KRISHNA VARDHAN M

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SUMMARY

Results-driven **Software Engineer** with 4 years' experience at G-Think Inventors, specializing in leveraging **Python, ML (LSTMs), and AWS** to develop **innovative smart home energy management solutions**. Proven expertise in building robust **data pipelines**, **predictive models**, and **MLOps**, achieving significant energy savings and operational efficiency. Passionate about applying **Generative AI (LLM, RAG)** to **create intelligent, data-driven systems**. Eager to contribute to cutting-edge projects that blend software engineering with advanced analytics.

PROFESSIONAL EXPERIENCE

Software Engineer, G-Think Inventors | *Hyderabad, India* **Apr '20 – July '23**

- **Designed** and **implemented** interactive dashboards and automated report production, increasing user engagement with energy monitoring features by **15%. Created dynamic visualizations** of appliance usage, peak demand, and energy savings using **Python (Matplotlib, Seaborn, Plotly)** for a web-based reporting platform.
- **Developed and deployed** predictive models to estimate hourly electricity use at household and appliance levels. **Built and trained Long Short-Term Memory (LSTM) neural networks** using **TensorFlow** and **Scikit-learn**, integrating **time-series** and **meteorological data**. Adjusted hyperparameters to reduce forecast error, achieving a **20% RMSE reduction** in energy consumption projections. Enabled proactive adjustment of appliance schedules, saving consumers an average of **10% to 15%** on electricity bills.
- **Migrated and managed** the primary data analytics infrastructure to a **cloud-based** setting, improving **scalability** and **cost efficiency**. Utilized **AWS** services including **Lambda** for **serverless data processing**, **EC2** for **ML model training** and inference, and **S3** for scalable data lake storage. Configured **IAM roles** for secure access control, increasing data processing scalability by **400%** and decreasing infrastructure expenses by **18%.**
- Built a robust **MLOps** pipeline for model retraining, monitoring, and deployment. **Implemented CI/CD principles** using **AWS services (SageMaker, CloudWatch)** to automate model deployment and track performance. Maintained high predictive model accuracy over time, ensuring reliable energy optimization without manual intervention. Authored technical documentation for **MLOps pipelines** and **cloud infrastructure** to support team efficiency and knowledge transfer.

Software Engineer Intern, G-Think Inventors | *Hyderabad, India* **June '19 - Apr '20**

- **Created scalable and reliable** data engineering pipelines for **preprocessing** millions of daily data points**. Cleaned, transformed, and validated** high-volume time-series data using **Python (Pandas, NumPy)**, applying custom methods for missing value imputation and outlier detection.
- Ensured **data availability and quality**, reducing processing time by **30%** and facilitating prompt downstream analysis for energy-saving features. **Collaborated** with cross-functional teams to integrate energy management features into smart home systems.

PROJECTS

Research Tool| *LLM, Python, LangChain, Gen AI, RAG*

- **Developed** an **LLM-integrated** web application using a **RAG model (Python, LangChain, OpenAI, Streamlit)** to facilitate efficient research from web articles (HTML). **Containerized** the application using **Docker** and hosted it **on Google Cloud Platform (GCP).**
- **Converted** articles and prompts into **chunks**, **embedded** them **numerically**, and stored them in **FAISS (vector database)**. Identified relevant chunks from articles and processed them with an **LLM**, optimizing cost efficiency for **OpenAI Large Language Model (LLM) APIs.**

Restaurant Name and Menu Items Generator using LLM | *Python, LLM, Gen Ai, Streamlit*

- **Developed** a **Python-based text generation model** capable of generating unique restaurant names and diverse menu items. **Implemented** character-level text generation using **deep learning techniques**, showcasing understanding of **neural networks** and **sequential data processing**.
- **Trained** the **generative model** on a custom dataset of existing restaurant names and menu items to learn linguistic patterns. Applied skills in **data preprocessing, model training, and text-based generative AI applications.**

House Affordability and Price Prediction | *Python, MySQL, Power Bi, Flask*

- **Developed** a data-driven **analytics platform** leveraging Zillow's public data to analyze real estate trends and predict housing prices. Features tools for market forecasting, rent vs. buy affordability assessment, and **predictive modeling using Power BI, Flask, and Scikit-learn**.
- **Stored data** in a **MySQL database**, with functionality for sellers to post properties and manage applications, and for buyers to browse listings and apply directly. Improved user decision-making by providing predictive insights into real estate market trends.

TECHNICAL SKILLS

Programming and Tools: Python, Bash, C++, Java, JavaScript, Node.js, TypeScript, React, CSS, HTML, Spring Boot, Postman, Docker, Terraform
ML/AI and Data Science: Scikit-learn, Pandas, NumPy, PyTouch, Matplotlib, Generative AI (Gen AI), LLM, RAG, NLP (Natural Language Processing), TensorFlow, Feature Engineering, Data Engineering, Algorithm Development, Model Evaluation, Deep Learning, Data Integration, Data Mining
Database / Operating Systems: FAISS, PostgreSQL, MongoDB, MySQL, Linux, Windows
Cloud Technologies / Protocols: Amazon Web Services (AWS), Google Cloud Platform (GCP), Azure, MQTT, Fast API, HTTP, TCP/IP
Development and Coding Practices: CI/CD, Automation, TDD, JIRA, Git, GitHub, Design Patterns, Agile, SOLID, Code Reviews

EDUCATION

Masters in Big Data Analytics – University of Central Missouri, Missouri, United States | 3.4/4.0 **Aug '23 - May '25**
Relevant Coursework: Machine Learning and Deep Learning, Big Data Architecture, Data Analytics, Business Intelligence, Data Resource Management
Bachelor's in Computer Science and Engineering – Sreyas Institute of Engineering and technology, Hyderabad, India | 8.0/10 **July '16 - Apr '20**
Relevant Coursework: Distributed Systems, Operating Systems, Networking Fundamentals, Database Management, Virtualization, Project Management

CERTIFICATION

NVIDIA-Certified Associate Generative AI LLMs (NCA-GENL) **July '25**
Cisco Certified Network Associate – Routing and Switching: Introduction to Networks **June '18**
Python Programming – Tvashtaa Data Solutions **Sept '17**

PUBLICATION

Vardhan M.K., Nabi S.A. (2021) "NavRobotVac: A Navigational Robotic Vacuum Cleaner Using Raspberry Pi and Python," Springer **Oct '20**
(https://link.springer.com/chapter/10.1007/978-981-16-1502-3_17)