

# AC Sanhitha Reddy

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## Education

### Amrita Vishwa Vidyapeetham

Bachelor of Engineering in Computer Science; CGPA: 7.64/10.0

### Narayana Junior College

12th Grade – Science (State Board): 97.3%

### Rainbow CBSE School

10th Grade (CBSE): 94.4%

Coimbatore, Tamil Nadu

Aug 2023 – Present

Nellore, Andhra Pradesh

2023

Nellore, Andhra Pradesh

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**