

# Aravind Krishnan

Romanstrasse 5a, Munich 80639 || aravindk2604@gmail.com || +49 151 4685 4456

<https://www.linkedin.com/in/aravindkrishnan2604> || [www.aravindkrishnan.com](http://www.aravindkrishnan.com)

## EXPERIENCE

**Senior Software Engineer - Autonomous Driving**, KPIT Technologies GmbH, Germany *Feb '19 - Present*  
Worked on code-level implementation of Radar, LiDAR. Working of enforcing strict software quality metrics. Working on tech stack with and without ROS for BMW autonomous driving project

**Software Engineer - Perception**, Dabit Industries LLC, USA *Aug '17 - Feb '19*  
Worked on TurtleBot3, Google Blockly and 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:* STM32Fxx, Atmel, MSP430, NVIDIA TK1, 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). Data was processed from a rosbag. Working on plane segmentation and cluster extraction.

**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

**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: VEHTS, DOI: 10.5220/0006307402600267