AC Sanhitha Reddy

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Education

Amrita Vishwa Vidyapeetham — Coimbatore, Tamil Nadu
Bachelor of Engineering in Computer Science; CGPA: 7.48/10.0 — *Aug 2023 – Present*

Narayana Junior College — Nellore, Andhra Pradesh
12th Grade – Science (State Board): 97.3% — *2023*

Rainbow CBSE School — Nellore, Andhra Pradesh
10th Grade (CBSE): 94.4% — *2021*

Research Experience

Predictive Modeling for Pre-Treatment Radiotherapy QA in Hepatocellular Carcinoma — 2025 – Present
Research Assistant | *Advisors: Dr. Amit Agarwal, Dr. Rose Kamal* — *Amrita Vishwa Vidyapeetham*

- Developing physics-informed ML/DL models to predict pre-treatment gamma passing rates (2%/2 mm, 3%/3 mm) from planned fluence and 53×53 dose maps
- Designing CNN-based, dosimetric, and hybrid fusion models for quantitative radiotherapy quality assurance
- Adapting clinically weighted loss functions to prioritize failure sensitivity under medical physics safety constraints

Cervical Cancer Research – Gamma Rate Analysis & Predictive Modeling — 2025 – Present
Research Assistant | *Advisors: Dr. Amit Agarwal, Dr. Sruthi K, Dr. Ajay Sasidharan* — *Amrita Vishwa Vidyapeetham*

- Developing ML/DL models on multimodal clinical/pathological data for treatment outcome prediction
- Implementing automated data extraction, preprocessing, and feature engineering for survival analysis
- Building predictive models to optimize treatment strategies using advanced machine learning techniques

Projects

HASYv2 Handwritten Math Symbol Classification | *PyTorch, CNN*

- Built a PyTorch CNN for the HASYv2 dataset with full preprocessing, augmentation, and model optimization
- Experimented with BatchNorm, adaptive pooling, and multi-layer fully connected architectures to improve accuracy
- Achieved top performance and won a university-level Machine Learning competition

Reversal Point Detection in US Equities | *Time-Series Modeling , PyTorch, LSTM, RNN , Feature Engineering*

- Developed a financial time-series model to detect market reversal points using engineered cross-ticker and temporal features
- Handled imbalance and applied time-aware ensemble validation to separate true reversals from market noise
- Produced a robust signal extraction pipeline capable of filtering volatile market behavior

Biomedical Knowledge System | *NLP,RAG*

- Developed a biomedical NER and query understanding pipeline using Transformer models
- Integrated into a RAG-based web system for generating context-aware medical insights
- Built custom biomedical NLP model achieving high entity recognition accuracy

MindHaven | *LLMs, RAG, Full-Stack*

- Built a privacy-first mental-health platform using LLMs, agentic workflows, and RAG with anonymized user identities.
- Implemented crisis detection, safe response generation, and personalized emotional assistance with alerts for clinicians and guardians.
- Developed clinician-facing summaries with consent-based access control and strong privacy, encryption, and PII protection.

Technical Skills

Programming Languages: Python, C++, SQL, Haskell, Java
Machine Learning & AI: PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas, LangGraph, RAG
Specializations: Deep Learning, NLP, LLMs, Computer Vision, Time-Series Modeling
Web Technologies: React.js, Node.js, Express.js, TailwindCSS, HTML, CSS
Databases: MySQL, MongoDB, PostgreSQL, ChromeDB , Pinecone, FAISS
Tools & Platforms: Docker, AWS, Git, CI/CD

Certifications

AWS Cloud Practitioner Essentials – AWS (2025)
Deep Learning Specialization – DeepLearning.ai (2025)
Machine Learning Specialization – Stanford Online (2025)

Achievements & Leadership

1st Place – PyTorch: Fire It Up Hackathon (IETE Amrita)
Classical Dance Performer – School-level cultural events
AIR 118 – AEEE Exam (2023)
Coordinator – Gokulashtami Event, Amrita Vishwa Vidyapeetham