

ANKIT DHALL

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EDUCATION

- ETH-Zürich, Switzerland** 2017 - present
Master of Science in Robotics, Systems & Control
Computer Vision, Machine Learning and Robotics (expected graduation: October 2019)
- Vellore Institute of Technology, Chennai, India** 2013 - 2017
Bachelor of Technology in Computer Science & Engineering
Thesis: LiDAR-Camera Calibration using 3D-3D point correspondences [↗](#)
CGPA: 9.7/10, ranked 2nd out of 147 students in department
Teaching Assistant - *Data Structures and Algorithms, Fall 2015*
- St. George's College, Mussoorie, India** 2004 - 2013
Class 12, **95.50%** in *Indian School Certificate Examination(ISC) 2013*
Class 10, **94.16%** in *Indian Certificate of Secondary Education Examination(ICSE) 2011*

EXPERIENCE

- Learning and Adaptive Systems Group, ETH Zurich** [↗](#) **Master thesis**
Advisors: Prof. Andreas Krause, Anastasia Makarova, Octavian Eugen-Ganea March 2019 - present
- Learning representations for images with hierarchical labels.
- NuTonomy, Singapore** [↗](#) **Autonomous Vehicle Intern**
Computer Vision and Machine Learning September 2018 - February 2019
- Deployable safety-critical perception system using deep learning and exploiting map priors.
- Academic Motorsports Association of Zurich (AMZ)** [↗](#) **Head of Perception**
Formula Student Driverless 2019 November 2018 - September 2019
- Head of Perception. Technically lead and manage the Perception team.
- Academic Motorsports Association of Zurich (AMZ)** [↗](#) **Computer Vision**
Formula Student Driverless 2018 November 2017 - September 2018
- Working on developing a customized vision pipeline for robust detection and accurate localization of cones (upto 15 meters) in 3D for Formula Student Driverless 2018 season for FS Germany and FS-Italy races. Developing real-time key-point regression with novel priors for pose estimation with mono camera. Competition video [↗](#)
- Robotics Research Center, IIIT-Hyderabad** [↗](#) **Researcher/Bachelor's thesis**
Advisor: Prof. K. Madhava Krishna January 2017 - May 2017
- Proposed a novel pipeline and experimental setup to find accurate rigid-body transformation for extrinsically calibrating a low-resolution LiDAR (VLP-16) and camera(s) using 3D-3D correspondences. The ROS package has been forked widely and usage can be found at: https://github.com/ankitdhall/lidar_camera_calibration [↗](#).
- Autonome Intelligente Systeme, University of Freiburg** [↗](#) **Researcher**
Advisors: Prof. Wolfram Burgard, Abhinav Valada June 2016 - August 2016
- Created a Mixture of Deep CNN Experts for robust semantic segmentation by adaptively fusing complementary modalities (RGB and depth, for instance). Implemented segmentation on NVIDIA TX1 and generated way-points for an all-terrain vehicle that autonomously navigated ~4.5km of rough, forested terrain.
Project page: <https://deepspace.cs.uni-freiburg.de> [↗](#)
- Microsoft Corporation - Campus Connect** **Software Developer**
Mentor: Akanksha Gupta June 2015 - September 2015
- Created a music discovery engine using Flask that fetches queries and visualizes the data through D3.js. Judged as the winning idea and implementation at Microsoft Campus Connect and Most-Popular vote at Yahoo! Accenture Innovation Jockeys 4.
- University of California, Santa Cruz + Stanford Research** [↗](#) **Researcher**
Advisors: Prof. James Davis, Dr. Rajan Vaish January 2015 - June 2015

- Collaborated to improve vision algorithms by introducing crowdsourced human cognition in the pipeline. Re-ordered images for human workers based on confidence scores to improve system accuracy.

PUBLICATIONS

- **Ankit Dhall**, Dengxin Dai, Luc Van Gool
Real-time 3D Traffic Cone Detection for Autonomous Driving
<https://arxiv.org/abs/1902.02394>
IEEE Intelligent Vehicles (IV), Paris 2019.
- Abhinav Valada, Johan Vertens, **Ankit Dhall**, Wolfram Burgard
AdapNet: Adaptive Semantic Segmentation in Adverse Environmental Conditions
<http://ais.informatik.uni-freiburg.de/publications/papers/valada17icra.pdf>
IEEE International Conference on Robotics and Automation (ICRA), Singapore, 2017.
- **Ankit Dhall**, Kunal Chelani, Vishnu Radhakrishnan, K.M. Krishna
LiDAR-Camera Calibration using 3D-3D point correspondences
<http://arxiv.org/abs/1705.09785>
Bachelor thesis and Research internship, May 2017
- Abhinav Valada*, **Ankit Dhall***, Wolfram Burgard
Convolved Mixture of Deep Experts for Robust Semantic Segmentation
<http://ais.informatik.uni-freiburg.de/publications/papers/valada16irosws.pdf>
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop, Daejeon, Korea, 2016.
- Andreas Veit, Michael Wilber, Rajan Vaish, Serge Belongie, James Davis, **Ankit Dhall** et al.
On Optimizing Human-Machine Task Assignments
<http://arxiv.org/abs/1509.07543>
WiP at AAAI Conference on Human Computation & Crowdsourcing (HCOMP), San Diego, USA, 2015.

LANGUAGE SKILLS

Hindi	Mother tongue
English	Bilingual proficiency (TOEFLiBT: L:30 R:30 W:30 S:24 = 114/120)
German	Elementary proficiency (Basic-German Level A1.1 - DEUTSCH-UNI ONLINE)
Italian	Elementary proficiency

TECHNICAL SKILLS

Programming Languages	Python, C++, MATLAB
Libraries, Frameworks & APIs	PyTorch, OpenCV, basic ROS, basic Caffe
Miscellaneous	Adobe Photoshop, NVIDIA TX1, Latex

MOOCs AND OTHER COURSES

- Introduction to Probability The Science of Uncertainty 6.041x, edX Honor Code Certificate - *MITx*
- Machine Learning, Coursera Honor Code Certificate - *STANFORD UNIVERSITY*
- Artificial Intelligence CS188x - audited online and on edX - *UNIVERSITY OF CALIFORNIA, BERKELEY*
- Discrete Optimization - audited on Coursera - *UNIVERSITY OF MELBOURNE*

ACADEMIC AWARDS AND ACHIEVEMENTS

- **DAAD-WISE Scholarship 2016** to pursue research in Germany; one of the **160 students from all over India**
- Awarded for academic excellence for **2013-14, 2014-15, 2015-16 and 2016-17**
- Voted most popular project at Yahoo! and Accenture's Innovation Jockeys 4 and one of the 10 finalists out of more than 2500+ teams across India and invited to Bangalore to present our idea
- **Music Discovery** engine judged as the **winning idea** and **implementation** at **Microsoft Campus Connect 2015**.
- On-site **Finalist at ACM ICPC**, Asia Regional, 2014 and **10th** in **GRIET Code**, 2015 coding competitions
- Awarded for **excellence** in **Computer Science** and **Physics** in high school (ISC)
- **School topper** in the ICSE examinations and **awarded scholarship** for 2011 and 2012

* These authors contributed equally