# SARATH M

Machine Learning Engineer

sarathm00@gmail.com | +91 9496354518 | Saranya House, North Paravoor P.O, 683513 | Kerala, India
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 Achievement**
Awarded the highest rating "Outstanding" in three consecutive appraisal cycles in Tata Elxsi

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

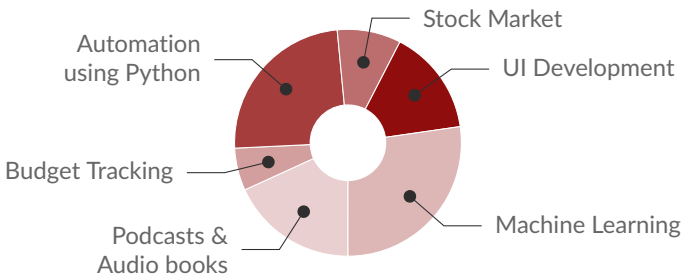
**Martial Arts**
Black Belt holder in Shito-Ryu style of Karate

## 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




## 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
- Visualization & 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 development 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 point cloud.

- The User is given the freedom to place and orient the multiple meshes
- Used in the optimized placement of multiple Lidar's 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 benchmark results
- Supported in development of 'Digital Twin' of a cell with ML models mimicking 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

## Natural Language Processing for JIRA ticket Analytics

Use NLP and visualization techniques to allow team members and managers to more effectively manage projects

- Data cleaning and Exploratory Data Analysis using NLTK
  - Remove stop words and Stemming the corpus
  - Named Entity Recognition using Spacy
  - Visualizations using Word Cloud
- Search and filter feature using BERT model and Elasticsearch
  - Converting each ticket into fixed length vector using BERT
  - Save the vectors into Elasticsearch
  - Use Cosine Similarity to compare and filter tickets

## 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