

BYREDDY HANEESH REDDY

Professional Summary

I began my machine learning journey with fundamentals like linear regression and PCA, and progressed to implementing CNNs and an ImageNet classifier. I've also worked on object detection. My embedded systems experience includes platforms like Jetson Nano and Raspberry Pi, where I've built and deployed Pytorch models using ONNX runtime. I'm skilled in multimedia and ML, with a focus on OpenCV and GStreamer pipelines. I adhere to industry standards using tools like Make and Git, and I'm proficient in multithreading and networking protocols.

Work Experience

- Working as an R&D Software engineer at ZENTREE LABS from may 2024 to present
- Internship at ZENTREE LABS from November 2023 to April 2024

Skill Set

Programming language	C, C++, Python
Core Competencies	Data Structures, STL, Design Patterns, Computer Networks, Socket Programming, Multithreading, IPC
Libraries/Frameworks	OpenCV, GStreamer, PyTorch, ONNXRuntime, TVM
Tools	Git, Docker, Qt, GDB, PDB
Operating Systems	Windows, Linux
Hardware Platforms	Jetson Nano, ESP32, ESP8266, Raspberry Pi, Arduino

Project

Title: Object Detection

Role: Developer

Key Technologies: Python, CPP, YOLOv8, Apache TVM, ONNX, OpenCV, Gstreamer, TI board

Description: Developed a high-performance object detection system using YOLOv8, optimized for deployment on Texas Instruments (TI) boards. Leveraged ONNX format and TVM runtime for efficient inference, integrating a custom GStreamer pipeline for seamless video preprocessing, inference, and postprocessing. Achieved low-latency, real-time detection with hardware-accelerated optimization and robust video streaming.

Responsibilities

- Designed and implemented a custom object detection pipeline using YOLOv8 trained on OpenImages V7 dataset.
- Converted the model to ONNX format and deployed it on Texas Instruments (TI) boards, leveraging TVM runtime for efficient inference.
- Developed a real-time video processing system using GStreamer, integrating video decoding, preprocessing, ONNX inference, and postprocessing into a custom pipeline.
- Optimized the model for embedded systems through TVM quantization and hardware-specific acceleration, achieving low-latency, real-time performance.

Project

Title: Image Classification System Development

Role: Developer

Key Technologies: Python, C++, PyTorch, ONNX Runtime, ResNet-50

Description: Implemented an image classification system using PyTorch, leveraging a ResNet-50 model for high-accuracy classification on the ImageNet dataset. Optimized the model through ONNX conversion to enhance inference speed and enable cross-platform deployment. Designed a system where an ESP32 captured images from a camera via SPI protocol and transmitted them to an x86 system using UART for further processing.

Responsibilities

- Converted ResNet-50 models to ONNX format, ensuring efficient cross-platform deployment with ONNX Runtime.
- Designed and implemented the image capture and transmission system using ESP32, integrating camera interfacing via SPI and image transfer over UART to an x86 system.

Education

B Tech ITM University, Gwalior	2020-2024
B.Tech. in Computer Science & Engineering	7.45 CGPA
Intermediate NARAYANA JUNIOR COLLEGE	2018-2020
MPC	89.2%

Declaration

I hereby declare that the above-mentioned information is true to the best of my knowledge

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