

Papagari Sumanth Reddy

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Professional Summary

AI-first backend engineer and IIT Hyderabad M.Tech graduate with hands-on experience building scalable microservices, agentic workflows, and privacy-preserving edge-AI systems. Strong in Python, FastAPI, LLM/RAG pipelines, vector search, and systems design.

Education & Achievement

- M.Tech, Techno-Entrepreneurship — IIT Hyderabad2026
CGPA: 8.73
- B.Tech, Computer Science and Engineering — Malla Reddy College of Engineering2024
CGPA: 7.50
- GATE 2024:** Ranked in the top 5% of 123,000 candidates nationwide in the CS/IT examination.

Technical Skills

Languages & Data: Python, C++, MySQL, MongoDB, PostgreSQL **AI / ML:** LangChain, LangGraph, BERT, Transformers, LSTM, vector search
Backend & Deployment: FastAPI, Docker, React, Keycloak, Ray, vLLM (Qwen), AWS, sqlite-vec, MediaPipe

Experience

- Intern — Greenko GroupJan. 2026 – Jun. 2026
Electrical Power Energy Optimization and Scheduling
- Built Python/Ray workflows for Pumped Storage Power Plant scheduling; extracted dispatch and reservoir insights from 96-block .sol outputs to support benchmarking, warm-start studies, and DAM/RTM application refactoring.
 - Standardized large-scale optimization experiments and runtime analysis, improving the reproducibility of scheduling-model evaluation across operating scenarios.
- GIMS AI Agent — IMS Document Automation
- Engineered an ISO/IMS procedure-automation platform with FastAPI microservices, vLLM (Qwen), agentic search, and editable Word DrawingML swimlanes; delivered a Dockerized React interface with Keycloak role-based access and document validation.

Projects

- Value Verse — AI-Powered Edutainment PlatformM.Tech Thesis | IIT Hyderabad
- Built a privacy-first Android pedagogical mentor using an edge-quantized Gemma 2B LLM, local vector search, sqlite-vec, and MediaPipe; achieved approximately **450 ms** responses (**60%** lower latency) with fully on-device inference.
 - Conducted design-thinking research and focus groups with children aged 9–11, translating attention-span constraints into product requirements and a Symmetric Context NLP framework for Hinglish conversations.
- Scientific Diagram Understanding & Caption GenerationAI5100 | Aug. 2024 – Nov. 2024
- Integrated CLIP, Vision Transformers, and BART for scientific-diagram captioning; trained on a **4-million-image** SciCap subset and achieved **73% Recall@10**.
- Toxic Content Detection on Social MediaCS6803 | Aug. 2024 – Nov. 2024
- Built binary and multi-class toxicity classifiers; fine-tuned HateBERT on DHate for competitive macro-F1 performance and safer automated content screening.
- Multi-Feedstock Biogas Supply Chain OptimizationEM6040 | Jan. 2025 – Mar. 2025
- Modelled multi-period logistics and blending across four Telangana plants to maximize profitability while maintaining the optimal **20:1–35:1** C/N ratio for biogas yield.

Leadership & International Experience

SPIC MACAY, IIT Hyderabad: Hospitality Coordinator, IIT Hyderabad Chapter and 10th International Convention (Nov. 2024 – Jun. 2025); third place, International Yoga Day Competition (Jun. 2025).
Global programs: Refined startup models with Nagoya University founders; developed an India market-entry reverse pitch for parental-control apps with J-StarX; co-created SDG 11 urban-sustainability solutions with Kyoto University; exchanged research ideas with Shimane University.

Relevant Coursework

AI / ML: NLP, Computer Vision, Deep Learning, Machine Learning **Management:** Innovation Management, Strategic Management, Operations Management