MURUMALLA KRISHNAKANT ACHARY

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OBJECTIVE

Data Scientist with 3+ years of experience leveraging data analytics, machine learning, and statistical modeling to extract valuable insights and drive data-driven decision making.

EDUCATION

Master of Technology, Indian Institute of Technology (IIT), Kharagpur 2019 - 2021
Relevant Coursework: Data Analytics, Machine learning, Deep Learning, Regression and timeseries analysis

Bachelor of Technology, Indian Institute of Technology (IIT), Kharagpur 2016 - 2020
Relevant Coursework: Programming, Data Structure and algorithms, Probability and statistics

SKILLS

Technical Skills	Python, GO, SQL, Postgres, Elasticsearch, Kafka, Snowflake, Data bricks, REST API
Techniques	Data cleaning, EDA, Machine Learning, Neural networks, FM prompting and tuning
Tools	VScode, Jupyter, Git, Docker, Jira, Tableau, Kubernetes, AWS Sagemaker

EXPERIENCE

Data Scientist II Mar 2024 - Present
Honeywell Technology Solutions *Bangalore, India*

- Achieved **89%** accuracy in predicting quarterly sales for Honeywell using regression & time-series techniques.
- Estimated the impact of **economic indicators** in predicting sales at country level for different business units.
- Generated actionable insights, effectively streamlining the sales efforts and increasing revenue by **12%**.

Data Scientist July 2021 - Mar 2024
IBM *Pune, India*

Realtime Identity Threat Detector

- Achieved **99.4%** reduced response time for detection & mitigation of Identity attacks on **IBM Security Verify**.
- Developed a realtime ML models using efficient multi-consumer approach for kafka. Achieved **90%** reduction in compute resource requirements while deploying robust & scalable models that serves **15mn+** login events daily.
- Developed and **patented** the ensemble stacked autoencoder & classifier modelling technique to identify anomalous events in realtime. Deployed the models with **97% F1 score** using docker, Kubernetes and Jenkins pipeline.

Periodic Anomaly Detector

- Built and deployed a **timeseries based** statistical periodic anomaly detector, that runs every hour and generates **threat events** for anomalies detected in the past hour with actionable insights on locating the source of anomaly.
- Reduced time to action by more than 70% (i.e., to less than an hour) for IAM attacks and anomalies in ISV.
- Reduced false positive alerts by handling seasonality and implementation of techniques like dynamic thresholding.

Gen AI: Policy generator and Threat event summarisor

- Generated **IAM access policy JSONs** from natural language to help admins define policies efficiently, by prompting LLM models such as **Llama-2** and **IBM granite code** model with 83% accuracy.
- Developed an end-to-end working POC to **generate executive summaries** for threat events from a given time interval and provide key insights in natural language, by prompting and fine-tuning Llama-2 LLM models.

INTERNSHIPS/PROJECTS

Machine Learning Intern: IIT Kharagpur Jun 2020 - Oct 2020
Improving the accuracy of prediction for small datasets: Improved prediction accuracy for small datasets (e.g., eye-tracking data) by 3.17% (R^2: 91.4% vs. 88.23%) by applying a sequence of machine learning algorithms compared to a single Artificial Neural Network (ANN) model. Pre-trained individual layers within the ANN further enhanced performance. (Tobiie Pro eye sensor data, Virtual Reality reaction time estimation).

Research Intern: Nippon Koei Co. Ltd., Ibaraki, Japan May 2019 - July 2019
Analyzed climate change impacts on rice production in Punjab and Odisha. Developed novel adaptation strategies. Utilized time-series weather data (historical & future) from 8 GCMs to create climate indicators and estimated rice production loss thresholds. Applied bias-correction methods for improved data accuracy. Additionally, researched human survivability in New Delhi under projected wet-bulb temperature rise.

M-Tech Thesis: Crop yield Forecasting in Eastern India Jul 2020 - Apr 2021
Leveraged machine learning expertise to develop yield estimation frameworks for rice, potato, and mustard in Eastern India. Built linear, ensemble, and non-linear models (ANN with batch normalization and dropout) for accurate yield prediction. Extracted weather data features and utilized domain knowledge to simulate intra-seasonal crop yields using DSSAT software.

Bengali digit recognition Feb 2020 - Mar 2020
Developed a high-accuracy (92.3% test accuracy) Convolutional Neural Network (CNN) for Bengali digit recognition. Modified and optimized the LeNet architecture for this specific task. Employed data augmentation techniques (cropping, shearing, rotation) to improve model generalization. Utilized stochastic gradient descent optimizer and cross-entropy loss function.

Prediction of Customer Response for a Personal Loan Scheme Nov 2019 - Jan 2020
Built a customer response prediction model (F1-Score: 84%) for a new personal loan scheme using the TVS credit two-wheeler loan dataset. Employed various machine learning algorithms (Random Forest, XGBoost, KNN, etc.) and ensemble techniques like bagging for robust classification. Balanced the imbalanced dataset and implemented tenfold cross-validation for model generalization.

PATENTS

- **Realtime suspicious login traffic detection technique in an IAM platform:** A technique to identify malicious login requests in real-time using ML
- **Identifying Noisy subnets for policy finetuning:** A technique to identify and segregate noisy IPs and reduce false positive threat alerts.
- **Improvisation of Amber charkha:** Doubled productivity, reduced thread breakage and downtime, and improved ergonomics.

AWARDS & ACHIEVEMENTS

- Received **Architect's choice** award at IBM for developing innovative ML frameworks and micro-services to detect various Identity attacks (such as credential stuffing, password spraying, brute force etc).
- **Published an article** on ISV integration to external tools and SIEM platforms via Notification Webhooks. Won award for best blog in India Lab level in IBM security.
- **Conducted sessions** on AI-ML, Gen AI, and MDLC for CSMU college students during their industry visits.
- Secured 3rd rank in **Mengary Revenue Prediction** challenge hosted by Kaggle.