Venkata Sai Jagadeesh Dumpa

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Summary

Machine Learning Engineer skilled in large language models and retrieval-augmented generation systems. Solid foundation in OOP, with hands-on research and three IEEE published papers. Quick learner with a keen interest in ML and NLP, eager to apply extensive education to industry solutions. Proven communicator and team player, having led professionals from five organizations in Toastmasters International.

Education

B.Tech in Computer Science and Engineering (Sept 2021- July 2025)
Amrita Vishwa Vidyapeetham University
CGPA: 8.65, First Class with Distinction.

Exchange Program (Feb 2025 - July 2025)
University of Twente
- Engineered a **Beyond-Vanilla RAG** system using a custom **Knowledge Graph (NetworkX/GML)** and **Hybrid Semantic Search (FAISS)** to enable multi-hop reasoning over historical narratives.
- Developed sophisticated **Memory Orchestration** pipelines including entity-centric query expansion and **NLP-driven topic extraction** to provide high-quality, long-context awareness to Gemini 1.5 Pro.
- Optimized the intersection of **Structured Memory (Knowledge Graphs)** and **Unstructured Data** to improve narrative faithfulness and reduce hallucinations in streaming LLM environments.

Technical Skills

Data Structures & Algorithms | Machine Learning | Deep Learning | TensorFlow | NLP | RAG | SQL | Software Engineering | Agile Software Development

Programming Languages

Java | Python | C++ | C

Soft Skiills

Leadership | Public Speaking | Teamwork

Professional Experience

Standard Chartered
Apprentice- Technology
09/2025 – Present
- Worked on building an internal Retail & Wealth Banking (RW) Tool enabling admins to approve subscriber requests and operations teams to fetch reports, built using React and Spring Boot.
- Designed and integrated PostgreSQL database schemas to support efficient data retrieval.

Leadership

Toastmasters International
Area G3 Director
- As an Area G3 Director(2024-25), I served five corporate clubs with ~130 professionals, and leaders across the industry.
- Organized Feb 2024 Leadership Conclave with a team of four, over the course of three months, securing a keynote address and two executive-led panel discussions in a corporate venue.

Publications

Parkinson's Disease Diagnosis from Patients Speech Analysis (IEEE)
Used multiple learning algorithms to detect Parkinson's disease from patient speech analysis. Achieved **95% diagnostic accuracy** with **Random Forest** and **XGBoost** on the Oxford Parkinson's Disease Detection Dataset 197 instances, 22 features. Used **SHAP** to identify the **top 6 most influential features**.

Deep Learning-Based Analysis of Pediatric Pneumonia Detection in Children using Fine-tuned NasNetMobile Model (IEEE)
Performed a comparative study on **CNN** architectures for pediatric pneumonia detection. Fine-tuned **NasNetMobile** with **Mish activation**, **batch normalization**, and **dropout** on a **chest X-ray dataset** of **5,232 images**, achieving an **F-score** of **92%**.

Comparative Image Analysis of Chest X-RAY Image Encryption using Symmetric and Asymmetric Key Encryption Algorithms (IEEE)
Explored multilayer encryption strategies for medical image protection. Compared, and **analyzed AES** and **DES encryption** with **RSA** and **DSS digital signatures** on chest X-rays. **AES** with **RSA** yielded the best performance in decryption speed while ensuring **Confidentiality**, **Integrity**, and **Authentication** (CIA).