ROSS B. GIRSHICK

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Researcher
Microsoft Research, Redmond
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Education

University of Chicago — Apr. 2012
Ph.D. in Computer Science
Advisor: Pedro F. Felzenszwalb

University of Chicago — Dec. 2009
M.S. in Computer Science
Advisor: Pedro F. Felzenszwalb

Brandeis University — May 2004
B.S. in Computer Science

Appointments

Microsoft Research, Researcher — Sep. 2014 - present
UC Berkeley, Postdoctoral Fellow, EECS — Sep. 2012 - Aug. 2014
Mentor: Jitendra Malik

Awards and Scholarships

PASCAL VOC Challenge "Lifetime Achievement" Prize — 2010
1st place PASCAL VOC Challenge (detection) — 2009
1st place PASCAL VOC Challenge (detection) — 2008
Best student presentation, International Computer Vision Summer School, Sicily, Italy — 2009
ARCS Foundation Scholar, Chicago chapter, $10,000 annual award — 2008 – 2011

Internships

Research intern at Microsoft Research Cambridge, UK — Feb. – Mar. 2011
Advisors: Jamie Shotton (primary), Andrew Fitzgibbon, Pushmeet Kohli, Antonio Criminisi
Research intern at Microsoft Research Cambridge, UK — Jul. – Oct. 2010
Advisors: Jamie Shotton (primary), Andrew Fitzgibbon, Pushmeet Kohli, Antonio Criminisi

Journal Publications (Peer Reviewed)

1. R. Girshick, J. Donahue, T. Darrell, J. Malik. Region-Based Convolutional Networks for Accurate Object Detection and Segmentation. Accepted to IEEE Transactions on Pattern Analysis and Machine Intelligence, May. 2015.
2. S. Gupta, P. Arbeláez, R. Girshick, J. Malik. Indoor Scene Understanding with RGB-D Images: Bottom-up Segmentation, Object Detection and Semantic Segmentation. International Journal of Computer Vision, Vol. 112, No. 2, Apr. 2015.

3. H. O. Song, R. Girshick, S. Zickler, C. Geyer, P. Felzenszwalb, T. Darrell. Generalized Sparselet Models for Real-Time Multiclass Object Recognition. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 37, No. 5, May. 2014.
4. J. Shotton, R. Girshick, A. Fitzgibbon, T. Sharp, M. Cook, M. Finocchio, R. Moore, P. Kohli, A. Criminisi, A. Kipman, A. Blake. Efficient Human Pose Estimation from Single Depth Images. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 35, No. 12, Dec. 2013.
5. P. Felzenszwalb, R. Girshick, D. McAllester, D. Ramanan. Object Detection with Discriminatively Trained Part Based Models. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 32, No. 9, Sept. 2010.

Conference Publications (Peer Reviewed)

1. R. Girshick, F. Iandola, T. Darrell, J. Malik. Deformable Part Models are Convolutional Neural Networks. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015.
2. B. Hariharan, P. Arbeláez, R. Girshick, J. Malik. Hypercolumns for Object Segmentation and Fine-grained Localization. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015.
3. S. Gupta, P. Arbeláez, R. Girshick, J. Malik. Aligning 3D Models to RGB-D Images of Cluttered Scenes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015.
4. J. Hoffman, S. Guadarrama, E. Tzeng, R. Hu, J. Donahue, R. Girshick, T. Darrell, K. Saenko. LSDA: Large Scale Detection through Adapation. Neural Information Processing Systems (NIPS), 2014.
5. B. Hariharan, P. Arbeláez, R. Girshick, J. Malik. Simultaneous Detection and Segmentation. European Conference on Computer Vision (ECCV), 2014.
6. S. Gupta, R. Girshick, P. Arbeláez, J. Malik. Learning Rich Features from RGB-D Images for Object Detection and Segmentation. European Conference on Computer Vision (ECCV), 2014.
7. Pulkit Agrawal, R. Girshick, J. Malik. Analyzing the Performance of Multilayer Neural Networks for Object Recognition. European Conference on Computer Vision (ECCV), 2014.
8. N. Zhang, J. Donahue, R. Girshick, T. Darrell. Part-based R-CNNs for Fine-grained Category Detection. European Conference on Computer Vision (ECCV), 2014.
9. H. O. Song, R. Girshick, S. Jegelka, J. Mairal, Z. Harchaoui, T. Darrell. On learning to localize objects with minimal supervision. International Conference on Machine Learning (ICML), 2014.
10. R. Girshick, J. Donahue, T. Darrell, J. Malik. Rich feature hierarchies for accurate object detection and semantic segmentation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014.
11. G. Gkioxari, B. Hariharan, R. Girshick, J. Malik. Using k-poselets for detecting people and localizing their keypoints. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014.
12. A. Vedaldi, S. Mahendran, S. Tsogkas, S. Maji, R. Girshick, J. Kannala, E. Rahtu, I. Kokkinos, M. B. Blaschko, D. Weiss, B. Taskar, K. Simonyan, N. Saphra, S. Mohamed. Understanding Objects in Detail with Fine-grained Attributes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014.
13. R. Girshick, J. Malik. Training Deformable Part Models with Decorrelated Features. IEEE International Conference on Computer Vision (ICCV), 2013.
14. R. Girshick, H. O. Song, T. Darrell. Discriminatively Activated Sparselets. International Conference on Machine Learning (ICML), 2013.

15. H.O. Song, S. Zickler, T. Althoff, R. Girshick, M. Fritz, C. Geyer, P. Felzenszwalb, T. Darrell. Sparselet Models for Efficient Multiclass Object Detection. European Conference on Computer Vision (ECCV), 2012.
16. R. Girshick, P. Felzenszwalb, D. McAllester. Object Detection with Grammar Models. Neural Information Processing Systems (NIPS), 2011.
17. R. Girshick, J. Shotton, P. Kohli, A. Criminisi, A. Fitzgibbon. Efficient Regression of General-Activity Human Poses from Depth Images. IEEE International Conference on Computer Vision (ICCV), 2011.
18. P. Felzenszwalb, R. Girshick, D. McAllester. Cascade Object Detection with Deformable Part Models. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010.
19. R. Basri, P. Felzenszwalb, R. Girshick, D. Jacobs, C. Klivans. Visibility Constraints on Features of 3D Objects. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2009.
20. R. Girshick. Simulating Chinese Brush Painting: The Parametric Hairy Brush. ACM SIGGRAPH 2004 Posters.

Other Publications

1. P. Felzenszwalb, R. Girshick, D. McAllester, D. Ramanan. Visual Object Detection with Deformable Part Models. Communications of the ACM, Number 9, Pages 97-105, August 2013.
2. P. Felzenszwalb, R. Girshick, D. McAllester, D. Ramanan. Discriminative Latent Variable Models for Object Detection. Invited Applications Paper, International Conference on Machine Learning (ICML) 2010.
3. P. Felzenszwalb, R. Girshick, D. McAllester. Discriminatively Trained Part Based Models. The PASCAL Visual Object Classes Challenge Workshop, ICCV 2009, Kyoto, Japan.
4. P. Felzenszwalb, R. Girshick, D. McAllester, D. Ramanan. Discriminatively Trained Mixtures of Deformable Part Models. The PASCAL Visual Object Classes Challenge Workshop, ECCV 2008, Marseille, France.

Patents

1. Predicting Joint Positions. J.D.J. Shotton, P. Kohli, R.B. Girshick, A. Fitzgibbon, A. Criminisi. US Patent No. 8,571,263 Oct. 29, 2013.
2. Human Body Pose Estimation. J.D.J. Shotton, S. Izadi, O. Hilliges, D. Kim, D.G. Molyneaux, M.D. Cook, P. Kohli, A. Criminisi, R.B. Girshick, and A.W. Fitzgibbon. US Patent No. 8,638,985 Jan. 28, 2014.

Invited Talks

Hypercolumns for Object Segmentation and Fine-grained Localization
- Data, Learning and Inference (DALI), La Palma, Canaries, Spain, April 2015

Understanding Images with "Deep Learning"
- Microsoft Research, Redmond, November 2014

Learning architectures for visual object recognition
- University of Michigan, Ann Arbor, March 2014
- UC San Diego, San Diego, February 2014

- TTI Chicago, Chicago, February 2014
- Adobe CTL, San Francisco, February 2014
- Microsoft Research, Redmond, February 2014
- Facebook AI Group, Menlo Park, January 2014

Rich feature hierarchies for accurate object detection and semantic segmentation
- ImageNet Large-Scale Visual Recognition Challenge workshop, ICCV 2013, Sydney, Australia, Dec. 2013
- Berkeley Vision and Learning Center, UC Berkeley, November 2013

A (mini) Tutorial on Object Detection
- Adobe Research, San Francisco, August 2013

From Rigid Templates to Grammars: Object Detection with Structured Models
- VCL Seminar, UC Berkeley, EECS, October 2012
- Google Tech Talk, Google Mountain View, CA, October 2012

Object detection with heuristic coarse-to-fine search
- International Computer Vision Summer School (ICVSS), Sicily, July 2009
  Best student speaker prize
- Illinois Computer Vision Workshop, TTI-C, May 2009

Discriminatively trained mixtures of deformable part models for detection
- Illinois Computer Vision Workshop, UIUC, October 2008

An introduction to object recognition with deformable part models
- CS graduate student seminar, University of Chicago, October 2008

Open-source Software

Fast R-CNN – fast and accurate object detection system (Python and C++/Caffe)
https://github.com/rbgirshick/fast-rcnn

R-CNN – first object detection based on deep ConvNets to achieve state-of-the-art results on PASCAL VOC (MATLAB and C++/Caffe)
https://github.com/rbgirshick/rcnn

voc-release{2,3,4,5} – a widely-used object detection software (MATLAB and C++)
http://www.cs.berkeley.edu/~rbg/latent
Downloaded 3,445 times from Nov. 1, 2012 - Nov. 1, 2013 (12 months)

Cascade object detection with deformable part models (MATLAB C++)
http://www.cs.berkeley.edu/~rbg/star-cascade
Downloaded 331 times from Sept. 5, 2012 - Aug. 27, 2013 (12 months)

Work Experience

SmarterTravel.com 2004 – 2007
Last position held: senior software engineer

References

Contact information available upon request
Pedro Felzenszwalb, Associate Professor, Engineering and Computer Science, Brown University

David McAllester, Professor and Chief Academic Officer, Toyota Technological Institute at Chicago (TTI)
Jitendra Malik, Arthur J. Chick Professor of EECS, UC Berkeley
David Forsyth, Professor of CS, University of Illinois at Urbana-Champaign (UIUC)