SARATH M

Machine Learning Engineer

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○ SarathM1

EXPERIENCE

Specialist
Tata Elxsi

📅 July 2016 – Ongoing   📍 Technopark, Trivandrum

Embedded System Engineer
Unisync Technologies

📅 Jan 2015 – July 2016   📍 Vyttila, Ernakulam

MOST PROUD OF

🏆 **My Professional Acheievment**
Awarded the highest rating"Outstanding"in three consecutive appraisalcycles inTata Elxsi

🏆 **My Academic Achievement**
Final year academic project "Hexapod" was selected for the finals in State level competition

❤ **Martial Arts**
Black Belt holder in Shito-Ryu style of Karate

EDUCATION

Course in Embedded Systems
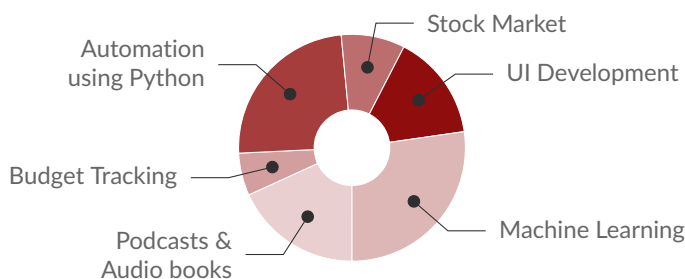**Vector India Institute, Bangalore, Karnataka**

📅 2014

B.Tech (ECE)
**Govt. College of Engineering Cherthala,
Cochin University Of Science and Technology, Kerala**

📅 2010 - 2014

INTERESTS

Automation using Python · Stock Market · UI Development · Budget Tracking · Machine Learning · Podcasts & Audio books

MY LIFE PHILOSOPHY

"Quality is not an act; it is a habit."

STRENGTHS

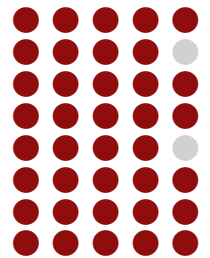Team Player · Passionate Programmer · Fast Learner · Hard-working · Eye for detail

SKILLS

- **Machine Learning Frameworks**
  - Tensorflow
  - Scikit-learn
  - NLTK

- **Visualisation & Data Processing**
  - Pandas
  - Numpy
  - Flask
  - Bokeh
  - Plotly
  - Grafana
  - Twitter Bootstrap
  - PyQt4, Qt Designer

- **Distributed Systems**
  - ROS
  - Paho MQTT
  - Redis
  - Apache Kafka

- **Test Automation & CI**
  - Jenkins
  - Robot Framework

- **Devops**
  - Docker
  - Ansible

LANGUAGES

English
Malayalam
Hindi

PROJECTS

ADAS features for Autonomous Vehicle project

The objective of the project is to develop an L2 Autonomous Car

- Development of Object detection system using Convolutional Neural Networks
  - Faster-RCNN, Yolo V2, Single Shot Detectors
- Development of Drivable Area using Image Segmentation
  - SegNet, Mask R-CNN
- Design and devlopment of Distributed System using Robotic Operating System (ROS)
- Testing and deployment of the ML model in NVidia Jetson TX1 platform
- Object detection in 3D Point cloud data using PointNet

Lidargen

The objective of the project was to create a tool that would simulate the actual output from a LIDAR sensor. The tool takes three dimensional CAD objects as input and generates corresponding pointcloud.

- The User is given the freedom to place and orient the multiple meshes
- Used in the optimised placement of multiple Lidars to reduce blind spot
- To mathematical model the behavior of Lidar and simulate the same using Ray Casting.
- A UI capable of 3D visualization was created using Qt and ROS RViz

Intelligent Battery Management System

The objective of the project is to estimate State of Health (SOH) and State of Charge (SOC) of a Lithium Ion battery using Machine Learning

- Implemented Neural Network Regression model as a benchmark
- Implemented LSTM models to improve upon the bencharm results
- Supported in development of 'Digital Twin' of a cell with ML models mimicing the electrochemical characteristics
- Developed a POC on Anomaly detection algorithm to demonstrate online-learning capabilities of the framework
- Create a Data dashboard for monitoring sensor data in real-time using Flask and Bokeh

UAV Based Driver View Enhancement

- To develop a proof of concept, using a Drone to enhance the view of the Driver and cover blind spots for a larger area around the vehicle
- Designing a State Machine to control the Drone, Create a web application as a User interface using Python as a back-end

Automated Testing and CI Framework

A Test automation framework was developed with the following key features

- Enables rapid and Automated testing
- The framework supports both SIL and HIL testing
- Continuous Integration using Jenkins, Ansible and Robot framework
- Centralized Logging using Fluentd, Elasticsearch and Kibana
- Containerization using Docker