

# VARA PRASAD

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## PROFESSIONAL SUMMARY

Computer Science professional specializing in AI/ML and Data Engineering with expertise in LLM-powered systems, RAG architectures, and cryptographic applications. Proven track record implementing scalable ML pipelines using Python, TensorFlow, and cloud platforms, achieving 35% improvement in recommendation accuracy and 94% system reliability in production deployments.

## EXPERIENCE

### Texas Tech University

Aug 2023–Present

AI/ML Lab Student assistant, Advanced Technology Learning Center (IT Dpt.) | Python, SQL, Git, Pandas, NumPy

Lubbock, Texas

- Architected **scalable ETL pipelines** using **Python** and **SQL** for processing 10,000+ laboratory data records, reducing manual processing time by **30%** and enabling **real-time analytics** for research operations
- Orchestrated comprehensive data-labelling pipeline for **computer vision** capstone projects, implementing **Pandas**-based quality validation and **Git** version control to ensure dataset integrity
- Deployed and optimized **ML infrastructure** including Python, **JupyterLab**, and **TensorFlow** environments across 50+ workstations, resolving GPU-driver conflicts and maintaining 99% uptime for critical research operations

### REVA University

Jul 2022 – May 2023

Machine Learning Research Assistant | Python, TensorFlow, Keras, Deep Learning, Anaconda

Bangalore, India

- Developed a gesture recognition system using **CNN**, **LSTM**, and **GRU** neural networks that translates actions into speech with **95% accuracy**
- Implemented memory efficient **Keras** sequence techniques, reducing **neural network** training memory usage by **64%**

## ACADEMIC PROJECTS

### Privacy-Preserving Disease Risk Predictor | Python, Ten SEAL, CKKS, SQLite, Flask

- Engineered fully homomorphic encryption system using **CKKS scheme** to predict disease risk scores with **92% accuracy** while maintaining complete patient data privacy throughout computation
- Implemented client-server architecture with **TenSEAL library**, processing 500+ encrypted patient records and reducing data exposure risk by 100% through **encrypted healthcare analytics**

### LLM-based Network Security Chatbot | RAG, Lang Chain, FAISS, OpenAI API, Jupyter

- Developed **RAG-powered Q&A chatbot** integrating 200+ network security documents into **FAISS vector database**, achieving 88% query satisfaction rate through semantic search with **OpenAI embeddings**
- Engineered **hybrid retrieval system** with fallback architecture, reducing response time by **45%** and ensuring **95%** comprehensive response coverage with full source traceability

### Personalized AI Financial Advisor | Google GenAI API, SQLite, Alpha Vantage

- Built an AI Financial Advisor using **Google's GenAI API** and **Alpha Vantage API integration**, delivering personalized investment strategies and real-time stock analysis through advanced **prompt engineering** and **multi-intent query** processing
- Achieved **35% improvement** in recommendation accuracy by implementing **iterative user feedback loops** with **SQLite** database storage, enabling continuous model enhancement and personalized financial decision-making at scale

## SKILLS

- **Machine Learning & GenAI:** LLMs, Agents, RAG, Model Development, Model Evaluation, Neural Networks, Transformers, NLP
- **Data Analysis:** Exploratory Data Analysis, Hypothesis Testing, A/B Testing, Data Visualization, Python Data tools, Hadoop, PySpark
- **Programming & Cloud:** Python, SQL, Git, Amazon Web Services (AWS), Big Query, Docker, Kubernetes, Jenkins, Linux Commands
- **Libraries & Tools:** Databricks, OpenAI, Pandas, Excel, NumPy, Matplotlib, Hugging Face, PyTorch, TensorFlow, Keras, Scikit-Learn, Seaborn, OpenCV, Tableau, SageMaker, vLLM, TensorRT-LLM, Advance Excel

## EDUCATION

- Masters in computer science, Texas Tech University, Texas, United States – 2023-2025 | CGPA: 3.55  
Coursework: Operating System, DBMS, Cryptography, Artificial Intelligence, Algorithms, Neural Networks, Data Analysis
- Bachelors in Electronics and Computers, REVA University, Bangalore, India – 2019-2023 | CGPA: 9.14  
Coursework: Data Engineering, Machine Learning, Deep Learning, Web Development, Software Development, Data Science

## CERTIFICATIONS

- Google Data Analytics Professional Certification