

Vivek Boominathan

PhD student, Electrical and Computer Engineering
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Research Interests

My research is in the field of *Computational Photography*, where I focus on using computational tools and imaging architecture to extend the capabilities of day-to-day photography. This encompasses methods from various disciplines like *compressive sensing*, *computer vision*, *multi-view geometry*, *material reflectance properties*.

EDUCATION

4th year PhD, Electrical Engineering, Rice University (Grade: 3.89/4.00) Pursuing
Advised by Dr. Ashok Veeraraghavan

B.Tech. with Honors in Signal Processing, Electrical Engineering, Indian Institute of Technology Hyderabad (Grade: 8.97/10.00) May 2012

PUBLICATIONS

Vivek Boominathan, Jesse K. Adams, Salman Asif, Ben Avants, Jacob T. Robinson, Richard G. Baraniuk, Aswin C. Sankaranarayanan, Ashok Veeraraghavan, “Lensless Imaging: A Computational Renaissance”, *Computational Photography and Displays Special Issue in the IEEE Signal Processing Magazine*, 2016 (under review)

Vivek Boominathan, Kaushik Mitra and Ashok Veeraraghavan, “Improving Resolution and Depth-of-Field of Light Field Cameras Using a Hybrid Imaging System”, *IEEE International Conference on Computational Photography (ICCP)*, 2014

Adam Samaniego, **Vivek Boominathan**, Ashutosh Sabharwal and Ashok Veeraraghavan, “mobileVision: A Face-mounted, Voice-activated, Non-mydratic ‘Lucky’ Ophthalmoscope”, *Frontiers in Optics, Optical Society of America*, 2014

Vivek Boominathan and K Sri Rama Murty, “Speaker recognition via sparse representations using orthogonal matching pursuit”, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2012

K Sri Rama Murty, **Vivek Boominathan** and Karthika Vijayan, “Allpass modeling of LP residual for speaker recognition”, *International Conference on Signal Processing and Communications (SPCOM)*, 2012

TEACHING EXPERIENCE

Teaching Assistant - *ELEC 345: Introduction to Computer Vision*, Rice University Spring 2016

Teaching Fellow - *ELEC 301: Signal and Systems*, Rice University Fall 2014

WORK EXPERIENCE

Research Assistant, *Electrical and Computer Engineering Dept.*, Rice University
Advised by Dr. Ashok Veeraraghavan Fall 2012 - present

Algorithm Developer Intern at startup company, *Light Co.*, India Spring 2015

Research Intern at startup company, <i>LensBricks</i> , India	Summer 2014
Research Intern, <i>NOKIA Research Lab</i> , India	Summer 2013
Undergrad Researcher, <i>Electrical Engineering Dept.</i> , Indian Institute of Technology Hyderabad Advised by Dr. K. Sri Rama Murty	2011 - 2012
Intern, <i>Siemens Information Systems Limited</i> , India	Summer 2011
Intern, <i>Computer Science Dept.</i> , Indian Institute of Technology Madras	Summer 2010
Intern, <i>Naval Physical and Oceanographic Laboratory</i> , DRDO India	Summer 2009

TALKS

“Improving Resolution and Depth-of-Field of Light Field Cameras Using a Hybrid Imaging System”,
IEEE International Conference on Computational Photography May 2014

ACHIEVEMENTS AND AWARDS

Johnson Space Center Health Innovation Challenge, 2nd place Feb 2014
Around 20 teams participated in this challenge to solve various issues faced by astronauts in space. Our team built a real time algorithm that can extract heart rate of an astronaut from video containing him/her. The algorithm is robust against room illumination, astronaut’s body pose and his/her skin tone. A working demo on a video captured on International Space Station was presented.

The University of Tokyo (Todai) - IIT Undergraduate Students Scholarship 2009, 2010, 2011
Awarded for academic excellence, to top 10 ranking students at Indian Institute of Technology, Hyderabad. The scholarship was awarded to me for three consecutive years.

PROFESSIONAL SERVICE

Reviewer (Journal): IEEE Signal Processing Magazine, IEEE Transactions on Image Processing

MEDIA APPEARANCE

“Bulky Cameras, Meet The Lens-less FlatCam”, All Tech Considered, NPR	Feb 2016
“The best of 2015”, Rice University News & Media	Dec 2015
“FlatCam Skips the Lens For a Camera Thinner Than a Dime”, NBC News	Nov 2015
“No lens? No problem for FlatCam”, Rice University News & Media	Nov 2015