

Jenil Padshala

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EDUCATION

SRM University AP <i>Bachelor of Technology in Computer Science and Engineering CGPA : 9.06/10.0</i>	Amaravati, AP 2021 - 2025
Atmiya Vidya Mandir <i>AISSCE (12th Grade) Percentage : 95.4%</i>	Surat, GJ 2020 - 2021
<i>AISSE (10th Grade) Percentage : 94.0%</i>	2018 - 2019

EXPERIENCE

AIML Research Intern <i>Carnegie Mellon University</i>	June 2024 – July 2024 Pitt, PA, USA
<ul style="list-style-type: none">Conducted advanced time-series analysis using LSTM RNNs to analyze ECG data, integrating temporal data with non-temporal data to improve clinical decision-making.Attended Multi-Modal Machine Learning classes and successfully completed graduate-level assignments.Fostered a habit of reading and analyzing research papers to stay current with the latest advancements in AI & ML.	

PROJECTS

Scalar Autograd Engine <i>C++, Python, Pybind11, Git</i>	June 2026
<ul style="list-style-type: none">Developed a decoupled, lightweight automatic differentiation engine in C++ utilizing custom Value containers linked via weak pointers to prevent cyclic memory references.Implemented a reverse-mode automatic differentiation backend using an iterative Depth-First Search (DFS) topological sort to securely compute gradients over complex multi-variable Directed Acyclic Graphs (DAGs).Supported core arithmetic operations via operator overloading, validating correctness through a robust multi-variable calculus test suite.Exposed the high-performance C++ backend to Python using Pybind11 to enable seamless, high-level interface experimentation and validation against popular deep learning frameworks.	
Real-Time Visual Assistance System <i>Python, RPi 5, YOLOv11n, OpenCV, VLMs</i>	Feb 2025 - May 2025
<ul style="list-style-type: none">Engineered an edge-AI assistive device on a Raspberry Pi 5 optimized with a Hailo-8 AI Accelerator to provide real-time spatial awareness and multi-modal feedback for visually impaired individuals.Optimized and deployed a concurrent vision pipeline executing object detection (YOLOv11n), multi-object tracking (HailoTracker/JDE), and monocular depth estimation (scdepthv3) delivering 29 FPS at 720p resolution.Developed an offline voice interface using the Vosk toolkit for local wake-word and command speech-to-text transcription, integrated with a Mistral LLM to parse and categorize user intent.Constructed a multi-stage text processing pipeline leveraging OpenCV for image deskewing, EasyOCR for raw character extraction, and LLM API post-processing to clean text anomalies before gTTS generation.Implemented a cloud-connected scene understanding module utilizing a LLaVA-13B vision-language model hosted via Ollama on Azure Cloud to deliver rapid, concise textual environment descriptions.	
Time-Series Analysis of ECG <i>Python, LSTM, Data Pre-processing, Time-Series</i>	June 2024 – July 2024
<ul style="list-style-type: none">Conducted exploratory data analysis and pre-processed ECG data, addressing missing values and ensuring extraction of high-quality ECG recordings.Developed an LSTM model that achieved 89.1% accuracy in predicting diagnostic super-classes from 12-lead ECG signals.Proposed future steps to integrate non-temporal data with the predictions for enhanced performance.	

TECHNICAL SKILLS

Languages: C/C++, Python, SQL, Java, Shell Scripting
ML & Data Science: PyTorch, OpenCV, Sklearn, NumPy, Pandas, Matplotlib
Web Technologies and Database: FastAPI, Streamlit, Express.js, Node.js, Javascript, MySQL
Cloud and DevOps: Docker, AWS, Google Cloud Platform