Divyansh Teja Edla

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Education

B.E. in Computer Science and Engineering — **Expected: May 2026**

Matrusri Engineering College, Hyderabad — **CGPA: 8.89 / 10**

Research Interests

Federated Learning, Low-Resource NLP (Indic Languages), Retrieval-Augmented Generation, Agentic AI, Explainable AI, Dataset Curation

Publication

Enhancing Federated Learning With Quantum-Inspired Particle Swarm Optimization: An IID MNIST Study

Divyansh Teja Edla and Dr. L.K. Indumathi — NCICSET, 2025

Proposed QPSO-based weight aggregation replacing FedAvg, achieving **97.6% accuracy improvement** (81.51% vs. 41.25%).

Experience

Tech Lead — Viswam.AI — **June 2025 – Present**

Low-Resource Language AI Initiative (Swecha × IIIT Hyderabad)

- Leading large-scale Telugu language dataset creation for LLM training and RAG systems.
- Designed metadata extraction pipeline for a Telugu literary corpus (**758 books, 10,000+ stories**, 1947–2012) using Gemini 2.5 Flash API with structured JSON schemas for story-level indexing.
- Built **Telugu OCR dataset**: **120K+ image-text pairs**, 10.7 GB, published on Hugging Face.
- Built Library for Telugu Poem meter classification.
- Mentored **150+ students** contributing **1.5 lakh+ hours** of annotation and curation work.

Projects

Telugu Agentic RAG System

- **Problem:** Telugu AI produces "translated English" — grammatically passable but culturally hollow.
- Semantic search with GTE Multilingual + Qdrant over **10,000+ stories**: **92% Hit Rate @ 1**, **99% @ 5**, **MRR ∼0.95**.
- Designed **Validator Agent** that rejects drafts with passive voice, lazy descriptions, or cultural inaccuracies — quality enforced architecturally, not by prompting.
- **Stack:** Multi-agent, Qdrant, GTE Multilingual, Gemini API, Streamlit.

Digi-Biz — Agentic Business Digitization

- **Problem:** 63M Indian small businesses lack digital presence; monolithic LLM calls fail on messy real-world documents.
- Built **8-agent LangGraph pipeline** — file discovery → doc parsing → table extraction → media analysis → schema mapping → validation → profile output.
- Achieved **95% extraction completeness** (up from ∼60% monolithic), processing 5+ input types in $<$ **2 min**.
- **Stack:** LangGraph, FastAPI, Groq/Llama-4-Scout, Streamlit, Docker.

FL-QPSO Brain Tumor AI Suite

- **Problem:** FedAvg biases toward data-rich hospitals — rural clinics with fewer scans get the worst model.
- Built **3D Attention U-Net** on BraTS 2021: **Dice 0.76** (WT), **0.85** (TC), **0.79** (ET) across 4 MRI modalities.
- Replaced FedAvg with **QPSO-FL** that reduces cross-client Dice variance — optimizes for the floor, not the average. Benchmarked FedAvg vs FedProx vs QPSO-FL across 3 hospital nodes with Non-IID splits.
- **Stack:** PyTorch, MONAI, QPSO, 3D Attention U-Net, ResNet-18, LSTM.

Technical Skills

- **Languages:** Python, C, R **ML/DL:** PyTorch, TensorFlow, MONAI, XGBoost, SHAP, Scikit-learn
- **NLP & LLMs:** LangChain, LangGraph, HuggingFace, RAG, Prompt Engineering, Agentic Workflows
- **Infra:** Qdrant, Chroma, FAISS, Docker, FastAPI, Streamlit, OpenAI/Gemini/Groq APIs, Ollama

Leadership

Founder & President — DevCatalyst — **Aug 2025 – Present**

Built 40-member technical community from scratch. Organized **8+ events** reaching **1,500+ students** — workshops on Agentic AI, Web3, Cloud (AWS), and Smart India Hackathon internal round.

Honors

Google Gemini Student Ambassador (2025–26) | **English Proficiency: C1 Level**