

Saurabh Gupta

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Education **University of California, Berkeley** 2011 - present
PhD Student in Computer Science
CGPA: 3.83 / 4.0
Advised by Prof. Jitendra Malik

Indian Institute of Technology, Delhi 2007 - 2011
B. Tech in Computer Science and Engineering
Institute Rank 1, CGPA: 9.94 / 10.0
Awarded with President's Gold Medal

Research Interests I am interested in computer vision. Currently, I am studying the task of scene understanding (object detection, segmentation, and pose estimation) for RGB-D images.

Research Experience **University of California, Berkeley** - Prof. Jitendra Malik Fall 2011 - Present
Graduate Student

- **RGB-D Scene Understanding:** Studying the problems of bottom-up segmentation, region proposal generation, object detection, instance and semantic segmentation for RGB-D images. We design local gradients on depth images for edge detection and propose a novel geocentric embedding of the depth image for use in convolutional neural networks to obtain state-of-the-art performance at all of these tasks. We are currently working towards extending this to pose estimation and 3D model estimation, to produce a rich and detailed 3D understanding of the scene which goes beyond image-based detection and segmentation.

Microsoft Research Redmond - Piotr Dollar, John Platt, Larry Zitnick Summer 2014
Summer Research Intern

- **Generating Captions from Images:** We show how we can learn good models for a variety of visual concepts (like nouns, verbs, adjectives) from weak and noisy supervision coming from human captioned images. The output of our visual models when used with a language generation system is able to generate sentences with a BLEU score comparable to the human agreement on this task.

Microsoft Research India - Prof. Manik Varma, Prateek Jain Summer 2010 - Summer 2011
Summer Research Intern, Bachelor Thesis

- **Multiple Kernel Learning for SVMs:** Investigated different ways to regularize RBF kernel parameters for use in the Multiple Kernel Learning objective function to learn non-linear SVM classifiers.

Indian Institute of Technology, Delhi - Prof. Subhashis Banerjee Summer 2009
Summer Undergraduate Research Award

- **Unsupervised Video Surveillance:** Used probabilistic latent semantic analysis (pLSA) to model activities in videos. Used this model of activities to flag unusual activities.

**Conference
Publications**

Aligning 3D Models to RGB-D Images of Cluttered Scenes

Computer Vision and Pattern Recognition (CVPR) 2015

Saurabh Gupta, Pablo Arbeláez, Ross Girshick, Jitendra Malik

From Captions to Visual Concepts and Back

Computer Vision and Pattern Recognition (CVPR) 2015

Hao Fang*, *Saurabh Gupta**, Forrest Iandola*, Rupesh Srivastava*, Li Deng, Piotr Dollr, Jianfeng Gao, Xiaodong He, Margaret Mitchell, John C. Platt, C. Lawrence Zitnick, Geoffrey Zweig

* denotes equal contribution

Learning Rich Features from RGB-D Images for Object Detection and Segmentation

European Conference on Computer Vision (ECCV) 2014

Saurabh Gupta, Ross Girshick, Pablo Arbeláez, Jitendra Malik

Perceptual Organization and Recognition of Indoor Scenes from RGB-D Images

Computer Vision and Pattern Recognition (CVPR) 2013 (Oral)

Saurabh Gupta, Pablo Arbeláez, Jitendra Malik

Semantic Segmentation using Regions and Parts

Computer Vision and Pattern Recognition (CVPR) 2012 (Oral)

Pablo Arbeláez, Bharath Hariharan, Chunhui Gu, *Saurabh Gupta*, Lubomir Bourdev, Jitendra Malik

Driven Approach for Algebraic Loop Invariants

European Symposium on Programming (ESOP) 2013

Rahul Sharma, *Saurabh Gupta*, Bharath Hariharan, Alex Aiken, Percy Liang, Aditya V. Nori

Verification as Learning Geometric Concepts

Static Analysis Symposium (SAS) 2013

Rahul Sharma, *Saurabh Gupta*, Bharath Hariharan, Alex Aiken, Aditya V. Nori

**Journal
Publications**

Indoor Scene Understanding with RGB-D Images: Bottom-up Segmentation, Object Detection and Semantic Segmentation

International Journal of Computer Vision (IJCV) 2014

Saurabh Gupta, Pablo Arbeláez, Ross Girshick, Jitendra Malik

**Teaching
Experience**

CS 280: Computer Vision, Prof. Jitendra Malik, Prof. Alexei Efros

Fall 2013

Graduate Student Instructor

CS 188: Artificial Intelligence, Prof. Dan Klein, Prof. Pieter Abbeel

Fall 2012

Graduate Student Instructor

Selected Awards and Honors At UC Berkeley:

- **Google US/Canada Fellowship in Computer Vision**
- **Berkeley Graduate Student Fellowship**, 2011 - awarded to the top 4% graduate student admits every year.
- **Invited Talks:** Reconstruction Meets Recognition Challenge workshop at ICCV 2013 and ECCV 2014.
- **1st place** in RGB-D Indoor Scene Semantic Segmentation Challenge at Reconstruction Meets Recognition Challenge, ICCV 2013.

Before:

- Awarded with the **President's Gold Medal** for securing the highest CGPA across all students who graduated from Indian Institute of Technology Delhi in 2011.
- Awarded with the **Student Undergraduate Research Award (SURA)** for the project on Unsupervised Detection of Unusual Activities (2009).
- Ranked **83rd** in the Joint Entrance Examination (IIT-JEE 2007) taken by over 250K students across India.
- **CBSE Merit Scholarship** for securing **29th** rank among 600K students in AIEEE 2007.
- **NTSE Scholar:** Ranked **1st** in state level examination. Among 700 students nationwide to receive the National Talent Search Examination scholarship (NTSE-2005).