Aravind Krishnan

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EXPERIENCE

Senior Software Engineer - Autonomous Driving, KPIT Technologies GmbH, Germany   *Feb '19 - Present*
Worked on feature implementation of Camera, LiDAR by following TDD with strict software quality using C++14. Working on tech stack with and without ROS for BMW autonomous driving project. Adaptive AUTOSAR & Bazel experience. Worked on maturity level 2 of *Automatic Sensor Cleaning Mechanism* algorithm

Software Engineer - Perception, Dabit Industries LLC, USA   *Aug '17 - Feb '19*
Worked on TurtleBot3, Google Blockly and interfaced sensors like - 2D LiDAR, IMU and camera, to enable experimental platform. Explored AUTOWARE and ROS2

Software Intern - Nippon Seiki Europe, Munich, Germany   *Apr - Nov '15*
Software debugging of 'blackscreen' issue on Head-Up Displays and white box testing for BMW, Audi and Daimler

Embedded Software Engineer - Forus Health, Bengaluru, India   *Jan - Sep '14*
Handheld retinal camera with foot-switch activated focus mechanism using Haydon's linear actuator stepper motor Microchip 16bit controller firmware dev & peripheral schematic design. EMF protection under IEC 60601-1 standard

Robotics Engineer, Li2 Innovations, Bengaluru, India   *Jun '11 - Jul '13*
Self Balancing Robot's PID control with Kalman filtering using Gyro & Accelerometer sensors in Arduino/C++ Real-time multiple sensor integration and data acquisition with 3 tier architecture

SKILLS   *Github*: https://github.com/aravindk2604

Programming Languages: C++(11, 14), C, Python
Packages: ROS, Gazebo, Matlab, OpenCV, PCL, Arduino, TensorFlow, Theano, Keras, Caffe
Platforms: NVIDIA TX2 , TK1, STM32Fxx, Atmel, MSP430, Beagle Bone, Rasp Pi, Intel Edison
Aware of: *FuSa ISO26262, SOLID principles, Klocwork, CI/CD, Adaptive AUTOSAR, CleanCode*

EDUCATION

Worcester Polytechnic Institute   Master of Science in Robotics Engineering   *May'17*
Visvesvaraya Tech University   Bachelor of Engineering in Telecommunications   *Jul'11*

PROJECTS
Computer Vision and Deep Learning Module Projects, Udacity
● *Lane Detection* - simple identification of left and right lines for a lane on a highway. Detection was performed on a video using CV techniques and simple math.

RC Car autonomous driving in unstructured environments based on MIT Racecar
Using NVIDIA Redtail project to implement TrailNet NN to navigate in unstructured environments. Working on the perception and sensing part of the project -- ZED camera, Sweep LiDAR, razor m0 IMU, NVIDIA Jetson TX2
LiDAR-Camera Calibration and processing using ROS
Calibrated narrow-stereo camera using ROS and cross calibrated a Velodyne LiDAR using camera data and visualized using RGB point cloud (PCL). Worked on plane segmentation and cluster extraction of the rosbag data.
Porting of TurtleBot3 control using Google Blockly, Dabit Industries
Developed API for drag-n-drop based sensor features on Google Blockly to control TurtleBot3 with ROS as middleware. *doc:* http://turtlebot-3-blockly-wiki.readthedocs.io/en/latest/
Evaluation of CNN's Prediction Time in Classifying Traffic Signs, WPI
Implemented an algorithm for successful identification and classification of Traffic signs for Self-Driving Car with 99.34% accuracy using deep learning techniques and evaluated time complexity for the same & published paper
Autonomous Mobile Robot for Object Relocation, WPI
A prototype to relocate objects using 9-axis IMU, encoded DC motors, Orb SLAM2, Deep Q-learning motion planning using ultrasonic sensors, Caffe object detection, processing on NVIDIA Jetson TX1 with ROS

PUBLICATIONS
Fulco J., Devkar A., Krishnan A., Slavin G. and Morato C. (2017), **Empirical Evaluation of Convolutional Neural Networks Prediction Time in Classifying German Traffic Signs** in Proceedings of the 3rd International Conference on Vehicle Technology and Intelligent Transport Systems - Volume 1: VEHITS, DOI: 10.5220/0006307402600267