

# SAI KIRAN GOPU

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## Education

**Rochester Institute of Technology**

*Master's in Data Science*

**August 2024 – December 2026**

*GPA: 4.0*

## Experience

**EFORGE NEXGEN INNOVATIONS**

**September 2023 – July 2024**

*Machine Learning Engineer*

*Hyderabad, India*

- Engineered and deployed ML pipelines in Python (Pandas, Scikit-learn) for time series forecasting using regression and ARIMA models, delivering actionable environmental predictions and collaborating with cross-functional teams.
- Optimized data ingestion pipelines using SQL and AWS IoT Core to ensure seamless time-series data capture, maintained high predictive accuracy through automated retraining pipelines.
- Applied MLOps practices for deploying forecasting models via AWS Elastic Beanstalk and automated retraining with Docker, performed SQL-based analysis for forecasting and decision support.
- Built Tableau dashboards using Azure SQL and DAX to visualize time-series data trends, supporting actionable insights for decision-making, demonstrated strong analytical skills and attention to detail.

## Technical Skills

**Languages:** Java, Python, C++, R, SAS, Julia, JavaScript, Object Oriented Programming (Python, Java).

**Visualization tools & Frameworks:** Keras, SciKit-Learn, TensorFlow, Flask, PyTorch, EDA, MS Office, MLOps, Pandas, MLflow, Spark, Kafka, NumPy, matplotlib, seaborn, Airflow, Tableau, Power BI, Gephi, QGIS, R studio.

**Databases & Technologies:** SQL, MySQL, MongoDB, NoSQL, Docker, Git, AWS, Azure, MS Excel, BigQuery.

**ML Algorithms/Techniques:** Regression, Classification, Clustering, Recommender Systems, Deep Learning, NLP, CNN, Transfer Learning, Reinforcement Learning, JAX, Time Series Forecasting (ARIMA, SARIMA), spaCy, Transformers.

## Projects

**JOINT INTENT DETECTION SYSTEM | [GitHub](#)**

*Domain: PyTorch, NLP, LLM, HuggingFace, Transformers, API.*

**June 2025**

- Developed a scalable BERT-based LLM intent classification system for multilingual conversational AI, incorporating out-of-scope detection to reduce false positives and improve chatbot reliability.
- Constructed end-to-end pipelines for preprocessing and feature extraction with 96.5% accuracy for intent detection.
- Deployed the system as a RESTful API on Heroku for real-time intent detection and slot filling integration.

**SKIMLIT PROJECT USING NLP | [GitHub](#)**

*Domain: NLP, LSTM, Deep Learning, Transfer Learning.*

**March 2025**

- Built a hybrid-embedding LSTM NLP model to classify biomedical abstracts into structured segments like objectives, methods, and results sections, reducing literature review time by 33% and improving research productivity.
- Achieved 83% accuracy using Hybrid Embeddings Approach combining token, character, and position-level embeddings.
- Leveraged TensorFlow's tf.data API for efficient data pipeline and scalability during model training.

**END-TO-END CHICKEN DISEASE CLASSIFICATION | [GitHub](#)**

*Domain: AWS, CI/CD Pipeline, Modular Coding, CNN.*

**December 2024**

- Built a VGG16-based CNN model using transfer learning to detect poultry diseases with 87% accuracy, demonstrating strong potential for early diagnosis in rural farm settings and improved agricultural health monitoring.
- Optimized data pipelines with DVC for efficient dataset management, deploying via CI/CD pipeline on AWS EC2.
- Integrated Flask web app with Docker and loggers for efficient tracking, deployment, and consistency.

**FOOD VISION 101 USING TRANSFER LEARNING | [GitHub](#)**

*Domain: Python, CNN, Google Colab, Tensorflow.*

**November 2024**

- Engineered a deep learning model with 79.2% accuracy, surpassing the 77.4% benchmark of the Deep Food paper.
- Implemented advanced techniques like mixed precision training, feature extraction, and TensorBoard monitoring.
- Integrated callback functions like Model Checkpoint and Early Stopping to enhance model optimization.

## Certifications

- AWS Certified Cloud Practitioner** - Issued by Amazon Web Services - July 2, 2025.
- Machine Learning Specialization** - Issued by DeepLearning.AI, Stanford University.

## Research Papers

- Co-authored the paper "A Machine Learning Perspective to Foster Accuracy and Prediction of Urbanization using Automatic Weather Station," published in the Scopus-indexed journal Mathematical Statistician and Engineering Applications (Vol. 71, No. 4). Link: [Journal](#)