# Prithvi Ram G

## ADAS - Sensor Perception | Computer Vision | Deep Learning

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## Education

Sastra University                                                                                                     Thanjavur, India
*Bachelors, Electronics and Communication Engineering*                                                                     June, 2015

## Certifications

- [Certified Tensorflow Developer](#), by Google - *CNNs, Dropouts, BatchNormalisation, TransferLearning, GradientTape.*
- [C++ Standard Template Library](#), by GeeksforGeeks - *STL Algorithms, vectors, heap, stack, queues, list, pairs, sets, maps.*
- [DeepLearning](#), by NVIDIA - *Dropouts, WeightsInitialisation, BatchNormalisation, Optimizers, Activations, CNNs.*

## Skills

- Languages - Python, Matlab, C++.
- Algos - Object Detection, Image Segmentation, DBSCAN, Decision Trees, Kalman Filter.
- Libraries - Tensorflow, Scikit-learn, pandas, numpy, scipy, opencv, Plotly.
- Tools - NVIDIA GPU Cloud, Docker, Makefile, CANoe, [SCANeR Studio](#), Lauterbach.
- Designing - Simulink, Targetlink, Enterprise Architect.
- Project Management - Clearcase, SVN, DOORS, Clearquest.

## Experience

**Renault-Nissan Technology Center India, Chennai, India**                                                         Jul, 2018 - Present

Computer Vision topics:
- Traffic Sign Detection performance benchmarking among various supplier cameras : Tools and Techniques  - *Pytorch, [SORT (simple online and realtime tracking)](#), [YOLOv5](#) - Object Detection, Principal Component Analysis (PCA) eignen reconstruction.*
- Lane Parameter Extraction performance benchmarking among various supplier cameras : Tools and Techniques - *Tensorflow, [LadybugV5 camera](#), NVIDIA DGX station, [VBOX IMU](#), [ENET-SAD](#) - Lane Detection, HD-Maps.*
- Object detection and Classification of Target vehicles as (AEB and ACC) : Tools and Techniques - *Tensorflow, [LadybugV5 camera](#), NVIDIA DGX station, [Retinanet](#) - Object Detection.*

Radar topics:
- Radar Point Cloud - Clustering, Classification, Tracking (MATLAB) : Tools and Techniques - *ZF Imaging Radar, DBSCAN clustering, Kalman filter, Polynomial curve fit.*
- Simulated corner reflectors, visibility of each corner reflectors and kinematics of Ego and target vehicles as mentioned in the paper - [Automotive Radar Target List Simulation based on Reflection Center Representation of Objects](#)

ADAS topics:
- Simulated signals of E-Horizon Provider according to [ADASIS protocol](#) (C++) - messages simulated are Position, STUB, Segment, Profile Long, Profile Short, META-DATA : Tools used - *Visual studio, [RoadXML](#), [SCANeR studio](#).*
- Developed Matlab GUI for [Euro-NCAP scenarios](#) to judge the sensor parameters.

**Robert Bosch Engineering and Business Solution, Coimbatore, India**                                              Aug, 2015 - Jun, 2018

Application Software:
- StateMachine Design for Lane Keep Assist(Targetlink, C).
- Implemented Snow driving mode in steering Drive Mode Switch.
- RackPosition – Developed Plausibility Check for enhancing the function to ASIL – D, rating.

Base Software:
- CAN - Implemented customer specific CAN matrix for messages - wheel speed, and engine status.
- UDS - Implemented customer specific Steering Calibration routine using 0x31 service routine.

Testing:
- Fault Injection Testing - Fault links in Software as per ISO 26262-4.
- Performed Unit Testing/Polyspace/MISRA Rules/Naming Standards of C code - Application components.
- Component Integration Testing for various Steering Application components.

## Additional Experience

- [TF 2.0 Implementation of ENET-SAD Lane Detection](#) - Implemented this paper from the scratch and trained the model
- [machine learning](#) - performed preprocessing techniques, ML classification, ML clustering algos and metric derivation
- [CUDA C++](#) - Implemented novice parallel algorithms using CUDA, Thrust, cuBLAS, cuRAND and cuDNN.