

# HARSHA VARDHAN YELLELA

Ferndale, Michigan - 48220 | +1-248-497-9965 | [harsha.yellela@gmail.com](mailto:harsha.yellela@gmail.com) | [LinkedIn](#) | [GitHub](#)

## SUMMARY

**Backend Engineer** with experience in **Infor ERP** system development (LN, ION) and building **scalable AI tools** like Resumade.in, using **FastAPI**, **AWS Lambda**, and **multi-LLM pipelines** (GPT-4, Gemini) to deliver **cloud-native automation**.

## 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**.
- 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**, achieving up to **70% reduction in manual process time** in prototype testing.

### 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**.
- 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).

## TECHNICAL SKILLS

- Languages & APIs:** Python, JavaScript, SQL, RESTful API Design
- Backend & Cloud:** FastAPI, Flask, AWS (Lambda, SageMaker, FinSpace, Bedrock), CI/CD (GitHub Actions)
- AI/ML & NLP:** GPT-4, Gemini, DeepSeek, LangChain, TensorFlow, VADER, LSTM, Transfer Learning, Sentiment Analysis
- Automation & Agents:** CrewAI, n8n, BeautifulSoup, Web Scraping, Agent Orchestration
- Data & Storage:** DynamoDB, PostgreSQL, Pandas, NumPy
- Tools & Frameworks:** Docker, Git, Pydantic, OpenCV, Matplotlib
- 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**.
- Trained a **7-day rolling LSTM model** in **Amazon SageMaker**, achieving **measurable correlation** against market baselines while reducing **local experimentation time** by **60%**.
- Used **Amazon FinSpace** to manage **historical pricing and sentiment data**, supporting **scalable time-series alignment** and **high-resolution feature aggregation** for deep learning input.

### 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.
- Built **custom APIs** with **FastAPI**, integrated **multi-agent coordination logic**, and deployed **backend services** on **AWS Lambda** for **scalable, event-driven execution**.
- Benchmarked both approaches across **latency**, **reliability**, and **dev speed**, achieving **70% reduction in manual workload** with insights into **visual vs. programmatic agent tradeoffs**.

- Built a **pneumonia detection model** using **VGG19** with **custom classifier layers**, leveraging **transfer learning** and **image augmentation** to improve **medical image classification accuracy**.
- Fine-tuned and trained the model on **AWS SageMaker**, 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**.

EDUCATION

Lawrence Technological University

Master of Science in Computer Science · GPA: 3.6/4.0

Expected Dec 2025  
Southfield, MI

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

Geethanjali College of Engineering & Technology

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

Graduated: August 2022  
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)