

Nagilla Dikpal Reddy

CONTACT INFORMATION

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RESEARCH INTERESTS

My broad interests are in computer vision and signal processing. My thesis research is in *computational photography* and *compressive sensing*. Specifically, I designed and built bandwidth and light efficient *high-speed imaging systems* and developed computer vision tasks on *compressive cameras*.

EDUCATION

University of Maryland, College Park, Maryland, USA

Ph.D. Candidate, Electrical and Computer Engineering (expected graduation date: May 2011)

- Thesis: Compressive Sensing and Sparsity in some Computer Vision Problems
- Advisor: Prof. Rama Chellappa

Indian Institute of Technology Kanpur, Kanpur, India

B.Tech., Electrical Engineering, May 2005

RESEARCH EXPERIENCE

Research Assistant, Department of Electrical and Computer Engineering Aug 2006 - present

- Applied the theory of compressive sensing in different computer vision problems.
- Designed robust background subtraction and tracking algorithms for compressive cameras.
- Proposed a new surface reconstruction algorithm based on sparse representations.

Intern, Mitsubishi Electric Research Laboratory, Cambridge, MA Jan 2010 - Nov 2010 & Jan 2009 - March 2009 & Jun 2008 - Aug 2008

- Designed and built *P2C2*, a high-speed imaging system for capturing general class of motions.
- Designed and built *Coded Strobng Camera*, a high-speed imaging system for capturing fast periodic events.
- Proposed and tested a power saving sampling scheme on an installed motion sensor network.

Intern, FastVDO LLC, Columbia, MD June 2007 - Aug 2007

- Implemented and tested video based super-resolution algorithm which was embedded into a real-time system.

Intern, RF Communications Group, University of Kaiserslautern, Germany May 2004 - July 2004

- Implemented and tested a localization algorithm for wireless networks.

PUBLICATIONS

Journal Publications:

Dikpal Reddy, Ashok Veeraraghavan, Rama Chellappa, "P2C2: Programmable Pixel Compressive Camera for High Speed Imaging", *under preparation for IEEE Transactions on PAMI*, 2011.

Dikpal Reddy, Aswin C. Sankaranarayanan, Rama Chellappa, "Robust Compressive Background Subtraction", *under preparation for IEEE Transactions on Image Processing*, 2011.

Ashok Veeraraghavan, **Dikpal Reddy**, Ramesh Raskar, "Coded Strobng Photography: Compressive Sensing of High Speed Periodic Videos", *IEEE Transactions on Pattern Analysis and Machine*

Intelligence (PAMI), March 2010.

Conference Publications:

Dikpal Reddy, Ashok Veeraraghavan, Rama Chellappa, “P2C2: Programmable Pixel Compressive Camera for High Speed Imaging”, *to appear IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2011.

Salman Asif, **Dikpal Reddy**, Petros Boufonos, Ashok Veeraraghavan “Streaming Compressive Sensing For High-Speed Periodic Videos”, *Proc. of IEEE International Conference on Image Processing (ICIP)*, pp. 3373-3376 , Sept. 2010.

Dikpal Reddy, Amit Agrawal, Rama Chellappa, “Enforcing Integrability by Error Correction using ℓ_1 -minimization”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pp. 2350-2357, June 2009.

Volkan Cevher, Aswin C. Sankaranarayanan, Marco F. Duarte, **Dikpal Reddy**, Richard G. Baraniuk, Rama Chellappa, “Compressive Sensing for Background Subtraction”, *Proc. of European Conference on Computer Vision (ECCV)*, pp. 155-168, Oct. 2008.

Dikpal Reddy, Aswin C. Sankaranarayanan, Volkan Cevher, Rama Chellappa, “Compressed Sensing for Multi-view Tracking and 3-D Voxel Reconstruction”, *Proc. of IEEE International Conference on Image Processing (ICIP)*, pp. 221-224, Oct. 2008.

Michael Meurer, Stefan Heilmann, **Dikpal Reddy**, Tobias Weber and Paul W. Baier, “A signature based localization technique relying on covariance matrices of channel impulse responses”, *Proc. 2nd Workshop on Positioning, Navigation and Communication (WPNC)*, pp. 31-40, 2005.

PATENTS

Ashok Veeraraghavan, Amit Agrawal, Ramesh Raskar, **Dikpal Reddy**, “Coded Strobing Camera for Light Efficient Capture of Periodic Signals”, *US Patent Application*, filed Sep. 2009.

Ashok Veeraraghavan, **Dikpal Reddy**, Amit Agrawal, “Programmable Camera and Video Reconstruction Method”, *US Patent Application*, filed Dec. 2010.

HONORS AND AWARDS

Among 24 selected for *Doctoral Consortium* at IEEE Conference on CVPR 2010.

Best Student Speaker award by ECE Graduate Student Association for year 2009-2010.

Recipient of *Pratibha Scholarship* awarded by Government of Andhra Pradesh, India from 2001-2005.

Student Representative, Graduate Studies and Research Committee, ECE Department, 2008-2010.

LEADERSHIP ACTIVITIES AND PROFESSIONAL SERVICE

Vice President for Academic Affairs, ECE Graduate Student Association, 2008-2009.

Reviewer, IEEE Conference on Computer Vision and Pattern Recognition, IEEE International Conference on Image Processing.

TEACHING EXPERIENCE

University of Maryland, College Park

ENEE322: Signal and System Theory

Spring and Fall 2006

Conducted discussion sessions, assisted students with course material and evaluated students' performance.

ENEE633/CMSC828C: Statistical Pattern Recognition

Graduate Teaching Fellow Fall 2009

Assisted the instructor in choosing course material, formulating projects, designing and administering examinations and grading. In addition, taught 4 lectures (out of 28) and held office hours.

COMPUTER SKILLS **Languages & Tools:** C++, MATLAB/Simulink.
Operating System: Windows, Linux/Unix.

REFERENCES Available upon request.