

# SAI NALADALA

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## WORK EXPERIENCE

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### Inspire Brands

January 2023 – Present

*Machine Learning Engineer*

USA

- Developed a real-time drive-thru transcription pipeline using **OpenAI Whisper** for streaming speech-to-text and a fine-tuned **GPT-3.5-turbo** sequence tagger to extract menu items, quantities, and modifiers with ninety percent accuracy, seamlessly integrating parsed orders into the POS.
- Containerized the inference stack with **FastAPI** microservices and **Kafka** on **Kubernetes**, achieving sub-500 ms end-to-end latency and eliminating ninety-five percent of manual order-entry errors.
- Built real-time data pipelines using **Kafka** and **Kinesis** to ingest POS, IoT sensor, and external data into **Feast (Redis/Redshift)** for sub-10 ms feature lookups.
- Developed a hybrid time-series forecasting system combining **Prophet** (daily refit), **LSTM** (online mini-batch updates), and **XGBoost** (nightly retrain to **ONNX**), achieving less than 100 ms p95 inference latency.
- Deployed a **Seldon Core** REST API to serve multi-horizon store-level forecasts (ensemble of Prophet + LSTM + XGBoost), enabling **Gurobi**-driven labor scheduling and automated inventory reorder triggers.
- Implemented **ADWIN**-based drift detection on live prediction errors, orchestrated daily ensemble weight recalibration (seven-day RMSE), and set up real-time monitoring with **Prometheus** and **Grafana**.
- Collaborated with product and DevOps teams to integrate forecasting APIs into the inventory management system, reducing stock-out incidents by five percent.

### Cognizant

January 2021 – July 2022

*Machine Learning Engineer*

India

- Engineered a real-time **OCR** pipeline using **OpenCV** and **AWS Textract** to extract key personal identifiers with greater than ninety-five percent accuracy.
- Developed a **FastAPI** microservice to normalize extracted text and perform instant verification against the Emblem Health registry, maintaining end-to-end latency of less than three seconds.
- Built a **TensorFlow**-based fraud-detection prototype on unstructured medical records, increasing anomalous claim detection accuracy by ten percent and accelerating investigations by twenty-five percent.
- Engineered an **XGBoost**-based predictive risk-scoring model using **Python** and **scikit-learn** to identify high-risk members, improving early intervention rates by fifteen percent.
- Automated deployment and monitoring with **MLflow** and **Grafana** dashboards, ensuring production models maintained ninety percent accuracy over a six-month period.
- Collaborated with data engineering and clinical teams to validate data pipelines and streamline feature engineering, reducing end-to-end training time by thirty percent.

## EDUCATION

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University of Missouri–Kansas City, Kansas City, MO

August 2022 – May 2024

*Master of Science in Computer Science*

## TECHNICAL SKILLS

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- **Machine Learning/AI:** Supervised/Unsupervised Learning, Predictive Modeling, LLMs (GPT-4, Whisper, GPT-3.5-turbo, LLaMA, Mistral 7B), RAG, Transformers (BERT, fine-tuning), Computer Vision (OpenCV, AWS Textract), Time Series Forecasting (Prophet, LSTM, XGBoost)
- **Deep Learning & NLP:** PyTorch, TensorFlow, Keras, ONNX, Hugging Face Transformers, spaCy
- **MLOps & DevOps:** Docker, Kubernetes, MLflow, Seldon Core, CI/CD (Git, GitHub Actions), Model Monitoring (Prometheus, Grafana), Feature Store (Feast), Vector DB (Pinecone), ADWIN Drift Detection
- **Cloud Platforms:** AWS (SageMaker, Textract, Lambda, Redshift), GCP (Vertex AI, BigQuery), Azure ML
- **Programming & Tools:** Python (FastAPI, scikit-learn, PySpark), SQL, Java, Git, Kafka, Kinesis
- **Data Engineering:** Apache Spark, Airflow, ETL Pipelines, Data Warehousing (Redshift, Redis)
- **Optimization & Scheduling:** Gurobi
- **Analytics & Visualization:** Tableau, Power BI, A/B Testing, Grafana, Prometheus Dashboards

## CERTIFICATIONS

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- Udemy – AWS Certified Machine Learning Specialty
- Tableau Desktop Specialist