Harsha Vardhan Yellela

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SUMMARY

Backend Engineer with expertise in **Infor ERP (LN, ION)** and **scalable AI systems**, leveraging **FastAPI, AWS Lambda**, and **multi-LLM pipelines** for **cloud-native automation**. Skilled in **distributed computing**, **C, C++, Java, Linux/UNIX**, and **relational databases**; adept at **core CS algorithms**, **GPU optimization**, and **ranking/classification models**.

EXPERIENCE

AI Agent Development Researcher **Jan 2025 – Present**
Lawrence Technological University *USA*

- Built and compared **no-code (n8n)** vs. **coded multi-agent systems (CrewAI + LangChain MCP)** for **workflow automation** and **intelligent decision-making** on **distributed clusters** with **GPU optimization**.
- Deployed **persistent MCP agent services** on **AWS Fargate** and **Amazon EKS**, integrating **OpenSearch Serverless Vector Engine** for **semantic search** and **RAG**.
- Designed **hybrid pipelines** combining **Bedrock-hosted models** with **custom tools** for **ranking/classification tasks** including **recommendation systems** and **text classification**, achieving up to **70% reduction in manual process time**.

Infor India Pvt. Ltd. **Apr 2022 – Dec 2023**
LN Technical Consultant *Hyderabad, India*

- Developed **modular, production-ready tools** for global clients (**Ferrari, Boeing, Triumph**) by extending **Infor LN ERP** workflows for inventory, manufacturing, and finance using **BaanC, ION, and DBMS** with **OS-level integration** and **networking optimization**.
- Integrated **Infor ION** process flows with **AWS S3, Lambda, and API Gateway** to enable **asynchronous file transfer** and external service triggers, reducing **batch processing delays by ~40%**.
- **Containerized** business logic services using **Docker** and simulated **Kubernetes-like orchestration** with Infor ION, improving **deployment consistency** and cross-module communication across client environments (e.g., Weiler, Immucor) with **shell scripting** in **UNIX/Linux environments**.

TECHNICAL SKILLS

- **Languages:** Python, C, C++, Java, JavaScript, SQL, Shell Scripting
- **Frameworks & APIs:** FastAPI, Flask, RESTful API Design, TensorFlow, LangChain
- **Databases & Data:** DynamoDB, PostgreSQL, Relational Databases, Data Processing
- **Cloud & Infrastructure:** AWS (Lambda, SageMaker, FinSpace, Bedrock, Fargate, EKS), CI/CD (GitHub Actions), Docker
- **ML/DL & AI:** GPT-4, Gemini, DeepSeek, VADER, LSTM, Transfer Learning, Sentiment Analysis, Recommendation Systems, Text Classification
- **Tools & Systems:** Linux/UNIX, Networking, Operating Systems, Git, OpenCV, Computer Graphics, Human-Computer Interaction
- **Enterprise Systems:** Infor LN, Infor ION, BaanC, Manufacturing & Finance Modules

PROJECTS

AI Resume Builder – Backend Engineer **Jun 2025 – Present**
Resumade.in | FastAPI, AWS Lambda, DynamoDB, GPT-4, Amazon Bedrock (DeepSeek)

- Architected and deployed a **serverless backend** using **FastAPI, AWS Lambda, and DynamoDB**, enabling **auto-scaling, 95%+ uptime**, and **sub-2s PDF/Word resume generation**.
- Integrated **multi-LLM pipelines (GPT-4, Gemini, DeepSeek)** with **custom prompts** to tailor resumes based on job descriptions scraped via **LinkedIn parsers and BeautifulSoup**.
- Implemented **secure JWT and Google OAuth authentication**, **CI/CD via GitHub Actions**, and **real-time scraping + AI optimization pipelines**, reducing **manual resume effort by 80%**.

Sentiment-Driven Market Forecasting – LSTM for NVDA Returns **May 2025**
VADER, LSTM, Reddit NLP, yfinance, Amazon SageMaker, FinSpace, TensorFlow

- Engineered a **multimodal pipeline** combining **Reddit sentiment signals** (via **VADER + virality-based scoring**) and **financial indicators (OHLCV, VIX)** to predict **NVDA's next-day returns** using **time-series classification**.
- Trained a **7-day rolling LSTM model** in **Amazon SageMaker**, achieving **measurable correlation against market baselines** while reducing **local experimentation time by 60%** for **recommendation/forecasting system** development.
- Used **Amazon FinSpace** to manage **historical pricing and sentiment data**, supporting **scalable time-series alignment** and **high-resolution feature aggregation** for deep learning input with **data processing** and **relational database** integration.

AgenticAI – Agent-Based Newsletter Automation (Code vs. No-Code) **Apr 2025**
n8n, CrewAI, LangChain, FastAPI, AWS Lambda

- Designed and deployed **newsletter automation** using **n8n (no-code)** and **CrewAI + LangChain (code-first)** to compare **performance, flexibility, and maintainability** of **agentic workflows** with **text classification** and **workflow ranking**.
- Built **custom APIs** with **FastAPI**, integrated **multi-agent coordination logic**, and deployed **backend services** on **AWS Lambda** for **scalable, event-driven execution** with **optimization models**.
- Benchmarked both approaches across **latency, reliability, and dev speed**, achieving **70% reduction in manual workload** with insights into **visual vs. programmatic agent tradeoffs** for **collaborative filtering** and **recommendation systems**.

Pneumonia Detection – Deep Learning for Chest X-ray Classification **Dec 2024**

TensorFlow, VGG19, AWS SageMaker, Flask, OpenCV

- Built a **pneumonia detection model** using **VGG19** with **custom classifier layers**, leveraging **transfer learning** and **image augmentation** to improve **medical image classification** with **CNNs for pattern recognition**.
- Fine-tuned and trained the model on **AWS SageMaker** with **GPU-accelerated training**, reducing **training time by 60%** compared to local GPU setups while scaling to **larger datasets** with improved **validation performance**.
- Deployed the model as a **Flask-based web app** with **real-time inference support** and a **user-friendly front-end** for interactive **diagnosis simulation** using **data processing** and **relational database** integration.

EDUCATION

Lawrence Technological University **Expected Dec 2025**

Master of Science in Computer Science · GPA: ***3.6/4.0*** *Southfield, MI*

- **Relevant Coursework: Intelligent Robotics (ROS)**, **Machine Learning**, **Artificial Intelligence**, **Natural Language Processing**, Collaborative Research in **Agentic AI**

Geethanjali College of Engineering & Technology **Graduated: August 2022**

Bachelor of Technology in Computer Science & Engineering · GPA: ***7.5/10 (~3.0/4.0)*** *Hyderabad, Telangana*

- **Relevant Coursework: Software Engineering**, **Deep Learning** & **Python**, **Machine Learning** Foundations, **Internet of Things**

EXTRACURRICULAR / ACHIEVEMENTS

- **Selected for Amazon Nova AI Challenge: Trusted AI Track** (2025)
- **Participated in RSNA Pneumonia Detection Challenge; ranked in upper quartile** (2024)
- **Designed "ATOLL" for NSS/NASA Space Settlement Design Competition** (2015)
- **Gold Medalist in Indian National Mathematical Olympiad (INMO)** (2012)