Saikrishnan Sankar

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Technical Skills

Programming Languages: Python, Java, C#, C++, JavaScript, TypeScript, Gherkin, SQL, Bash, HTML, CSS, R
Frameworks: PyTorch, Tensorflow, Streamlit, Matplotlib, Seaborn, Sklearn, Pandas, PySpark, Plotly, Dash, React
Tools: Keras, Gitlab, Docker, EC2, S3, SQS, Kafka, Tableau, Power BI, Azure ML, PostgreSQL, MongoDB

Education

Georgia Institute of Technology   *August 2024 – May 2026*
Master of Science, Computer Science   ***GPA**: 4.0 / 4.0*
Coursework: Deep Learning, Machine Learning, Game AI, Data & Visual Analytics

Experience

Georgia Institute of Technology   *October 2024 – Present*
Graduate Research Assistant under prof. Benoit Montreuil   Atlanta, USA
- Pioneered stochastic Dijkstra's algorithm for durable routing across 50 Georgia hub intersections, reducing freight ETA variability by 28% and optimizing last-mile logistics in congested metropolitan corridors.
- Crafted an interactive Dash visualization platform presenting 3 temporally-optimized routes per O-D pair, enabling 15% more efficient dispatch scheduling across hyperconnected freight networks.
- Synthesized traffic analytics to redistribute freight across roadways, improving delivery by 22% in PI framework.

Avalara   *Feb 2022 – July 2024*
Software Development Engineer II   Pune, India
- Built "Extractor Studio (ES)," an ETL pipeline transforming over 1.2M transactions daily into AvaTax targets.
- Established a dynamic mapper for the transform layer, driving adoption across 25+ projects company-wide.
- Deployed Extractors for 400+ enterprise clients, including Shopify, Facebook, and Walmart.
- Elevated automation coverage by 55% through Behavior-Driven Development (BDD) testing using Playwright.

Research Work

CLERS-Net: A Deep learning ensemble model for real-time stock price forecasting 📄   *May 2022*
Bachelor's Thesis
- Created CLERS-Net, an ensemble model combining CNN, LSTM, and Random Forest Regressor using Flair NLP on NIFTY-50 stock data, reducing forecasting MAPE from 3.35% to 2.03%.

SOMPS-Net: Attention-based social graph framework for health fake news detection 📄   *Dec 2021*
The Australasian Data Mining Conference (AusDM), 2021
- Constructed SOMPS-Net, a graph-based framework combining Social Interaction Graphs (SIG) and Publisher & News Statistics (PNS) with multi-head attention and GCNs for fake news detection.
- Outperformed leading models by 17.1% on HealthStory, achieving 79% accuracy within 8 hours of propogation.

Selected Projects

Improving Inference in Language Models beyond LayerSkip   *Ongoing*
- LLM Inference Optimization: Researching inference efficiency techniques beyond LayerSkip, including layer collapse and adaptive depth selection, to reduce computational overhead while maintaining model fidelity.
- Adaptive Neural Network Pruning: Exploring Adaptive Nonlinear Ordered Layering (ANOL) models to dynamically adjust transformer depth during inference, optimizing trade-offs between latency and accuracy.

Continual Learning with Multimodal concepts 📄   *Nov 2024*
- Developed a continual learning framework using image encoders (ViT, CLIP) and language encoders (BERT) to generate multi-modal embeddings for skin cancer classification and model interpretability.
- Performed post-hoc analysis with Grad-CAM to evaluate model performance, and used GPT-3 to generate concept sets and synthetic training data, improving the pipeline workflow by 50%.

Flight Delay Prediction 📄   *June 2020*
- Formulated a two-stage model with Random Forest Classifier (F1: 0.78) for delay prediction and Random Forest Regressor (R^2: 0.97, RMSE: 13.24) for delay estimation using flight and weather data.
- Engineered a data pipeline merging structured flight data and JSON weather data, applying SMOTE and Random Undersampling to handle class imbalance and enhance model accuracy.