

# ANKIT DHALL

adhall@ethz.ch | ankitdhall.github.io

## 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](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://deepscene.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

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- **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

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<b>Hindi</b>	Mother tongue
<b>English</b>	Bilingual proficiency (TOEFLiBT: L:30 R:30 W:30 S:26 = 114/120)
<b>German</b>	Elementary proficiency (Basic-German Level A1.1 - <b>DEUTSCH-UNI ONLINE</b>  )
<b>Italian</b>	Elementary proficiency



## TECHNICAL SKILLS

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<b>Programming Languages</b>	Python, C++, MATLAB
<b>Libraries, Frameworks &amp; APIs</b>	PyTorch, OpenCV, basic ROS, basic Caffe
<b>Miscellaneous</b>	Adobe Photoshop, NVIDIA TX1, Latex

## MOOCs AND OTHER COURSES

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- 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

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- **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

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\* These authors contributed equally