

RAMAKRISHNA VEDANTAM

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EDUCATION

Virginia Tech Blacksburg, VA • MS in Computer Engineering, 2015 advised by **Prof. Devi Parikh**
GPA: **4.0/4.0**

Software and Machine Intelligence Intro to Machine Learning and Perception · Computer Vision systems

Courses Enrolled Advanced Machine Learning · Advanced Computer Vision

International Institute of Information Technology Hyderabad, India • B.Tech in ECE, 2013
GPA: **8.21/10.00**

Advanced Courses Mobile Robotics · Medical Image Processing · Artificial Neural Networks · Speech Signal Processing · Engineering Systems

RESEARCH INTERESTS

Scene Understanding · 3D reconstruction · Machine Learning · Natural Language Processing

CURRENT RESEARCH

- **Memorability of Clip Art Images**

Virginia Tech

Advisor: Dr. Larry Zitnick and Dr. Devi Parikh

Description: We are uncovering the intrinsic long term memory of clip art images. Insights into memorability give a very direct sense of the semantics associated with the image. The work is to be submitted to TPAMI (IEEE Transactions on Pattern Analysis and Machine Intelligence)

WORK EXPERIENCE

Bradley Department of Electrical and Computer Engg at Virginia Tech (2013)

Teaching Assistant

- Teaching assistant for ECE 2504, Introduction to Computer Engineering
- Responsibilities include holding office hours to solve doubts and grading weekly assignments and projects

Siemens AG - Corporate Research and Technologies (2012)

Summer Internship

- Completed a thorough literature survey of Structure From Motion and Multi-View Stereo based reconstruction techniques
- Implemented a dense 3D reconstruction pipeline for Workspace Images and Digital Camera Images
- Retrieved volumes of objects at a best case 86% accuracy on WVGA resolution images
- Worked with a team to conceptualize new sensing platforms for remote disease monitoring (Tech Challenge Project)

International Institute of Information Technology (2011)

Teaching Assistant

- Teaching Assistant for Digital Logic and Processor Design
- Conducted weekly lab sessions for freshmen in an introductory course on digital logic

SELECTED PROJECTS

- **Building concise and Expressive Dictionaries from Text**

Virginia Tech

Advisor: Dr. Dhruv Batra

Description: Evaluated various topic modelling and dimensionality reduction techniques such as thresholding on document frequency, PCA, LSA (Latent Semantic Analysis), PLSA (Probabilistic Latent Semantic Analysis) to build more expressive dictionaries for a targetted image-sentence corpus retrieval task.

- **Generating Sentences from Images**

Virginia Tech

Advisor: Dr. Devi Parikh

Description: Generated Sentences from Abstract Clip Art Images using n-gram markov chains, sentence transfer from annotated images using GIST and a template based framework to synthesize descriptions of images from a Clip Art Dataset.

- **Image denoising using dictionary learning for Medical Images**

IIIT Hyderabad

Advisor: Dr. Jayanthi Sivaswamy

Description: Studied the effectiveness of using a sparse coding based dictionary learning approach for image denoising on various medical imaging modalities like MRI, CT, Sonar etc with gaussian noise added. Quantified the average signal gain on a per-modality and per-organ basis. Adapted the approach to work on specular noise by using log transformations.

- **UAV Mapping**

IIIT Hyderabad

Advisor: Dr.K.Madhava Krishna

Description: Implemented an algorithm for path planning on ArDrone Parrot Quadrotor-UAV. The quadrotor learnt an appearance based model for the floor using a Mixture of Gaussians. This model was used to give high level navigation commands to the quadrotor (yaw, pitch, roll) so that it always followed the floor and avoided other territory.

- **CanSat 2011**

IIIT Hyderabad

Advisor: Dr.K.S.Rajan

Description: Designed, fabricated and launched into the lower space an autonomous micro-satellite carrying a large raw hen's egg intact - from *launch* to *landing*. Ground Station set up to monitor the mini-satellite. Involved in CanSat testing, Circuitry and Sensor Integration teams. Our team finished third in the world finals.

SKILLS

- **Programming and Scripting:** MATLAB, C, Assembly, Visual Basic, Python, JavaScript
- **Hardware Description Language:** VHDL
- **Markup and Typesetting:** L^AT_EX, HTML

HONORS AND ACHIEVEMENTS

- Winner of Judges award and Peer award at **Siemens CTT Intern Tech Challenge**, 2012
- Achieved World Rank 3 in global aerospace competition **CANSAT 2011** organised by NASA (Goddard Space Center and Jet Propulsion Lab), AAS(American Astronautical Society) and AIAA (American Institute for Astronautics and Aeronautics)
- Attained top 20 rank in **Regional Mathematics Olympiad** Organised by National Board for Higher Mathematics (NBHM) from Gujarat State. Qualified for the Indian National Mathematics Olympiad, 2008
- Awarded Dean's List I for Excellence in Academics for Monsoon 2011 and Spring 2011 and Dean's List II for Monsoon 2009
- Project on a gesture controlled wheelchair selected for the Research and Development Showcase, IIIT Hyderabad 2010
- Finalist for the Bal Shree honor, conferred by the President of India for outstanding creativity in Science 2008
- Attained All India Rank 134 in National Science Olympiad, 2006

EXTRA CURRICULAR

- Coordinator and Founder - Entrepreneurship Cell at IIIT Hyderabad
- Class Representative from Spring 2009 to Spring 2010
- Member, Students Parliament 2012
- Campus Ambassador for Teach for India 2011-2012
- Trained in carnatic classical music for 7 years