S. Ramakrishna Vedantam

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Education

- **Virginia Tech, United States**
  Master of Science, Computer Engineering
  GPA: 4.0/4.0, Advised by: Prof. Devi Parikh
  Specialization: Computer Vision and Machine Learning
- **International Institute of Information Technology (IIIT), Hyderabad, India**
  Bachelor of Technology, Electronics and Communication Engg.
  GPA: 8.21/10, Advised by: Prof. K. Madhava Krishna
  Specialization: Vision for Robotics

Publications

- **Adopting Abstract Images for Semantic Scene Understanding**: C. Lawrence Zitnick, Ramakrishna Vedantam and Devi Parikh. Acceptance subject to minor revision in IEEE TPAMI

Work Experience

Research Assistant, Fall 2014
Bradley Department of ECE at Virginia Tech, United States
- Working on Semantic Scene Understanding at the Computer Vision Lab, Virginia Tech
- Supervisor: Prof. Devi Parikh, Virginia Tech

Trainee, Summer 2014
Center for Visual Computing, Ecole Centrale de Paris/ INRIA - Saclay, France
- Worked on Loopy Part Models for Face Detection
- Supervisor: Prof. Iasonas Kokkinos, Ecole Centrale de Paris

Teaching Assistant, Fall 2013 and Spring 2014
Bradley Department of ECE at Virginia Tech, United States
- Teaching assistant for ECE 2504, Introduction to Computer Engineering
- Responsible for grading and project evaluation for a class of 100 + students

Intern, Summer 2012
Siemens AG - Corporate Research and Technologies, India
- Implemented a dense 3D reconstruction pipeline using PTAM, SFM and PMVS software
- Supervisor: Dr. Antony Priyakumar, Siemens Corporate Research - Bangalore

Teaching Assitant, Monsoon 2011 and Spring 2013
International Institute of Information Technology, India
- Teaching Assistant for a freshman year course on Digital Logic and Processor Design
- Teaching Assistant for Introduction to Humanities

Professional Services

- Reviewer for ICVGIP (Indian Conference on Computer Vision, Graphics and Image Processing), 2014

Honors and Achievements

- Selected for and attended the International Computer Vision Summer School (ICVSS, 2014), Sicily
- Winner of Judges award and Peer award at Siemens CTT Intern Tech Challenge, 2012
- Our team placed 3rd in global aerospace competition CANSAT 2011 organised by NASA, AAS and AIAA

- 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 2012 and Dean's List II for Monsoon 2009 at IIIT-Hyderabad
- 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

Selected Projects

- **Loopy Part Models for Face Detection** *INRIA-Saclay and Virginia Tech*
  Advisor: Dr. Iasonas Kokkinos and Dr. Dhruv Batra Summer 2014
  Augmented the Deformable Parts Model (DPM) graph structure to include loopy parts. Utilized dual decomposition and augmented lagrangian techniques to solve the resulting inference problem efficiently, often achieving zero primal dual gap. Applied the model to face detection to get results comparable to the state of the art for Detection and Part Localization
- **Evaluation of Image Descriptions** *Microsoft Research and Virginia Tech*
  Advisor: Dr. C. Lawrence Zitnick and Dr. Devi Parikh Spring 2014
  This project involves coming up with strategies to evaluate descriptions of images generated by Computer Vision and Natural Language Processing techniques. The idea is to devise a metric that correlates well with human judgment, saving the need for expensive human annotations
- **Memorability for Abstract Scenes** *Microsoft Research and Virginia Tech*
  Advisor: Dr. C. Lawrece Zitnick and Dr. Devi Parikh Fall 2013
  Studied Image Memorability and object level saliency for Abstract Images. The project involved extensive data collection from Amazon Mechanical Turk using a game for collecting image memorability annotations. This work was submitted to IEEE TPAMI for publication
- **Understanding and Predicting Importance** *Virginia Tech*
  Advisor: Dr. Devi Parikh Spring 2014
  Importance quantifies the likelihood of an object in an image being mentioned in a human description. Formulated Importance Prediction in Abstract Images as a structured prediction problem by incorporating task related insights into feature and model selection.
- **Image denoising using dictionary learning for Medical Images** *IIIT Hyderabad*
  Advisor: Dr. Jayanthi Sivaswamy Spring 2013
  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. 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 Spring 2012 and Fall 2013
  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

Coursework

- **Graduate Coursework**: Computer Vision Systems, Advanced Computer Vision, Introduction to Machine Learning, Probabilistic Graphical Models, Deep Learning (Ongoing), Numerical Analysis and Softw. (Ongoing)
- **Undergraduate Coursework**: Mobile Robotics, Artificial Neural Networks, Speech Signal Processing, Medical Image Processing, Engineering Systems, Data Structures, Operating Systems and Algorithms

Skills

- **Programming Languages**: Matlab, C++, Python
- **Libraries**: OpenCV, ROS

Extra Curricular

- Volunteered in organizing Mid-Atlantic Computer Vision workshop at Virginia Tech
- Regular participation in Computer Vision and Machine Learning Reading Group at Virginia Tech
- Hosted all the Talks at Felicity, annual college fest of IIIT Hyderabad
- Coordinator and Founder- Entrepreneurship Cell at IIIT Hyderabad
- Class Representative for ECE Undergraduate batch
- Member, Students Parliament (Monsoon 2012 and Spring 2013)
- Campus Ambassador for Teach for India at IIIT (2011 to 2012)
- Trained in Carnatic Classical music for 7 years

References

- Prof. Devi Parikh, *Virginia Tech* (email: parikh@vt.edu)
- Prof. Iasonas Kokkinos, *INRIA - Saclay/ Ecole Centrale* (email: iasonas.kokkinos@ecp.fr)
- Dr. C. Lawrence Zitnick, *Microsoft Research* (email: larryz@microsoft.com)
- Prof. Dhruv Batra, *Virginia Tech* (email: dbatra@vt.edu)
- Prof. K. Madhava Krishna, *IIIT Hyderabad* (email: mkrishna@iiit.ac.in)
- Dr. Amit Kale, *Siemens Corporate Research* (email: kale.amit@siemens.com)