

Harsha Vardhan Polamarasetty

AI/ML Engineer

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PROFESSIONAL SUMMARY

Dedicated AI/ML engineer with hands-on experience in training, fine-tuning, and deploying deep learning models for NLP and computer vision tasks. Currently building a user-adaptive handwritten text recognition system using TrOCR with writer-specific style adaptation. Skilled in PyTorch, Hugging Face, and production pipelines, with a strong foundation in data preprocessing and model evaluation. Committed to continuous learning and exploring diverse AI domains to deliver innovative, real-world solutions.

EDUCATION

- KL University** Guntur, India
Bachelor of Computer Science; GPA: 4.51 (9.5/10.0) Aug 2022 - Jul 2026

EXPERIENCE

- Realfy Oasis** Sep 2024 - Nov 2024
Node.js Developer Intern
 - Designed and implemented a scalable backend system using **Node.js, Firestore, and Directus CMS**, capable of handling 1,000+ API requests per second to ensure reliable performance during 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

- User-Adaptive Handwritten Text Recognition** Apr 2025 - Present
Python, TrOCR (Hugging Face), PyTorch, Gradio
 - 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 to personalize** predictions using user samples and corrections; planning **handwriting transformation** using **GANs** and **document restoration** via **LLMs**.
- AI News Scraper & Summarizer with TTS** Mar 2025 - Mar 2025
Python, Hugging faces, BERT, Gemini API, Flask, Gradio
 - Automated news scraping from Google News, performing cleaning and preprocessing before **summarizing articles with BART-Large-CNN**, achieving 90%+ compression accuracy using **chunking and sliding window techniques**.
 - Enforced **sentiment analysis and comparative trend detection** among all scraped news articles across 10+ sources per query using **Gemini API**, featuring **insights and real-time text-to-speech** support in Hindi for broader accessibility.
- Twitter Highlights Scraper** Dec 2024 - Jan 2025
Python, Flask, Selenium
 - Built a full-stack **automation tool using Flask, Selenium, and Node.js** to scrape and display **trending Twitter highlights**, cutting manual monitoring by 5+ hours weekly.
 - Executed resilient **scraping pipelines with authentication, proxy support, and Docker integration**, enhancing data reliability and system scalability under real-time constraints.

SKILLS

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

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** (open-source BaaS). Inspired by *Atomic Habits*, it **helps users build and maintain habits by tracking daily activities**. Designed primarily for personal use but open to anyone seeking simple habit management.
- Other Interests:** Passionate about exploring open-source projects, reading diverse books, learning new technologies, and staying active through sports.