

# Harsha Vardhan Polamarasetty

AI/ML Engineer

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## PROFESSIONAL SUMMARY

Passionate AI/ML and full-stack engineer who learns by building. Experienced in developing real-world projects that blend intelligent systems with scalable backend architectures. Skilled in LLMs, RAG pipelines, and modern web frameworks, with a focus on solving impactful problems through hands-on experimentation and continuous learning.

## SKILLS

- **Languages & Databases:** Python, Java, JavaScript, C, SQL, MySQL, PostgreSQL, MongoDB
- **AI/ML & Data Science:** LangChain, LangGraph, LangSmith, PyTorch, Transformers (Hugging Face), Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn
- **Tools & Platforms:** Docker, Git, Postman, React Native, AppWrite, Directus CMS
- **Web & Frameworks:** React.js, Vue.js, Next.js, Tailwind CSS, Express.js, Spring Boot, Flask, Django, Gradio
- **Soft Skills:** Analytical thinking, Communication, Leadership, Contextual understanding, Teamwork, Dependability

## EXPERIENCE

- **Realfy Oasis**  
*Node.js Developer Intern* Sep 2024 - Nov 2024
  - Built a scalable backend with **Node.js, Firestore, and Directus CMS**, optimized to handle **1,000+ API requests/sec** and maintain reliable performance under peak traffic.
  - Built **AI-powered fitness and health tracking** features that analyze user inputs to generate **personalized diet plans and workout recommendations**, enhancing user engagement and application utility.
  - Collaborated with UI/UX designers and backend engineers in an Agile team to **plan, develop, and deploy robust backend infrastructure** aligned with business goals and user requirements.

## PROJECTS

- **WhatsApp RAG Chatbot for Real-time Community Platform**  
*LangGraph, LangChain, LangSmith, Qdrant, Python, FastAPI, WhatsApp Cloud API* Sep 2025 - Oct 2025
  - Built a **multi-domain RAG chatbot** using **LangGraph agents**—router, domain, and aggregator—to classify and answer user queries in parallel, with a **rolling-window context summarizer** for token-efficient, context-aware replies.
  - Engineered a robust pipeline using **LangGraph, LangSmith, and Qdrant vector search** to manage conversational state, dynamic retrieval, and multi-turn query resolution, enabling seamless and scalable interaction for hundreds of active users.
- **User-Adaptive Handwritten Text Recognition**  
*Python, TrOCR (Hugging Face), PyTorch, Gradio* Apr 2025 - Aug 2025
  - Developed an **experimental OCR system** that **dynamically adapts to individual handwriting styles**, significantly **improving recognition accuracy** on real-world handwritten documents across diverse formats and layouts.
  - Fine-tuned **TrOCR** on 5+ diverse handwriting datasets and built a **feedback loop** for personalized predictions using user samples; currently extending with **GAN-based handwriting transformation** and **LLM document restoration**.
- **AI News Scraper & Summarizer with TTS**  
*Python, Hugging faces, BERT, Gemini API, Flask, Gradio* Mar 2025 - Mar 2025
  - Automated news scraping from Google News, performing preprocessing and summarization with **BART-Large-CNN**, achieving 90%+ compression accuracy using **chunking and sliding-window** techniques.
  - Implemented **sentiment analysis and trend detection** across 10+ sources per query using the **Gemini API**, with **real-time text-to-speech (TTS)** in Hindi for accessibility.

## EDUCATION

- **KL University** Guntur, India  
*Bachelor of Technology in Computer Science and Engineering (CSE); CGPA: 9.5/10.0* Aug 2022 - Jul 2026

## CERTIFICATIONS

- Salesforce Certified AI Associate
- Oracle Cloud Infrastructure 2024 Generative AI Certified Professional
- Red Hat Certified Enterprise Application Developer

## ACTIVE PROJECTS & OTHER INTERESTS

- **Active Projects:** Building **Daily Shelf**, a personal habit-tracking app using **React Native** and **AppWrite (BaaS)**. Inspired by *Atomic Habits*, it helps users build and maintain daily routines through intuitive habit management.
- **Other Interests:** Exploring open-source projects, reading diverse books, learning new technologies, and staying active through sports.