matplotlib and Seaborn to explain model performance, feature contributions, and temporal behavior to non-technical stakeholders.

Cognizant Technology Solutions, *Junior Machine Learning Engineer* Aug 2021 – Jul 2023 | Chennai, India

- Catalyzed the integration of OpenText ECM with AWS SageMaker, creating **42+ RESTful APIs** to automate data extraction and analysis, establishing a reusable integration standard.
- Enhanced legacy systems to support ML workflows, resulting in a **30% improvement in processing efficiency** and a **40% boost in search index speed**.
- Orchestrated **serverless inference endpoints** using API Gateway and Lambda, sustaining **<100ms latency**, **99.9% uptime**, and handling **500+ concurrent requests daily** for reliable ML pipeline execution.
- Implemented real-time monitoring with Amazon CloudWatch and automated deployment with AWS CodePipeline, accelerating model release cycles and ensuring **production-grade MLOps**.

ACADEMIC PROJECTS

YOLOv7-Based Object Detection for Face Mask Compliance, *YOLOv7 | Computer Vision | OpenCV | CNN | Tensorflow*

- Fine-tuned YOLOv7 on a custom Kaggle face mask dataset annotated using CVAT, **achieving ~84% mAP@0.5** and strong real-world detection accuracy.
- Optimized training pipeline with **data augmentation, hyperparameter tuning**, and performance tracking using TensorBoard.

Blog Generation using Amazon Bedrock and LLaMA, *Amazon Bedrock | LLaMA 3 70B Instruct | AWS Lambda| API Gateway | Amazon S3*

- Built a serverless blog generator using AWS Lambda, API Gateway, and Bedrock (LLaMA 3 70B), **achieving <200ms latency** with zero infrastructure overhead.
- Integrated Postman for testing and S3 for logging, enabling full prompt/response traceability and scalable LLM deployment.

End-to-End AI Application Suite for Multimodal Interaction, *Streamlit | Gemini Pro/Flash | FAISS | Groq | LLM*

- Developed a suite of 4 AI-powered web applications using Streamlit, enabling natural language Q&A, PDF analysis, image interpretation, and no-code SQL query generation with Gemini Pro/Flash and SQLite.
- Integrated Groq and Gemma for high-speed document processing with response times as low as **30–50 milliseconds**, and leveraged **FAISS** to enable semantic search across 30+ documents with sub-second retrieval times.

NYC Crime Analytics Dashboard,Cloud-Based Public Data Pipeline, *BigQuery | SQL | Looker Studio | ETL | Feature Engineering | GCP*

- Built an end-to-end ETL pipeline to ingest and transform 7M+ NYC crime records using 12+ SQL-based feature engineering steps.
- Designed a 3-page interactive Looker Studio dashboard with 20+ visualizations to analyze crime trends by time, location, and demographics.

Credit Card Fraud Detection with PCA, SMOTE, and Ensemble Learning, *PCA | SMOTE | XGBoost | Ensemble Learning*

- Built fraud detection pipeline achieving **95.6% F1-score**, using PCA and SMOTE on imbalanced datasets.
- Compared Random Forest, XGBoost, and Logistic Regression, deploying a stacked model that Increased **recall by 12%**.

Scalable Data Pipeline Development for Real-Time Traffic Analytics, *Azure Databricks | SparkSQL | CI/CD | ETL*

- Engineered a real-time ETL pipeline handling **100,000+ traffic records/day**, using Spark SQL and Medallion Architecture on Azure.
- Designed and deployed 3 Power BI dashboards that improved decision-making speed by **30%**.
- Automated deployments via Azure DevOps, reducing manual deployment time by **80%**.

CERTIFICATIONS

- AWS Machine Learning Engineer – Associate
- Databricks Data Engineer Associate
- Google Data Analytics Professional Certificate
- IBM Python for Data Science and AI
- Machine Learning offered by Stanford University
- Rest API (Intermediate) assessment in HackerRank
- OpenText Content Server Developer v20.4