

Siddhartha Reddy Pullannagari

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Education

Columbia University

Master of Science in Artificial Intelligence

Dec 2027

New York, NY

University of Missouri St. Louis

Bachelor of Science in Computer Science & Minor in Business Administration

May 2026

St. Louis, MO

Experience

Research Assistant

Center for Nanosciences

May 2025 - July 2026

University of Missouri St. Louis

- Designed and optimized **machine learning pipelines** for large-scale biological datasets, improving model reliability under noisy conditions.
- Processed and validated **50K+ ligand-target pairs**, achieving **ROC-AUC 0.85+** for binding prediction models.
- Improved computational performance through **profiling, optimization, and efficient data handling**, enabling faster experimentation cycles.

President

Indian Student Association

January 2024 - May 2026

University of Missouri St. Louis

- Led **end-to-end planning and execution** of events with **800+ attendees** and managed a **\$10K+ budget**, improving engagement through data-driven decisions.

Vice President

Telugu Youth of America (TYA)

August 2024 - Present

Non-Profit

- Built **data-driven ticketing dashboards** supporting **700+ transactions**, enabling analytics-driven event planning.

Projects

ReliefCopilot | Offline AI for Crisis Response

(FastAPI, Ollama/gpt-oss-20B, RAG, Python, Browser UI)

- Built an **offline AI system** that generates **ICS-201 crisis briefings and structured action plans**, enabling **10-20x** faster disaster response planning.
- Implemented **RAG over 500+ vetted guidelines** (WHO, FEMA, IFRC, Sphere) with schema validation and safety checks, reducing hallucinations.
- Delivered **multilingual outputs (English, Hindi, Telugu)** with SMS and public-address support for low-connectivity environments.

AUNT Care | Offline first application for Underserved Communities

(React Native, On-device LLM, RAG, SQLite)

- Designed an **offline-first AI health assistant** for pre-screening and first-aid guidance, enabling accessible care in **low-resource and low-connectivity environments**.
- Implemented **on-device RAG pipeline** using WHO and MedlinePlus guidelines with local embeddings (MiniLM ONNX), ensuring **safe, grounded, and reliable responses**.
- Built a **privacy-preserving system** with local data storage and multilingual support, generating structured health reports for telemedicine escalation.

Colorectal Cancer Network Modeling |

(C, C++, Python, Graph Algorithms)

- Built and optimized a **high-performance C/C++ pipeline** for **gene interaction network modeling** on large-scale expression datasets.
- Implemented **graph-based pattern discovery and module extraction**, identifying meaningful interaction clusters across high-dimensional data.
- Improved computational efficiency through **algorithmic optimization and memory-efficient design**, enabling scalable processing and faster runtime.

SpotCheck | AI Skin Cancer Detection

(Flask, TensorFlow, VGG16, Python, OpenAI)

- Trained and optimized **CNN models (VGG16)** achieving **85% classification accuracy** for skin lesion detection.
- Applied data augmentation, validation, and reproducibility checks, reducing **false positives by 20%**.
- Deployed a clinician-facing prototype to validate robustness on real-world test cases.

Technical Skills

Programming: Python, C/C++, SQL, Java

AI/ML & LLM Systems: Retrieval-Augmented Generation (RAG), Prompt Engineering, LLM Evaluation, Embeddings, Vector Search, Scikit-learn, PyTorch, TensorFlow, NLP, Deep Learning

Data & Modeling: Data Preprocessing, Feature Engineering, Model Evaluation, Statistical Analysis, Pandas, NumPy

Systems & Performance: Operating Systems, Systems Programming, Performance Optimization, Memory-Efficient Design, Linux, Docker

Tools & Infrastructure: Git, AWS, PostgreSQL, MongoDB, Calude Code, Codex, Gephi

Awards & Leadership: 20+ Hackathons (HackHarvard, HackMIT), Millennium Fellow, Winner – UMSL Business Case Competition, BioNexus KC Podium Presenter