

SACHIN M R

Machine learning Engineer

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- Passionate **Machine Learning professional** with **3.7 years** of expertise with the ability to apply Deep learning techniques and leverage algorithms to solve real-world business problems.
- Efficient on working with **Deep learning implementation on Edge devices and Integration of various cloud services (AWS/Alibaba)**.
- Experience and strong knowledge on **Python, Tensorflow**.
- Implemented **Deep learning model training and optimization** using python for faster computing with various **Hardware accelerators like CPU, GPU, NPU, DSP**.
- Excellent understanding of **Linux** environment and different algorithms of Deep learning which include **model training, model compilation, model conversion**, porting the model on difference edge devices and optimizing the model performance for different hardware accelerators.
- Experience in integrating different Cloud services with Deep learning applications.
- Experience in **orchestration of containerized Deep learning micro servers with Kubernetes and AWS Cloud**.
- Experience in working with various **AWS services like EC2, Sagemaker, Lambda, Cloudwatch, ECR, IoT, IoT Greengrass**,
- Team player with good **Technical, Analytical and Communicational skills**.
- Willingness and ability to easily adapt to learn any newer technology or software

Skills

- **Frameworks:** Tensrflow, OpenCV, TFLite, TVM
- **Programming Languages:** Python, C
- **Tools:** Docker, Kubernetes
- **Cloud platforms:** AWS, Alibaba

Professional Experience

- Experienced as **Software Engineer** at **Capgemini Engineering** from **19 Oct-2020 to Aug 29 2023**
- Worked as a **Trainee** in **Capgemini Engineering** from **Feb-2020 to Sep-2020**

Certifications

- **Deep learning Specialization** by Deeplearning.ai on Coursera.
- **DeepLearning.AI Tensorflow developer Specialization**.
- **Machine learning specializaiton** by Andrew NG

Education

- **Bachelor of Engineering in Electronics and Communication** from **VTU UNIVERSITY**

Experience

PROJECT #1: Smart Camera System for Traffic Monitoring

Project Description:

This is a real time object detection system which includes running the containerized applications on various Edge devices and displaying the analysis result on local web server. The application includes end to end pipeline for real time data analysis and displaying the result on Cloud dashboard.

Responsibilities

- Understanding existing business model and requirements.
- Involved in **Training the deep learning models, model compilation** and porting the **deep learning application** on Edge devices.
- As per Business requirement using **Docker containerization** was responsible for developing the **MLOps pipeline** and **Orchestrating the pipeline** with **Kubernetes and AWS Greengrass**.
- Using the **state of the art Object detection algorithm YOLOV3 and YOLOV4** and **Tiny YOLOV3 and Tiny YOLOV4** for detecting the incoming traffic.
- Monitoring the analysis result and displaying it in **graphical formats** on **centralized AWS Cloudwatch dashboard**.
- Worked on different model formats like **Keras(.h5), Tensorflow frozen graph(.pb), TFLite, ONNX, TVM**.
- Worked on **optimizing** the model to different hardware accelerators (CPU, NPU).

Project Duration:

- Currently working in this project from 2022 January

PROJECT # 2: Gesture recognition and Face recognition application for Smart TV system

Project Description:

This is a native Android application **based Gesture and Face recognition applications** which takes the real time camera input and generates different android intents based on Gesture or Face recognized.

Responsibilities

- Worked on developing a **native Android application**.
- Worked on developing a **Gesture recognition** application which recognized **8 different gestures**.
- Worked on developing a **Face recognition application** which used **State of the art cost function** for recognizing different faces.
- Worked on accelerating the applications with **DSP hardware accelerator**.
- Worked on optimizing the model for **QUALCOMM platform with SNPE SDK**.

Project Duration:

- From 2021 November to 2021 December

PROJECT # 3 : Autonomous Lane follower robot.

Project Description:

This project is a prototype which demonstrated the **Reinforcement learning algorithm** trained on Unity based virtual simulator environment and porting the trained model to real world. This model was tested with **Turtlebot 3** which has **QUALCOMM's robotics platform RB5** on it.

Responsibilities

- Understanding existing business model and requirements.
- Designing and developing the **Virtual training environment** on Unity simulator.
- Worked on training the Reinforcement algorithm with **MLAgents package** for Unity.
- Worked on porting the trained reinforcement algorithm to real world lane.
- Worked on developing application for **robotics platform** which controls the robot according to algorithm output.

Project Duration:

- From 2021 January to 2021 October

PROJECT # 4 : Benchmarking the Edge devices.

Project Description:

This project aims at **benchmarking** of different **edge devices** like **Nvidia Jetson TX2, Nvidia Jetson Nano** with different Deep learning algorithms and showcasing the AI capability of these devices.

Responsibilities

- Understanding existing business model and requirements.
- Developing the applications which used **Deep learning algorithms** like **YOLOV3, MobilenetV1, MobileNetV2, VGG16, ResNet50, Inception V3 , Mobilenet SSD V1 and V2** for benchmarking.
- Worked on using different hardware accelerators on deep learning algorithms.
- Worked on collecting different benchmarking metrics for deep learning algorithms like **CPU usage, GPU usage, Memory usage, Temperature and Power consumption**

Project Duration:

- From 2020 October to 2021 January