

# Mohammad Dawud Ansari

## Curriculum Vitae

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## Education

- 2015–2017 **Master in Computer Science**, *Technische Universität Kaiserslautern*, Kaiserslautern (Germany), *Grade – 1.5 (equivalent to 3.7 in US grading)*.
- 2008–2012 **Bachelor of Technology Computer Engineering**, *Jamia Millia Islamia*, New Delhi (India), *Grade – 7.96 (equivalent to 79.6%)*.

## Publications

- IV'2018 Mohammad Dawud Ansari, Alwi Husada and Didier Stricker. Scale Invariant Semantic Segmentation with RGB-D Fusion. In *IEEE Intelligent Vehicles Symposium*, Changshu, Suzhou, China; June. [Accepted]
- VISAPP'2018 Mohammad Dawud Ansari, Stephan Krauß, Oliver Wasenmüller and Didier Stricker. ScaleNet: Scale Invariant Network for Semantic Segmentation in Urban Driving Scenes. In *International Conference on Computer Vision Theory and Applications*, Funchal, Madeira - Portugal; January. [Online] Available: [https://www.researchgate.net/publication/321360967\\_ScaleNet\\_Scale\\_Invariant\\_Network\\_for\\_Semantic\\_Segmentation\\_in\\_Urban\\_Driving\\_Scenes](https://www.researchgate.net/publication/321360967_ScaleNet_Scale_Invariant_Network_for_Semantic_Segmentation_in_Urban_Driving_Scenes)
- 3DV'2017 Mohammad Dawud Ansari, Vladislav Golyanik and Didier Stricker. Scalable Dense Monocular Surface Reconstruction. In *International Conference on 3D Vision*, Qingdao, China; October. [Online] Available: <https://arxiv.org/pdf/1710.06130>
- ACCVW'2016 Oliver Wasenmüller, Mohammad Dawud Ansari and Didier Stricker. DNA-SLAM: Dense Noise Aware SLAM for ToF RGB-D Cameras. In *Asian Conference on Computer Vision Workshop*, Springer, November. [Online] Available: [https://link.springer.com/chapter/10.1007/978-3-319-54407-6\\_42](https://link.springer.com/chapter/10.1007/978-3-319-54407-6_42)
- IJCA'2015 Gurjashan Singh Pannu, Mohammad Dawud Ansari and Pritha Gupta. Design and Implementation of Autonomous Car using Raspberry Pi. In *International Journal of Computer Applications* 113(9):22-29, March. [Online] Available: <http://www.ijcaonline.org/archives/volume113/number9/19854-1789>.

## Professional Experience

- July'2018–  
present **Computer Vision Engineer**, *Robert Bosch GmbH*, Germany.  
Using RGB images to first find the per pixel label in the image and later use them from tracking objects like people, cars and rider. I am also working with self-supervised depth estimation and 3D box estimation. Technology used: C/C++, Python, Keras, Tensorflow 2.0

- May'2017– **Research Scientist**, *German Research Center for Artificial Intelligence (DFKI GmbH)*, *Augmented Vision Research Department*, Kaiserslautern, Germany.  
 June'2018 Using deep learning techniques for per-pixel labeling of a image to generate a segmentation mask corresponding to each category of object present in the scene. Technology used: MatLab, MatConvNet, Python, Caffe.
- July'2016– **Research Assistant**, *German Research Center for Artificial Intelligence (DFKI GmbH)*, *Augmented Vision Research Department*, Kaiserslautern, Germany.  
 Jan'2017 Developing a highly scalable Non-Rigid Structure from Motion (NRSfM) method suitable for a variety of data sets (sparse as well as dense). Technology used: C/C++, MatLab, Python.
- July'2015– **Scientific Assistant**, *German Research Center for Artificial Intelligence (DFKI GmbH)*, *Augmented Vision Research Department*, Kaiserslautern, Germany.  
 June'2016 Researching and developing methods for real-time virtual reality application for low-end devices like. Google Glass, Smart Phones etc.  
 Technology used: C/C++, Qt, Unity 3D.
- Oct'2014– **Junior Researcher**, *Thapar University*, Patiala, India.  
 Feb'2015 Developed optimized computer vision algorithms for lane detection and object tracking suitable for embedded low-end devices with limited computing capacity.  
 Technology used: C/C++, Python.
- June'2012– **Engineer**, *Samsung Research Institute*, Noida, India.  
 Oct'2014 Researching and developing new 3D user interface (UI) components to improvise android phone UI experience for Samsung flagship models like. Samsung S4, S5, Note 2 etc.  
 Technology used: C/C++, Java, Android, OpenGL ES, GLSL.
- Dec'2012– **Engineer**, *Samsung Head Quarter*, Suwon, South Korea.  
 Feb'2013 Developed a 3D widget on a web view that has a functionality of a browser to open any specific web page and save for offline reading, with various 3D visualizations.  
 Technology used: Android, OpenGL ES 2.0, GLSL.

## Benchmark Submissions

- Cityscape Dataset This is a global competition for segmenting urban driving scenes into pixel-based and instance-based segmentation. The submission is named as ScaleNet. Available: <https://www.cityscapes-dataset.com/method-details/?submissionID=723>
- CVPR 2017 NRSfM This was a global competition for testing the robustness and scalable nature of all state-of-the-art non-rigid 3D reconstruction algorithm. The submission is named as SMSR. Available: <http://nrsfm2017.compute.dtu.dk/benchmark>. The later mention of all the submission is provided in a survey paper titled "A Benchmark and Evaluation of Non-Rigid Structure from Motion" Available: <https://arxiv.org/pdf/1801.08388.pdf>

## Projects

- title Augmentation in Multiple Texture less Objects

- description Augmented reality based application using a CAD model. First the features of a texture less object is created from CAD model and stored in a large data set using line model for every off the plane angles distributed uniformly. Template matching is performed for initial 3D pose estimation, which is later refined by Gauss Newton optimization and ICP.  
Technology used: C++, OpenSceneGraph, OpenGL, GLSL, Shader programming.
- title Per-pixel Semantic Segmentation
- description An image can contain several instances of same object. Instance-based scene segmentation assigns each individual object with different label to generate a object-instance specific mask for scene understanding.  
Technology used: MatLab, Caffe, MatConvNet.
- title Precise RGB-D Odometry
- description Using Kinect sensor. Depth camera provides the 3D information about the scene and iterative based transformation estimation is used to align the point cloud to find 6 dof of camera for augmentation and odometry in a robotic platform.  
Technology used: C/C++.
- title Synchronized Dataset Collect
- description An android app for collecting synchronized color images with corresponding accelerometer and gyroscope reading of a mobile device.  
Technology used: Android.
- title Driverless Car
- description Using kit Raspberry Pi rev B+ and Pi camera for automatic steering using road detection. Additionally any mobile with our installed application can be used to control the car manually connected via WiFi.  
Technology used: C/C++, Shell Scripting Linux.
- title Touchwiz Home
- description Framework to supports 2D and 3D view rendering in Samsung latest smart phones. 3D launcher was developed with android and using OpenGLES 2.0 for the shader effects.  
Technology used: Android, JNI, AIDL, OpenGLES
- title Samsung Process and Resource Optimization (SPRO)
- description It is a framework solution to optimize any existing Samsung smart phone performance and memory. The idea is to make the least used application to be sent to archive without fully un-installing it.  
Technology used: Reflection in Java, AIDL.

## Certifications and Trainings

- Nov'2020 **ASPICE training**, *Method Park GmbH*, Stuttgart.
- Aug'2012 **3D User Interfaces**, *Samsung*, Noida.  
Android, OpenGLES, GLSL. Grade – A+.
- Feb'2011 **Java**, *Ducat*, Noida.  
J2SE, Servlets, J2EE. Grade – A.

May'2005 **Advanced Graphics**, *Microtek Computers*, Kathmandu.  
Adobe Photoshop, Adobe FreeHand, PageMaker, CorelDRAW. Grade – A+.

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## Research Interests

Depth Estimation, Semantic Segmentation, Augmented Reality, 3D Computer Vision, Machine Learning, Robotics, Visual Odometry, Non-Rigid Structure from Motion (NRSfM).

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## Awards and Achievements

- 2015-16 DAAD Stibet.
- 2010–11 Merit Cum mean Scholarship.
- 2001 Gold medal in First Zenith Invitation, Inter School Taekwondo Championship.