

# ANKIT DHALL

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## EDUCATION

**Vellore Institute of Technology, Chennai, India** 2013 - 2017

*Bachelor of Technology in Computer Science & Engineering*

Thesis: **IIIT-H Robotics Research Lab** under *Prof. Dr. Madhava Krishna* commencing January 2017

**CGPA: 9.68/10**, 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

**Robotics Research Center, IIIT-Hyderabad** 

**Researcher**

Advisor: *Prof. Dr. Madhava Krishna*

January 2017 - present


- Working on cross-sensor calibration between a Velodyne LIDAR and a stereo camera rig. Also working towards an autonomous navigation and tree detection system for forested environments with ConvNets for Unmanned Aerial Vehicles.

**Autonome Intelligente Systeme, University of Freiburg** 

**Researcher**

Advisors: *Prof. Dr. Wolfram Burgard, Abhinav Valada*

June 2016 - August 2016

- Created a Convolutional Mixture of Deep Experts for robust semantic segmentation that generates probability distributions over independent deep CNN experts to adaptively fuse complementary modalities. Implemented segmentation on NVIDIA TX1 and generated way-points for an all-terrain vehicle that autonomously navigated ~4.5km of rough, forested terrain.  
<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. The engine allows search by location, artist, and intrinsic song parameters. 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. Dr. James Davis, Dr. Rajan Vaish*


January 2015 - June 2015

- Collaborated to improve vision algorithms by introducing crowdsourced human cognition in the pipeline. Created baseline localization algorithms for UIUC Car Dataset and Google SVHN Dataset. Developed two pipelines that reordered images for human workers based on confidence scores to improve system accuracy given a time budget. Ran experiments to observe trade-off between time budget and overall pipeline accuracy.

## PUBLICATIONS AND WORKSHOPS


- 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.*
- Abhinav Valada\*, **Ankit Dhall\***, Wolfram Burgard  
**Convolutional 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, State Estimation and Terrain Perception for All Terrain Mobile Robots, Daejeon, Korea, 2016.*

\* These authors contributed equally

- 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.*

## ACADEMIC AWARDS AND ACHIEVEMENTS

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- **DAAD-WISE scholar 2016**, one of the **160 students from all over India** to be awarded the DAAD-WISE Scholarship; stipend and travel expenses to **pursue research in Germany**
- 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**; Official media interview piece on InnovationJockeys website 
- 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

## SELECTED PROJECTS

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- **Reinforcement learning** on OpenAI Gym CartPole problems
- Estimating **vanishing point** using **OpenCV** and linear algebra from a live video stream
- **Human tracking chassis** that follows a human face using **computer vision** and **Arduino**
- Developed **steganalysis** techniques for images
- Created a traffic intersection hardware model to assist blind people cross roads using digital logic circuits
- Developed an approximate **graph coloring** algorithm




## TECHNICAL SKILLS

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<b>Programming Languages</b>	C++, Python, 8086Assembly, webdev
<b>Libraries, Frameworks &amp; APIs</b>	Caffe, OpenCV, basic ROS, learning PyTorch, basic Hadoop
<b>Miscellaneous</b>	Adobe Photoshop, NVIDIA TK1 & TX1, Latex

## MOOCs AND OTHER COURSES

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- Basic-German Level A1.1 - **DEUTSCH-UNI ONLINE** 
- 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**

## LEADERSHIP AND EXTRA-CURRICULAR ACTIVITIES

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- **Head of Design and Member of the Editorial Board** at St. George's College, 2011-2013
- Member of the **Organizing Committee** at VIT Chennai Model UN, 2015
- Represented **college**(2013-2015) and **high-school**(2010-2012) in **tennis**
- **Scrabble finalist** at Saarang'15, IIT-Madras and **winner** at Literario'14 and Vibrance'15 at VIT Chennai
- **Active organizing member of the Quiz Club** and **podium finishes** in various intra-college quizzes
- Stood **4th** in the **Limca Book of Records Quiz**, Regionals, 2011 among **180+ competing teams**
- Played **rhythm guitar** in the school band, 2011-2013
- **Designed brochures, t-shirts, invitations** and **head of design** at various **inter-school events** in high-school
- Actively involved in the **Social Welfare Club** (2012) in high-school