# Harish Muthyala

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## Education

**Master's of Science in Computer Science,** *University of Houston* Aug. 2024 – May 2026
*Machine Learning, Generative AI, Advanced Operating Systems* | ***GPA:*** *3.8/4.0* *Houston, TX*

**Bachelors in Computer Science,** *Vellore Institute of Technology* Jul. 2018 – Apr 2022
*Design of Algorithms, Computer Networks, Artificial Intelligence* *Vellore, India*

## Technical Skills

**Languages**: Python, Java, C/C++, SQL (Postgres, DynamoDB), JavaScript, HTML/CSS, R
**Frameworks**: Langchain, RAG, MLOps, Tensorflow, pandas, Numpy, Agents, React, Node.js, Flask, FastAPI
**Cloud**: AWS S3, Lambda, Sagemaker, Bedrock, EC2, ECS, VPC, Codepipeline, Quicksight, Azure Foundations
**Developer Tools**: Git, Docker, Kubernetes, Postman, VS Code, Jupyter
**Credentials**: AWS Solutions Architect - Associate, Accenture Trailblazer Award, AWS Article, Hawks Scholarship

## Experience

**Generative AI Engineer** May 2023 – July 2024
*Senior Analyst, Accenture AWS Business Group (AABG)* *Hyderabad, India*

- Led development of a **Retrieval-Augmented Generation (RAG) pipeline**, reducing manual underwriting processes by **75%** for a credit underwriting workflow.
- Implemented **OpenSearch Serverless vector DB** with **Titan embeddings**, enabling **fast retrieval** of structured client data from Excel and other financial documents.
- Designed **few-shot prompt templates** using **Langchain**, improving generative accuracy for processing complex financial notations.
- Engineered preprocessing pipelines using Pandas for **data cleaning, chunking, and conversion**, enabling robust and scalable ingestion of tabular financial data.

**Machine Learning Operations Engineer** Aug. 2022 – Jan. 2024
*Application Engineering Analyst, Accenture AWS Business Group (AABG)* *Hyderabad, India*

- Deployed **SageMaker Autopilot pipelines** in secure **VPC environments** for telecom customer churn prediction, supporting scalable API-based inference.
- Implemented real-time **model drift detection** via **SageMaker Model Monitor**, enabling proactive model retraining strategies.
- Automated migration of **QuickSight Dashboards** across AWS accounts, preserving dataset integrity and improving reporting for analytics stakeholders.

**Information Technology Project Analyst** Oct. 2024 – Present
*Office of Information Technology, University of Houston* *Houston, TX*

- Served as internal **SME and consultant** for migrating IT service tools from **FootPrints to TeamDynamix**, affecting **80+ IT staff** and dramatically improving workflow visibility and tracking.
- Directed the transition of **networking asset management** from **Access DB to TeamDynamix**, modernizing IT asset lifecycle management.
- Transitioned manual, email-based request handling to **structured, web-based workflows**, enhancing operational efficiency and response times for business requests and change management processes.

## Projects

**Model Context Protocol** | *Python, Claude, Research, Langchain*

- Conducted comprehensive research on MCP architecture for LLM communication and context management
- Analyzed protocol integration patterns with frameworks like LangChain and demonstrated real-world applications
- Implemented MCP client-server architecture enabling seamless LLM-application communication
- Created implementation examples showcasing file creation and Google Maps integration via MCP servers

**Exploratory Data Analysis on Customer Churn Prediction** | *Random Forest, Python, Jupyter, Pandas, Git*

- Developed a customer churn prediction model for the telecom sector using RF algorithm with .92 accuracy
- Conducted extensive exploratory data analysis to identify key factors influencing customer attrition
- Implemented machine learning techniques to calculate individual customer churn probability, enhancing retention strategies