

Naresh Lankalapalli

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Objective

Passionate ECE student with hands-on experience in edge AI development and acceleration. Skilled in Verilog, SystemVerilog, Python, and C/C++ for HLS. Experienced in deploying Deep learning models on FPGAs and NVIDIA Jetson platforms, with a focus on hardware-software co-design, DPU acceleration, and real-time inference.

Education

Rajiv Gandhi University of knowledge Technologies,Srikakulam
Bachelor of Technology in Electronics and communication Engineering
CGPA:8.14

2022-2026

Rajiv Gandhi University of knowledge Technologies,Srikakulam
Pre University Course
CGPA:9.23

2020-2022

ZPHS,kadali
Secondary School Certificate.
CGPA:9.8

2015-2020

Experience

Summer-Research Intern – NIT Warangal

May 2025-present

- Designed and implemented a custom hardware accelerator for MNIST inference using Vivado HLS on a PYNQ-supported FPGA platform.
- Implemented deep learning algorithms on FPGA platforms using vitis HLS and PYNQ on KV260 and NVIDIA Jetson Nano for edge AI applications.
- Built a deep learning-based system to classify 10 types of paddy leaf diseases using a dataset of 18,000+ annotated images.

Digital Digin Intern – Maven Silicon

March 2025-April 2025

- Designed and verified an APB to AHB bridge using Verilog, gaining practical exposure to AMBA bus protocols.
- Simulated and debugged RTL design using industry-standard tools and testbenches.

Skills & Competencies

VLSI: RTL Design, FPGA Accelerators

Boards: NVIDIA Jetson Nano,KV260,Basys3 FPGA,Ardunio.NodeMcu

Programming: Verilog, SystemVerilog ,C, C++ ,Python,ML,Linux

Tools: Xilinx Vivado, , PYNQ, MATLAB, Synopsys

Projects

Paddy Leaf Disease Detection using Deep Learning [[GitHub Link](#)]

- Compared multiple model architectures including CNN, AlexNet, and VGGNet; achieved 98%+ accuracy after optimization.
- Deployed the trained model in a real-time Android mobile application using Flutter and TensorFlow Lite.

MIPS32 5-Stage Pipelined Processor (Verilog) [[GitHub Link](#)]

- Designed a MIPS32 processor in Verilog HDL with 5-stage pipelining (IF, ID, EX, MEM, WB) supporting R-, I-, and J-type instructions.
- Implemented hazard detection, data forwarding, and stall control to sustain 1 CPI throughput.

Real-Time Digit Recognition on NVIDIA Jetson Nano

- Developed a real-time handwritten digit recognition system using a CNN trained on the MNIST dataset..
- Deployed the trained model onto an NVIDIA Jetson Nano, integrating a USB camera for live input and inference.

FPGA-Based Dino Game (Basys 3, Verilog, VGA)

- Designed and implemented a real-time Google offline Dino Game using Verilog HDL on Basys 3 FPGA.
- Utilized finite state machines (FSM) for game logic including obstacle generation, jumping mechanics, and collision detection.

FPGA-based Traffic Light Controller

- Implemented a real-time traffic light controller using Verilog..
- Simulated and tested the design on Xilinx FPGA..

DTMF Controlled Robot

- Designed and developed a robot controlled using Dual Tone Multi-Frequency (DTMF) technology.
- Interfaced a microcontroller with a DTMF decoder to interpret signal frequencies and execute corresponding commands.

Achievements & Extracurricular Activities

Proposed a custom AI accelerator in DVCon India 2025 Hardware Accelerator Design Challenge.

- Designed and submitted accelerator architecture targeting for a self-driving garbage collection robot using MobileNet-SSD ,RISC-V-based VEGA processor and Genesys-2 FPGA.
- Selected in the top 75 out of 7500+ teams
- Recognized for innovative edge AI application and efficient hardware-software co-design approach

Robotics Lab Instructor – RGUKT Srikakulam [Engineering 2nd year Sem 2]

- Led a 2.5-credit Robotics Lab for the ECE-S20 batch, collaborating with the Electronics and Robotics clubs under faculty guidance.
- Guided students in building line follower and obstacle avoider robots, enhancing technical skills, teamwork, and problem-solving.

General secretary-Electronics Club, SGC RGUKT Srikakulam

Winner – Tech Hackathon, University level , RGUKT-AP

Coordinator – Project Expo-Techniverse2K24-RGUKTSKLM

Team Lead, NSS (Unit-IV, RGUKT Srikakulam)

Quiz Team Head, English Literacy Club (ELC, RGUKT Srikakulam)