

## RESEARCH INTERESTS

I am interested in all things visual recognition. In particular, I am interested in building models that produce a rich understanding of images while minimizing the amount of human annotation required to train.

## EMPLOYMENT

Assistant Professor Cornell University	Jul 2017 - Present
Postdoctoral researcher Facebook	Oct 2015 – Jul 2017
Postdoctoral researcher Microsoft Research	Aug 2015 – Oct 2015

## EDUCATION

PhD University of California, Berkeley Advisor: Jitendra Malik	2015
BTech Indian Institute of Technology, Delhi	2010

## PUBLICATIONS

### *Peer-Reviewed Journal Publications*

- **B. Hariharan**, P. Arbeláez, R. Girshick, J. Malik. Object Instance Segmentation and Fine-grained Localization using Hypercolumns. In *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2016.
- N. J. Yadwadkar, **B. Hariharan**, J. Gonzales, R. Katz. Multi-Task Learning for Straggler Avoiding Predictive Job Scheduling. In *Journal of Machine Learning Research (JMLR)*, 2016.
- **B. Hariharan**, S. V. N. Vishwanathan, M. Varma. Efficient max-margin multi-label classification with applications to zero-shot learning. In *Machine Learning*, 2012.

### *Peer-reviewed conference publications*

- G. Yang, Y. Cui, S. Belongie, **B. Hariharan**. A Unified Framework for Single-View 3D Reconstruction with Limited Pose Supervision. In *European Conference on Computer Vision (ECCV)*, 2018.
- Y-X. Wang, R. Girshick, M. Herbert, **B. Hariharan**. Low-shot Learning from Imaginary Data. In *Computer Vision and Pattern Recognition (CVPR)*, 2018 (**Spotlight**).

- Y. Wang, L. Wang, Y. You, X. Zou, V. Chen, S. Li, G. Huang, **B. Hariharan**, K. Weinberger. Resource Aware Person Re-identification across Multiple Resolutions. In *Computer Vision and Pattern Recognition (CVPR)*, 2018.
- M. Douze, A. Szlam, **B. Hariharan**, H. Jegou. Low-shot learning with large-scale diffusion. In *Computer Vision and Pattern Recognition (CVPR)*, 2018.
- N. J. Yadwadkar, **B. Hariharan**, J. E. Gonzalez, B. Smith, R. Katz. Selecting the Best VM across Multiple Public Clouds: A Data-Driven Performance Modeling Approach. In *Symposium of Cloud Computing (SoCC)*, 2017.
- **B. Hariharan**, R. Girshick. Low-shot Visual Recognition by Shrinking and Hallucinating Features. In *International Conference on Computer Vision (ICCV)*, 2017 (**Spotlight**).
- J. Johnson, **B. Hariharan**, L. van der Maaten, J. Hoffman, L. Fei-Fei, C. Lawrence Zitnick, R. Girshick. Inferring and Executing Programs for Visual Reasoning. In *International Conference on Computer Vision (ICCV)*, 2017 (**Oral**).
- D. Pathak, R. Girshick, P. Dollár, T. Darrell, **B. Hariharan**. Learning Features by Watching Objects Move. In *Computer Vision and Pattern Recognition (CVPR)*, 2017.
- J. Johnson, **B. Hariharan**, L. van der Maaten, L. Fei-Fei, C. Lawrence Zitnick, R. Girshick. CLEVR: A Diagnostic Dataset for Compositional Language and Elementary Visual Reasoning. In *Computer Vision and Pattern Recognition (CVPR)*, 2017.
- T-Y Lin, P. Dollár, R. Girshick, K. He, **B. Hariharan**, S. Belongie. Feature Pyramid Networks for Object Detection. In *Computer Vision and Pattern Recognition (CVPR)*, 2017.
- K. Li, **B. Hariharan**, J. Malik. Iterative Instance Segmentation. In *Computer Vision and Pattern Recognition (CVPR)*, 2016.
- W. Kuo, **B. Hariharan**, J. Malik. DeepBox: Learning Objectness with Convolutional Networks. In *International Conference on Computer Vision (ICCV)*, 2015.
- **B. Hariharan**, P. Arbeláez, R. Girshick, J. Malik. Hypercolumns for Object Segmentation and Fine-grained Localization. In *Computer Vision and Pattern Recognition (CVPR)*, 2015 (**Oral**).
- N. J. Yadwadkar, **B. Hariharan**, J. Gonzalez, R. Katz. Faster Jobs in Distributed Data Processing using Multi-Task Learning. In *SIAM Data Mining (SDM)*, 2015.
- **B. Hariharan**, P. Arbeláez, R. Girshick, J. Malik. Simultaneous Detection and Segmentation. In *European Conference on Computer Vision (ECCV)*, 2014.
- **B. Hariharan**, C. L. Zitnick, P. Dollár. Detecting objects using Deformation Dictionaries. In *Computer Vision and Pattern Recognition (CVPR)*, 2014.
- G. Gkioxari, **B. Hariharan**, R. Girshick, J. Malik. Using k-poselets for Detecting People and Localizing their Keypoints. In *Computer Vision and Pattern Recognition (CVPR)*, 2014.
- R. Sharma, S. Gupta, **B. Hariharan**, A. Aiken, P. Liang, A. V. Nori. A Data Driven Approach for Algebraic Loop Invariants. In *European Symposium on Programming (ESOP)*, 2013.
- R. Sharma, S. Gupta, **B. Hariharan**, A. Aiken, A. V. Nori. Verification as learning geometric concepts. In *Static Analysis Symposium (SAS)*, 2013.
- **B. Hariharan**, J. Malik, D. Ramanan. Discriminative decorrelation for clustering and classification. In *European Conference on Computer Vision (ECCV)*, 2012.
- P. Arbeláez, **B. Hariharan**, C. Gu, S. Gupta, L. Bourdev, J. Malik. Semantic segmentation using regions and parts. In *Computer Vision and Pattern Recognition (CVPR)*, 2012.
- **B. Hariharan**, P. Arbeláez, L. Bourdev, S. Maji, J. Malik. Semantic contours from inverse detectors. In *International Conference on Computer Vision (ICCV)*, 2011.

- **B. Hariharan**, L. Zelnik-Manor, S. V. N. Vishwanathan, M. Varma. Large scale max- margin multilabel classification with priors. *In International Conference on Machine Learning (ICML)*, 2010.

## TEACHING

- CS 6670 (Graduate Computer Vision): Fall 2017.
- CS 4670/5670 (Undergraduate Computer Vision): Spring 2018.

## SERVICE AND OTHER ACTIVITIES

- Reviewer for CVPR, ICCV, NIPS.
- SPC for AAAI.
- Co-organizer for the Perceptual Organization in Computer Vision Workshop, ECCV 2018.

## AWARDS

- Outstanding Reviewer Award, CVPR 2018, ECCV 2014 and CVPR 2015.
- Microsoft Research Fellowship, 2013.
- Outstanding Graduate Student Instructor Award, 2011.
- Berkeley Graduate Student Fellowship, 2010.
- President's Gold Medal, given to student graduating with highest CGPA, 2010