



# AKASH YADAV



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## Skills

- Deep learning
- Model based development
- Behaviour based development
- Functional development

## Programming Tools

- Python, C++, MATLAB

## Deep Learning Tools

- Keras, TensorFlow, TensorFlow Lite

## Simulation Tools

- Unreal Engine, Carla

## Integration Tools

- CMake, Git

## EDUCATION

10/2016 – 09/2020 M.Sc., Commercial Vehicle Technology  
Technische Universität Kaiserslautern

07/2014 – 08/2016 M.Eng. CAD/CAM/CAE, S.G.S.I.T.S, India

07/2009 – 06/2013 B.Eng. Mechanical Eng., R.G.P.V, India

## WORK EXPERIENCE

04/2019 – 06/2020 Student Research Assistant, WICON, TU Kaiserslautern

### Drone Development

- Analysed requirements for the drone navigation and monitoring scenarios
- Co-ordinated with vendors for component purchase
- Conceptualized and 3D printed custom parts with the team
- Integrated G.P.S, camera, optical flow, 6 range sensors with flight controller

11/2018 – 03/2019 Intern, ADAS: Radar Software Development. Robert Bosch GmbH

### ADAS Software Development for Corner Radars

- Collected data from ego vehicle for over 10 avoidance scenarios
- Extracted radar signal (MDF/MF4) and performed signal processing
- Developed algorithm for 4 warn features of ADAS using radar and camera

## PROJECTS

01/2020 – 09/2020 Master Thesis Student, Chair of Wireless Communications and Radio Positioning (WICON), TU Kaiserslautern

### Unmanned Aerial Vehicle based Environment Analysis through Semantic Segmentation using Convolutional Neural Networks (CNN)

- Created Synthetic-semantic aerial dataset of 100 images with the team
- Trained CNN & achieved up to 10-fold reduction in model size using 4 quantization techniques of TensorFlow Lite embedded deep learning tool
- Evaluated the quantized models on the embedded device for 3 scenarios

04/2019 – 10/2019 [Master Project Student, Robotics Research Lab, TU Kaiserslautern](#)

Behaviour based Control Strategy for Double Ackermann Steering Control of Bomag Autonomous Tandem Road Rollers

- Analysed crab steering control algorithm for left and right manoeuvring.
- Executed trajectory planning and tracking using C++ based Finroc robot control framework and integrated Behaviour-Based Control (iB2C)
- Simulated trajectory tracking for 4 slip angle scenarios on Unreal Engine

04/2018 – 08/2018 [Project based Seminar, TU Kaiserslautern](#)

Model Based Multi-Robot Formation Control based on Graph Theory

- Studied graph theory and communication topologies for 4 unicycle robots
- Implemented algorithm for formation control and trajectory tracking for 3 different communication scenarios

10/2015 – 06/2016 [Master Thesis Student, S.G.S.I.T.S., India](#)

Development of Adaptive Learning Algorithm to Solve the Inverse Kinematics Problem of a 3 DoF Robot Manipulator

- Formulated forward kinematics for 4 geometric parameters of the robot arm and illustrated the workspace
- Trained and evaluated the 3 DoF robotic arm for inverse kinematic variables

## CERTIFICATIONS

Coursera	Convolutional Neural Networks, Intro to TensorFlow, Launching into Machine Learning, How Google does Machine Learning
Nvidia	Getting Started with Jetson Nano
Solo Learn, HCL	C++
IIITDM, India	MATLAB

## ACCOMPLISHMENTS

07/2014 – 07/2016 [Post Graduate Scholarship, G.A.T.E qualified \(2014 & 2015\)](#)

06/2012 – 07/2013 [President, Society of Automotive Engineers \(S.A.E\), G.G.I.T.M, Bhopal](#)

- Guided team of 25 motivated sophomores to build an all-terrain vehicle

## HOBBIES

Reading, Trekking

## LANGUAGE SKILLS

Hindi, German: Average (B.1.1), English