

## **Professor Jitendra Malik**

Arthur J. Chick Professor, Department of EECS  
University of California at Berkeley, CA 94720  
Email: malik@berkeley.edu, Phone: (510) 642-7597

## **Field of Specialization**

Computer Vision, Computational Modeling of Human Vision, Machine Learning

## **Education**

B.S. in Electrical Engineering, Indian Institute of Technology, Kanpur, 1980.  
Ph.D. in Computer Science, Stanford University, December 1985.

## **Experience**

Research Scientist Director & Site Lead, Facebook Artificial Intelligence Research, Menlo Park, 2018 & 2019  
Chair, Department of EECS, UC Berkeley, 2016-2017  
Visiting Research Scientist, Google, 2015-2016  
Member, Committee on Budget and Interdepartmental Relations, 2013-2014  
Associate Dean for New Academic Initiatives, College of Engineering, 2010-2012  
Professor, Bioengineering, UC Berkeley, since January 2009.  
Chair, Department of EECS, UC Berkeley, 2004–2006.  
Chair, Computer Science Division, EECS, UC Berkeley, 2002–2004.  
Scientific Director, Yahoo! Research Berkeley, Jan-June 2007 (visiting)  
Professor, EECS, UC Berkeley, since July 1996.  
Associate Professor, EECS, UC Berkeley, July 1991-June 1996.  
Assistant Professor, EECS, UC Berkeley, Jan 1986-June 1991.  
Member, Groups in Vision Science and Cognitive Science, UC Berkeley.

## **Honors and Awards**

Computer Pioneer Award, IEEE Computer Society, 2019  
IJCAI Award for Research Excellence, 2018  
Best paper prize, IEEE CVPR 2018  
Helmholtz Prize for a Contribution That Has Stood the Test of Time, ICCV, 2003  
ACM-AAAI Allen Newell Award, 2016.  
National Academy of Sciences, 2015.  
Helmholtz Prize (1) for a Contribution That Has Stood the Test of Time, ICCV, 2001  
Helmholtz Prize (2) for a Contribution That Has Stood the Test of Time, ICCV, 2001  
Best student paper award, IEEE CVPR 2016 (adviser)  
King-Sun Fu Prize of the International Association of Pattern Recognition, 2014.  
IEEE PAMI-TC Distinguished Researcher in Computer Vision, 2013.  
American Academy of Arts and Sciences, 2013.  
National Academy of Engineering, 2011.  
Arthur J. Chick Endowed Professor of EECS, UC Berkeley, 2002-continuing.  
ISI Highly Cited Researcher in Engineering.  
Fellow, ACM, 2008.  
Longuet-Higgins Prize for a Contribution That Has Stood the Test of Time, IEEE CVPR, 1998

Distinguished Alumnus Award, IIT Kanpur, 2008.  
Longuet-Higgins Prize for a Contribution That Has Stood the Test of Time, IEEE CVPR, 1997  
Fellow, IEEE, 2005.  
Miller Research Professor, UC Berkeley, 2001.  
Diane S. McEntyre Award for Excellence in Teaching, CS Div., UC Berkeley, 2000.  
Honorable mention for Best Industry-Related Paper at ICPR, 1994.  
Rosenbaum Fellow, Newton Institute of Math. Sciences, Cambridge, 1993.  
Presidential Young Investigator Award 1989.  
IBM Faculty Development Award 1986-88.  
IBM Fellowship for Doctoral Study in Computer Science 1983-85.  
Best Graduating Student in Electrical Engineering, IIT Kanpur 1980.  
One of the top ten students in the Indian School Certificate Exam. 1974.

### **Synergistic Activities**

Chair, Section 34 (Computer and Information Sciences), National Academy of Sciences, 2019-  
Chair/Member Search Committee, Section 5 (Computer Science), NAE, 2016-2018  
Chair/Member, Peer Committee, Section 5 (Computer Science), NAE, 2013-2015  
Selection Committee, Sloan Research Fellowships in Computer Science, 2012-2018.  
Governing Body, International Institute of Information Technology, Bangalore, 2006-2016.  
Technical Advisory Board, Microsoft Research India, 2005-2011.  
General Chair, IEEE CVPR 2010.  
Board of Trustees, International Computer Science Institute 2002-2005  
Organizer, MSRI Program on Image Analysis, Jan–May 2005  
Editorial Board, Journal of Vision 2001-2004  
Editorial Board, International Journal of Computer Vision, 2002-continuing.  
Editorial Board, Foundations and Trends in Computer Graphics and Vision, 2005-continuing  
Editor, International Journal of Computer Vision, 2000-2002  
Program Chair, International Conf. Computer Vision 2003.  
General Chair, IEEE CVPR 2000.  
Associate Editor, IEEE Trans. on PAMI 1994-96.  
Program committees for major conferences in computer vision, graphics (various)

### **PhD Theses Supervised (with current positions)**

Paul Kube, *On Image Texture*, 1988.(UC San Diego)  
Pietro Perona, *Finding Texture and Brightness Boundaries in Images*, 1990. (Caltech)  
Niklas Nordstrom, *Variational Edge Detection*, 1990. (Percipo, Inc.)  
Ziv Gigus, *Object Recognition from Line Drawings*, 1991.  
David G. Jones, *Computational Models of Binocular Vision*, 1991.(McMaster)  
Clark Olson, *Fast Object recognition by Selectively Examining Hypotheses*, 1994. (UW Bothell)  
Joseph Weber, *The Measurement and Use of Visual Motion*, 1994.(TiVo)  
Ruth Rosenholtz, *Local Shape from Texture*, 1994. (MIT)  
Paul Debevec, *Modeling and Rendering Architecture from Photographs*, 1996.(USC ICT)  
Jianbo Shi, *Perceptual Organization and Image Segmentation*, 1998.(U Penn)  
Christoph Bregler, *Computational Models of Human Motion*, 1998. (Google)  
Gregory J. Klein, *Deformable Models for Volume Feature Tracking*, 1999. (F.Hoffman-LaRoche)  
Charles C. Carson, *Region-based Image Querying and Classification*, 1999.(Yahoo!)

Yizhou Yu, *Modeling and Editing Real Scenes with Image-Based Techniques*, 2000. (Hong Kong)

Thomas K. Leung, *Visual Texture Analysis*, 2000.(Google)

Serge Belongie, *Image Segmentation and Shape Matching for Object Recognition*, 2000.(Cornell Tech)

David Martin, *An empirical approach to Grouping and Segmentation*, 2002. (Google)

Alyosha Efros, *Data-driven Approaches for Texture and Motion*, 2003. (UC Berkeley)

Laura Walker Renninger, *Parts, Objects and Scenes: Computational Models and Psychophysics*, 2003. (Apple)

Gregory Mori, *Detecting and Localizing Human Figures*, 2004. (Simon Fraser University)

Andras Ferencz, *Finding Good Features for Object Recognition*, 2005. (Mobileye Vision Technologies)

Charless Fowlkes, *Measuring the Ecological Validity of Grouping and Figure-Ground Cues*, 2005. (UC Irvine)

Alexander Berg, *Shape Matching and Object Recognition*, 2005. (Facebook AI Research)

Xiaofeng Ren, *Probabilistic Models for Mid-Level Vision*, 2006. (Alibaba)

Hao Zhang, *Adapting Learning techniques for Visual Recognition*, 2007.(Two Sigma)

Andrea Frome, *Learning Distance Functions for Exemplar-Based Object Recognition*, 2007. (Google)

Michael Maire, *Contour Detection and Image Segmentation*, 2009. (Chicago)

Ashley Eden, *Finding Lost Children*, 2010. (Google)

Lubomir Bourdev, *Poselets and Their Applications in High-Level Computer Vision*, 2011. (WaveOne, Inc.)

Chetan Nandakumar, *Invariance in Human Visual Perception*, 2011 (Unifyre)

Subhransu Maji, *Algorithms and Representations for Visual Recognition*, 2011. (Univ. of Massachusetts, Amherst)

Chunhui Gu, *Recognition Using Regions*, 2012. (startup)

Jonathan Barron, *Shapes, Paint, and Light*, 2013. (Google)

Bharath Hariharan, *Beyond Bounding Boxes: Precise Localization of Objects in Images*, 2015, (Cornell)

Georgia Gkioxari, *Contextual Visual Recognition from Images and Videos*, 2016, (Facebook AI Research)

Abhishek Kar, *Learning to reconstruct 3D objects*, 2017, (Google)

Shubham Tulsiani, *Learning Single-view 3D Reconstruction of Objects and Scenes*, 2018, (Facebook AI Research)

Saurabh Gupta, *Representations for Visually Guided Actions*, 2018, (University of Illinois at Urbana-Champaign)

Pulkit Agrawal, *Computational Sensorimotor Learning*, 2018, (Massachusetts Institute of Technology)

Panna Felsen, *Learning to Predict Human Behavior from Video*, (startup)

Wei-Cheng Kuo, *Expert-Level Detection of Acute Intracranial Hemorrhage on Head Computed Tomography using Deep Learning*, (Google)

Ke Li, *Advances in Machine Learning: Nearest Neighbor Search, Learning to Optimize and Generative Modelling*, (Google)

## Publications

## Journals

1. J. Malik, "Interpreting line drawings of curved objects", *International Journal of Computer Vision*, **1**(1) 1987, pp. 73-103.
2. J. Malik and D. Maydan, "Recovering three dimensional shape from a single image of curved objects," *IEEE Trans. on Pattern Analysis and Machine Intelligence* **11** (6), pp. 555-566, June 1989. Also in *Shape from Shading*, B.K.P. Horn and M.J.Brooks (eds.) MIT Press, 1989.
3. Z. Gigus and J. Malik, "Computing the aspect graph for line drawings of polyhedral objects," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, **12** (2), February 1990, pp. 113-122. Also in *Computer Vision: Advances and Applications* R. Kasturi and R.C. Jain (eds.) IEEE Computer Society Press, 1991.
4. J. Malik and P.Perona, "Preattentive texture discrimination with early vision mechanisms," *Journal of Optical Society of America A*, **7** (2), May 1990, pp. 923-932. Also in *Computer Vision: Advances and Applications* R. Kasturi and R.C. Jain (eds.) IEEE Computer Society Press, 1991.
5. P. Perona and J. Malik, "Scale space and edge detection using anisotropic diffusion," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, **12** (7), July 1990, pp. 629-639.
6. D. Jones and J. Malik, "Computational framework for determining stereo correspondence from a set of linear spatial filters," *Image and Vision Computing* **10**(10), December 1992, pp. 699-708.
7. J. Weber and J. Malik, "Robust computation of optical flow in a multi-scale differential framework," *International Journal of Computer Vision*, **14**(1), Jan 1995, pp. 67-81.
8. J. Weber and J. Malik, "Rigid Body Segmentation and Shape Description from dense optical flow under weak perspective," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, February 1997, pp. 139-143.
9. J. Malik and R. Rosenholtz, "Computing local surface orientation and shape from texture for curved surfaces," *International Journal of Computer Vision*, **23**(2), June 1997, pp. 149-168.
10. D. Forsyth, J. Malik and R. Wilensky, "Searching for Digital Pictures," *Scientific American*, **276**(6), June 1997, pp. 88-93.
11. R. Rosenholtz and J. Malik, "Surface Orientation from texture: Isotropy or Homogeneity (Or Both)?," *Vision Research*, **37**(16), Aug 1997, pp. 2283-2293.
12. B. Coifman, D. Beymer, P. McLauchlan and J. Malik, "A Real-time Computer Vision System for vehicle tracking and traffic surveillance," *Transportation Research C* **6C** (4), Aug 1998, 271-288.
13. Camillo J. Taylor, Jana Kosecka, Robert Blasi and Jitendra Malik, "A Comparative Study of Vision-Based Lateral Control Strategies for Autonomous Highway Driving," *IJRR*, **18**(5), May 1999, pp. 442-453.

14. J. Malik, B.L. Anderson and C.E. Charowhas, "Stereoscopic occlusion junctions," *Nature Neuroscience*, 2(9), Sept. 1999, pp.840-843
15. Joachim M. Buhmann, Jitendra Malik, and Pietro Perona, "Image recognition: Visual grouping, recognition, and learning," *PNAS* 1999;96 14203-14204
16. J. Shi and J. Malik, "Normalized Cuts and Image Segmentation," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 22(8), August 2000, pp. 888-905
17. J. Malik, S. Belongie, T. Leung, J. Shi, "Contour and Texture Analysis for Segmentation," *International Journal of Computer Vision*, 43(1), 7-27, June 2001.
18. T. Leung and J. Malik, "Representing and Recognizing the Visual Appearance of Materials using Three-dimensional Textons," *International Journal of Computer Vision*, 43(1), 29-44, June 2001.
19. Y. Yu, A. Ferencz and J. Malik, "Extracting Objects from Range and Radiance Images," *IEEE Trans. on Visualization and Computer Graphics*, 7(4), 351-364, 2001.
20. S. Belongie, J. Malik and J.Puzicha, "Shape Matching and Object Recognition using Shape Contexts," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 24(4), April 2002, pp. 509-522.
21. C. Carson, S. Belongie, H. Greenspan, J. Malik, "Blobworld: Image Segmentation Using Expectation-Maximization and its Application to Image Querying," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 24(8), Aug. 2002, pp.1026 - 1038.
22. C. Fowlkes, S. Belongie, F. Chung, J. Malik, "Spectral Grouping Using The Nyström Method," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 26(2), Feb. 2004, pp.214-225.
23. C. Bregler, J. Malik and K. Pullen. "Twist-based Acquisition and Tracking of Animal and Human Kinematics," *International Journal of Computer Vision*, 56(3), 179-194, Feb/March 2004.
24. D. Martin, C. Fowlkes, J. Malik. "Learning to Detect Natural Image Boundaries Using Local Brightness, Color and Texture Cues", *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 26(5), May 2004, pp. 530-549.
25. L. Walker Renninger and J. Malik, "When is scene recognition just texture recognition?", *Vision Research*, 44, 2004, pp. 2301-2311.
26. G. Mori, S. Belongie and J.Malik, "Efficient Shape Matching Using Shape Contexts," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 27(11), Nov. 2005, pp.1832-1837.
27. G. Mori and J. Malik, "Recovering 3D human body configurations using shape contexts", *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 28(7), July 2006, pp. 1052 - 1062.

28. C. Luengo-Hendriks, S. Keränen, C. Fowlkes, L. Simirenko, G. Weber, C. Henriquez, D. Kaszuba, B. Hamann, M. Eisen, J. Malik, D. Sudar, M. Biggin D. Knowles, “3D Morphology and Gene Expression in the Drosophila Blastoderm at Cellular Resolution I: Data Acquisition Pipeline”, *Genome Biology*, 7:R123, 2006.
29. S. Keränen, C. Fowlkes, C. Luengo Hendriks, D. Sudar, D. Knowles, J. Malik, M. Biggin, “3D Morphology and Gene Expression in the Drosophila Blastoderm at Cellular Resolution II: Dynamics”, *Genome Biology*, 7:R124, 2006.
30. C.C. Fowlkes, D.R. Martin, J. Malik, “Local Figure/Ground Cues are Valid for Natural Images”, *Journal of Vision*, 7(8):2, 1-9, <http://journalofvision.org/7/8/2/>, 2007.
31. A. Ferencz, E.G. Learned-Miller and J. Malik, “Learning to Locate Informative Features for Visual Identification”, *International Journal of Computer Vision*, 77:3-24, 2008
32. X. Ren, C.C. Fowlkes and J. Malik, “Learning Probabilistic Models for Contour Completion in Natural Images”, *International Journal of Computer Vision*, 77:47-63, 2008
33. Charless C. Fowlkes, Cris L. Luengo Hendriks, Soile V.E. Keränen, Gunther H. Weber, Oliver Rubel, Min-Yu Huang, Sohail Chatoor, Angela H. DePace, Lisa Simirenko, Clara Henriquez, Amy Beaton, Richard Weiszmann, Susan Celniker, Bernd Hamann, David W. Knowles, Mark D. Biggin, Michael B. Eisen, and Jitendra Malik, “A Quantitative Spatiotemporal Atlas of Gene Expression in the *Drosophila* Blastoderm”, *Cell*, Vol 133, 364-374, 18 April 2008
34. G. Weber, O. Rubel, M. Huang, A. DePace, C.Fowlkes, S. Keranen, C. Luengo Hendriks, H. Hagen, D. Knowles, J. Malik, M.D. Biggin and B. Hamann, “Visual Exploration of Three-dimensional Gene Expression Using Physical Views and Linked Abstract Views”, *IEEE/ACM Trans. on Computational Biology and Bioinformatics*, vol. 6, no. 2, pp. 296-309, April-June, 2009.
35. C. Nandakumar and J. Malik, “Understanding rapid category detection via multiply degraded images”, *Journal of Vision*, 9(6):19, 1-8, <http://journalofvision.org/9/6/19/>, doi:10.1167/9.6.19, 2009.
36. O. Rubel, G. Weber, M. Huang, E. Bethel, M. Biggin, C.Fowlkes, C. Luengo Hendriks, S. Keranen, M. Eisen, D. Knowles, J. Malik, H. Hagen and B. Hamann, “Integrating Data Clustering and Visualization for the Analysis of 3D Gene Expression Data”, *IEEE/ACM Trans. on Computational Biology and Bioinformatics*. 7(1), 2010, pp 64-79. doi:10.1109/TCBB.2008.49 .
37. Maxim Shatsky, Richard J. Hall, Eva Nogales, Jitendra Malik and Steven Brenner, “Automated multi-model reconstruction from single-particle electron microscopy data”, *Journal of Structural Biology*, 170(1), April 2010, pp 98-108. doi:10.1016/j.jsb.2010.01.007
38. T. Brox and J. Malik, “Large Displacement Optical Flow: Descriptor Matching in Variational Motion Estimation,” *IEEE Trans. on PAMI*, 33(3), March 2011, pp. 500-513.
39. P. Arbelaez, M. Maire, C. Fowlkes and J.Malik, “Contour Detection and Hierarchical Image Segmentation,” *IEEE Trans. on PAMI*, 33(5), May 2011, pp. 898-916.

40. C. Nandakumar, A. Torralba and J. Malik, "How little do we need for 3-D shape perception," *Perception*, 40, 2011, pp. 257-271.
41. P. Arbelaez, B.G. Han, D. Typke, J. Lim, R.M. Glaeser and J. Malik, "Experimental evaluation of support vector machine based and correlation based approaches to automatic particle selection," *Journal of Structural Biology*, 175(3), September 2011, pp. 319-328.
42. S. Maji, A. Berg and J. Malik, "Efficient Classification for Additive Kernel SVMs", *IEEE Trans. on PAMI*, 35(1), 2013, pp.66-77.
43. M. Tao, J. Malik and R. Ramamoorthi, "Sharpening Out of Focus Images using High-Frequency Transfer", *Comput. Graph. Forum* 32(2), 2013, pp. 489-498.
44. P. Ochs, J. Malik and T. Brox, "Segmentation of Moving Objects by Long Term Video Analysis", *IEEE Trans. on PAMI*, 36(6), 2014, pp.1187-1200.
45. M. Shatsky, P. Arbelaez, B.G. Han, D. Typke, S. Brenner, J. Malik and R. Glaeser. "Automated particle correspondence and accurate tilt-axis detection in tilted-image pairs". *Journal of Structural Biology*, 187, 2014, pp.66-75.
46. S. Gupta, P. Arbelaez, R. Girshick and J. Malik, "Indoor Scene Understanding with RGB-D Images: Bottom-up Segmentation, Object Detection and Semantic Segmentation," *International Journal of Computer Vision*, 112(2):133-149, 2015.
47. J. T. Barron and J. Malik, "Shape, Illumination and Reflectance from Shading", *IEEE Trans. on PAMI*, 37(8), 2015, pp.1670-1687.
48. Ross B. Girshick, Jeff Donahue, Trevor Darrell, Jitendra Malik, "Region-Based Convolutional Networks for Accurate Object Detection and Segmentation". *IEEE Trans. Pattern Anal. Mach. Intell.* 38(1): 142-158 (2016)
49. J. T. Barron and J. Malik, "Intrinsic Scene Properties from a Single RGB-D Image", *IEEE Trans. Pattern Anal. Mach. Intell.* 38(4): 690-703 (2016)
50. Michael W. Tao, Jong-Chyi Su, Ting-Chun Wang, Jitendra Malik, Ravi Ramamoorthi: Depth Estimation and Specular Removal for Glossy Surfaces Using Point and Line Consistency with Light-Field Cameras. *IEEE Trans. Pattern Anal. Mach. Intell.* 38(6): 1155-1169 (2016)
51. J. Malik, P. Arbelaez, J. Carreira, K. Fragkiadaki, R.B. Girshick, G. Gkioxari, S. Gupta, B. Hariharan, A. Kar, S. Tulsiani: The three R's of computer vision: Recognition, reconstruction and reorganization. *Pattern Recognition Letters* 72: 4-14 (2016)
52. J. Pont-Tuset, P. Arbelaez, J. Barron, F. Marques, J. Malik: Multiscale Combinatorial Grouping for Image Segmentation and Object Proposal Generation, *IEEE Trans. Pattern Anal. Mach. Intell.* 39(1):128-140, 2017.
53. M. Tao, P.P. Srinivasan, S. Hadap, S. Rusinkiewicz, J. Malik, R. Ramamoorthi: Shape Estimation from Shading, Defocus, and Correspondence Using Light-Field Angular Coherence , *IEEE Trans. Pattern Anal. Mach. Intell.*39(3):546-560, 2017.

54. S. Tulsiani\*, A.Kar\*, J. Carreira, J. Malik: Learning Category-Specific Deformable 3D Models for Object Reconstruction, *IEEE Trans. Pattern Anal. Mach. Intell.* 39(4):627-639., 2017.
55. B. Hariharan, P. Arbelaez, R. Girshick, J. Malik: Object Instance Segmentation and Fine-Grained Localization Using Hypercolumns, *IEEE Trans. Pattern Anal. Mach. Intell.* 39(4): 719-731, 2017.
56. J. Malik: Technical Perspective: What led computer vision to deep learning? *Commun. ACM* 60(6): 82-83, 2017.
57. Roberto Calandra, Andrew Owens, Dinesh Jayaraman, Justin Lin, Wenzhen Yuan, Jitendra Malik, Edward H. Adelson, Sergey Levine: More Than a Feeling: Learning to Grasp and Regrasp Using Vision and Touch. *IEEE Robotics and Automation Letters* 3(4): 3300-3307, 2018.
58. Xue Bin Peng, Angjoo Kanazawa, Jitendra Malik, Pieter Abbeel, Sergey Levine. SFV: reinforcement learning of physical skills from videos. *ACM Trans. Graph.* 37(6): 178:1-178:14 , 2018
59. Weicheng Kuo, Christian Hane, Pratik Mukherjee, Jitendra Malik, Esther L. Yuh. Expert-level detection of acute intracranial hemorrhage on head computed tomography using deep learning. *Proceedings of the National Academy of Sciences*, 116(45), 22737-22745. November 5, 2019
60. Saurabh Gupta, Varun Tolani, James Davidson, Sergey Levine, Rahul Sukthankar, Jitendra Malik. Cognitive Mapping and Planning for Visual Navigation. *International Journal of Computer Vision* 128(5): 1311-1330 , 2020.
61. Christian Haene, Shubham Tulsiani, Jitendra Malik. Hierarchical Surface Prediction. *IEEE Trans. Pattern Anal. Mach. Intell.* 42(6): 1348-1361, June 2020.
62. Li, K., Peng, S., Zhang, T. et al. Multimodal Image Synthesis with Conditional Implicit Maximum Likelihood Estimation. *Int J Comput Vis* 128(10): 2607-2628 (2020).

## Book Chapters

1. J. Malik and P. Perona, “Finding Boundaries in Images,” in *Neural Networks for Perception*, Human and Machine Perception, Vol. 1, H. Wechsler (ed.), Academic Press, 1992, pp. 315-344
2. J. Malik and R. Rosenholtz, “A Computational Model of Shape from Texture”, Higher Order Processing in the Visual System, CIBA Foundation Symposium 184, pp. 272-283.
3. P. Perona, T. Shiota, and J. Malik, “ Anisotropic Diffusion,” in *Geometry-Driven Diffusion in Computer Vision*, Bart M. ter Haar Romeny (Ed.), Kluwer Academic Publishers, 1994, pp. 73-92.
4. D. Weinshall and J. Malik, “ Review of Computational Models of Stereopsis,” in *Early Vision and Beyond*, Thomas V. Papathomas (Ed.), MIT Press, 1994, pp. 33-42.



5. J. Malik, J. Shi, S. Belongie, and T. Leung, "Grouping in the normalized cut framework", in *Shape, contour and grouping in computer vision* Forsyth, D.A.; Mundy, J.L.; di Gesu, V.; Cipolla, R.(eds.) Springer-Verlag, 1999. p. 155-64
6. J. Malik, S. Belongie, T. Leung, J. Shi, "Contour and image analysis for segmentation," "Perceptual Organization for Artificial Vision Systems," Kim L. Boyer and Sudeep Sarkar (eds.), Kluwer Academic Publishers, Boston, 2000, pp. 139-172.
7. D. Jacobs, J. Malik, R. Nevatia, "Breakout session report: Principles and methods," in "Perceptual Organization for Artificial Vision Systems," Kim L. Boyer and Sudeep Sarkar (eds.), Kluwer Academic Publishers, Boston, 2000, pp. 17-28.
8. S. Belongie, G. Mori and J. Malik, "Matching with Shape Contexts," in "Statistics and Analysis of Shapes," Hamid Krim and Anthony Yezzi (eds.) Birkhauser, 2006, pp.81-105.
9. A. Frome and J. Malik, "Object Recognition using Locality Sensitive Hashing of Shape Contexts," in "Nearest-Neighbor Methods in Learning and Vision: Theory and Practice," G. Shakhnarovich, T. Darrell and P. Indyk (eds.), 2006, pp. 221-248.
10. A.C. Berg and J. Malik, "Shape Matching and Object Recognition," in "Toward Category-Level Object Recognition," J. Ponce et.al.(eds), 2006, Springer LNCS 4170, pp.483-507,2006.

### Conference Proceedings

1. J. Malik and S.K.Jain, "An Editor for Micro-78", *Proc. of Computer Society of India*, 1980.
2. J. Malik and T.O.Binford, "Representation of time and sequences of events", *Proc. of the ARPA Image Understanding Workshop*, September 1982, pp. 112-114.
3. H.H. Baker, T.O. Binford, J. Malik and J.F.Meller, "Progress in stereo mapping", *Proc. of the ARPA Image Understanding Workshop*, June 1983, pp. 327-335.
4. J. Malik and T.O.Binford, "Reasoning in time and space", *Proc. of the Eighth International Joint Conference on AI*, Karlsruhe, August 1983, pp. 343-345.
5. J. Malik and T.O.Binford, "A theory of line drawing interpretation", *Proc. of the ARPA Image Understanding Workshop*, October 1984, pp. 188-194.
6. J. Malik, "Labelling line drawings of curved objects", *Proc. of the ARPA Image Understanding Workshop*, December 1985, pp. 209-218.
7. J. Malik, "Recovering three dimensional shape from a single image of curved objects", *Proc. of the Tenth International Joint Conference on AI*, Milan, August 1987, pp 734-737.
8. P. Perona and J. Malik, "Scale space and edge detection using anisotropic diffusion," *Proc. of the IEEE Workshop on Computer Vision*, Miami, November 1987, pp. 16-22.
9. J. Malik, "Representing constraints for inferring 3-D structure," *Proc. of the AAAI Symposium on Computational Vision*, Stanford University, March 1988, pp. 96-99.

10. Z. Gigus and J. Malik, "Computing the aspect graph for line drawings of polyhedral objects," *Proc. of the IEEE Conference on Robotics and Automation*, Philadelphia, April 1988, pp. 1560-1566, also in *Proc. of the IEEE Conf. on Computer Vision and Pattern Recognition*, Ann Arbor, June 1988, pp. 654-661.
11. P. Perona and J. Malik, "A network for multiscale image segmentation," *Proc. of IEEE International Symposium on Circuits and Systems*, Helsinki, June 1988, pp. 2565-2568.
12. J. Malik and P. Perona, "A computational model of texture segmentation," *Proc. of IEEE Conference on Computer Vision and Pattern Recognition*, San Diego, June 1989, pp. 326-332.
13. J. Malik and P. Perona, "Predictions from a computational model of texture perception compared with psychophysical data," *Image Understanding and Machine Vision*, 1989 Technical Digest Series, Vol. 14, Optical Society of America, June 1989, pp. 44-47.
14. J. Malik and P. Perona, "Finding texture boundaries by nonlinear spatial filtering," *Indo-US Workshop on Spectral Analysis in One or Two Dimensions*, New Delhi, November 1989.
15. P. Perona and J. Malik, "Detecting and localizing edges composed of steps, peaks and roofs," *Third International Conference on Computer Vision* Osaka, December 1990, pp. 52-57.
16. P. Perona and J. Malik, "Boundary detection using quadratic filters: performance criteria and experimental assessment," *Proc. SPIE Conf Machine Vision and Robotics*, Florida, April 1992.
17. D. Jones and J. Malik, "A computational framework for determining stereo correspondence from a set of linear spatial filters," *Proc. Second European Conference on Computer Vision*, Santa Margherita Ligure, Italy, May 1992, published as G. Sandini (ed.) *Lecture Notes in Computer Science* **588**, Springer Verlag, pp. 395-410.
18. D. Jones and J. Malik, "Determining three-dimensional shape from orientation and spatial frequency disparities," *Proc. Second European Conference on Computer Vision*, Santa Margherita Ligure, Italy, May 1992, published as G. Sandini (ed.) *Lecture Notes in Computer Science* **588**, Springer Verlag, pp. 661-669.
19. J. Weber and J. Malik, "Robust computation of optical flow in a multi-scale differential framework," *Proc. Fourth International Conference on Computer Vision, Berlin, May 1993*, pp. 12-20.
20. J. Malik and R. Rosenholtz, "A differential method for computing local shape-from-texture for planar and curved surfaces," *Proc. of IEEE CVPR, New York, June 1993*, pp. 267-273.
21. J. Malik and R. Rosenholtz, "Recovering surface curvature and orientation from texture distortion: a least squares algorithm and sensitivity analysis," *Proc. of Third European Conf. on Computer Vision*, Stockholm, May 1994, published as Jan-Olaf Eklundh (ed.) *Lecture Notes in Computer Science* **800**, Springer Verlag, pp. 353-364.

22. D. Koller, J. Weber and J. Malik, "Robust Multiple Car Tracking with Occlusion Reasoning" *Proc. of Third European Conf. on Computer Vision*, Stockholm, May 1994, published as Jan-Olaf Eklundh (ed.) *Lecture Notes in Computer Science* **800**, Springer Verlag, pp. 189-198.
23. T. Huang, D.Koller, J.Malik, G. Ogasawara, B. Rao, S. Russell and J. Weber, "Automatic Symbolic Traffic Scene Analysis using belief networks," *Proc. of the Twelfth National conference on Artificial Intelligence, AAAI-94*, Seattle, July 1994, Vol. 2, pp.966-972
24. D. Koller, J. Weber, T. Huang, J. Malik, G. Ogasawara, B. Rao and S. Russell, "Towards Robust Automatic Traffic Scene Analysis in Real-Time", *Proc Int. Conf. on Pattern Recognition*, Jerusalem, Israel, October 9-13, 1994
25. D. Koller, J. Weber and J. Malik, "Towards realtime visual based tracking in cluttered traffic scenes," *Proc. of the Intelligent Vehicles '94 Symposium*, Paris, France, October 24-26, 1994
26. D. Koller, Q.T. Luong and J. Malik, "Using Binocular Stereopsis for Lane Following and Lane Changing Maneuvers," *Proc. of the Intelligent Vehicles '94 Symposium*, Paris, France, October 24-26, 1994
27. D. Forsyth, A. Zisserman and J. Malik, "Distinctive Representations for the Recognition of Curved Surfaces Using Outlines and Markings," *Proc. of the NSF/ARPA Workshop on 3D Object Representation for Computer Vision*, Dec 5-7, 1994.
28. Q.T. Luong, J. Weber, D. Koller and J. Malik, "An integrated Stereo-based approach to automatic vehicle guidance," *Fifth Int. Conf. on Computer Vision, Cambridge, Mass, June 1995*, pp. 52-57.
29. J. Weber and J. Malik, "Rigid Body Segmentation and Shape Description from dense optical flow under weak perspective," *Fifth Int. Conf. on Computer Vision, Cambridge, Mass, June 1995*, pp. 251-256.
30. J. Malik, J. Weber, Q.T. Luong and D. Koller, "Smart Cars and Smart Roads," *Proc. of British Machine Vision Conference*, September 1995, pp. 367-382. (invited paper).
31. Weber, J.; Koller, D.; Luong, Q.-T.; Malik, J. "New results in stereo-based automatic vehicle guidance," *Proc. of Intelligent Vehicles 95*, September 1995, pp. 530-535.
32. J. Malik, "On binocularly viewed occlusion junctions," *Fourth European Conference on Computer Vision, Cambridge, UK, April 1996*, Vol 1, pp. 167-174
33. T. Leung and J. Malik, "Detecting, localizing and grouping repeated scene elements from an image," *Fourth European Conference on Computer Vision, Cambridge, UK, April 1996*, Vol 1, pp. 546-555.
34. C.J. Taylor, P.E. Debevec and J. Malik, "Reconstructing polyhedral models of architectural scenes from photographs," *Fourth European Conference on Computer Vision, Cambridge, UK, April 1996*, Vol 2, pp. 659-668.

35. P.E. Debevec, C.J. Taylor, and J. Malik, "Modeling and Rendering Architecture from Photographs: A hybrid geometry- and image-based approach," *Computer Graphics (SIGGRAPH '96 Proceedings)*(1996),pp. 11-20
36. D.A. Forsyth, J. Malik, M.M. Fleck, H. Greenspan, T. Leung, S. Belongie, C. Carson, C. Bregler, "Finding Pictures of Objects in Large Collections of images," *Object Representation in Computer Vision II*, Proc. of ECCV'96 International Workshop, Springer Verlag Lecture Notes in Computer Science 1144 (1996), pp. 335-360
37. J. Malik, D.A. Forsyth, M.M. Fleck, H. Greenspan, T. Leung, C. Carson, S. Belongie, C. Bregler, "Finding Objects in Image databases by grouping," *Proc. of IEEE International Conference on Image Processing*, Lausanne, Sept 1996, pp. 761-764, Vol. 2
38. D. Beymer and J. Malik, "Tracking Vehicles in Congested Traffic," *Proc. of Intelligent Vehicles 96*, September 1996,pp 130-135.
39. Taylor, C.J., Malik, J., Weber, J. "A real-time approach to stereopsis and lane-finding," *Proc. of Intelligent Vehicles 96*, September 1996, pp. 207-212.
40. C. Bregler and J. Malik, "Learning Appearance Based Models: Mixtures of Second Moment Experts" *Advances in Neural Information Processing Systems 9: Proc. of the 1996 Conference*, MIT Press,1997, pp. 845-851
41. T. Leung and J. Malik, "On Perpendicular Texture, or: why do we see more flowers in the distance," *Proc. of IEEE CVPR, Puerto Rico*, June 1997, pp. 807-813.
42. J. Shi and J. Malik, "Normalized Cuts and Image Segmentation," *Proc. of IEEE CVPR, Puerto Rico*, June 1997, pp 731-737.
43. D. Beymer, P. McLauchlan, B. Coiffman and J. Malik, "A Real-time Computer Vision System for Measuring Traffic Parameters," *Proc. of IEEE CVPR, Puerto Rico*, June 1997, pp 495-501.
44. C. Carson, S. Belongie, H. Greenspan and J. Malik, "Region-based image querying," *Proc. IEEE Workshop on Content-Based Access of Image and Video Libraries, San Juan, Puerto Rico, June 1997*.pp. 42-9.
45. P.E. Debevec and J. Malik, "Recovering High Dynamic Range Radiance Maps from Photographs," *Computer Graphics (SIGGRAPH '97 Proceedings)*(1997), pp. 369-378.
46. J. Kosecka, R. Blasi, C.J. Taylor and J. Malik, " Vision-based lateral control of vehicles," *Proc. of IEEE Conference on Intelligent Transportation Systems. ITSC '97, Boston, MA, USA, Nov. 1997*. pp. 900-5.
47. P.F. McLauchlan and J. Malik, " Vision for longitudinal vehicle control," *Proc. of IEEE Conference on Intelligent Transportation Systems. ITSC '97, Boston, MA, USA, Nov. 1997*. pp. 918-23.
48. J. Shi and J. Malik, "Motion Segmentation and Tracking Using Normalized Cuts," *Proc. of Sixth International Conf. on Computer Vision, Bombay, Jan 1998*, pp. 1154-1160.

49. S. Belongie, C. Carson, H. Greenspan and J. Malik, "Color- and Texture-Based Image Segmentation Using EM and Its Application to Content-Based Image Retrieval," *Proc. of Sixth International Conf. on Computer Vision, Bombay, Jan 1998*, pp. 675-682.
50. J. Kosecka, R. Blasi, C.J. Taylor and J. Malik, "A comparative study of vision-based lateral control strategies for autonomous highway driving," *Proc. IEEE International Conference on Robotics and Automation, Leuven, Belgium, May 1998*, Vol. 3, pp. 1903-8.
51. Debevec, P.E.; Taylor, C.J.; Malik, J.; Levin, G.; Borshukov, G.; Yu, Y.;"Image-based modeling and rendering of architecture with interactive photogrammetry and view-dependent texture mapping," Proceedings of the 1998 IEEE International Symposium on Circuits and Systems, 1998. ISCAS '98. Volume 5, 31 May-3 June 1998 Page(s):514 - 517 vol.5
52. J. Shi and J. Malik, "Self Inducing Relational Distance and its application to Image Segmentation," *Proc. of Fifth European Conference on Computer Vision, Freiburg, Germany, June 1998*, Vol. 1, pp. 528-543.
53. T. Leung and J. Malik, "Contour Continuity in region based image segmentation," *Proc. of Fifth European Conference on Computer Vision, Freiburg, Germany, June 1998*, Vol. 1, pp. 544-559.
54. S. Belongie and J. Malik, "Finding Boundaries in Natural Images: A New Method using Point Descriptors and Area Completion," *Proc. of Fifth European Conference on Computer Vision, Freiburg, Germany, June 1998*, Vol. 1, pp. 751-766.
55. C. Bregler and J. Malik, "Tracking people with twists and exponential maps," *Proc. of IEEE Conference on Computer Vision and Pattern Recognition, Santa Barbara, CA, USA, June 1998*. pp. 8-15.
56. Y. Yu and J. Malik, "Recovering Photometric Properties of Architectural Scenes from Photographs," *Computer Graphics (SIGGRAPH '98 Proceedings)*(1998), pp. 207-217.
57. J. Shi, S. Belongie, T. Leung, J. Malik "Image and video segmentation: the normalized cut framework", *Proc. IEEE International Conference on Image Processing ICIP98, Chicago, IL, USA, 4-7 Oct. 1998*. p. 943-7 vol.1.
58. Y. Yu, P. Debevec, J. Malik and T. Hawkins, "Inverse Global Illumination: Recovering Reflectance Models of Real Scenes from Photographs," *Computer Graphics (SIGGRAPH '99 Proceedings)*(1999), pp. 215-224.
59. J. Malik, S. Belongie, J. Shi and T. Leung, "Textons, Contours and Regions: Cue Integration in Image Segmentation," *Proc. of Seventh International Conference on Computer Vision, Kerkyra, Greece, Sept 20-27, 1999*, pp. 918-925.
60. T. Leung and J. Malik, "Recognizing surfaces using three-dimensional textons," *Proc. of Seventh International Conference on Computer Vision, Kerkyra, Greece, Sept 20-27, 1999*, pp. 1010-1017.
61. Jitendra Malik, Chad Carson, Serge Belongie, "Region-Based Image Retrieval", DAGM-Symposium 1999: 152-154

62. C. Carson, M. Thomas, S. Belongie, J.M. Hellerstein and J. Malik, “ Blobworld: a system for region-based image indexing and retrieval”. *Proc. of 3rd International Conference on Visual Information Systems, VISUAL '99, Amsterdam, Netherlands, 2-4 June 1999*, published as Springer- Verlag Lecture Notes in Computer Science **1614**, p. 509-16
63. S. Belongie and J. Malik, “Matching with Shape Contexts,” *IEEE Workshop on Content-based Access of Image and Video Libraries*, June 2000 pp. 20-26
64. S. Belongie, J. Malik and J.Puzicha, “Shape Context: A new descriptor for shape matching and object recognition,” *Advances in Neural Information Processing Systems 13: Proc. of the 2000 Conference*, MIT Press, 2001
65. S. Belongie, J. Malik and J. Puzicha, “Matching Shapes,” *Proc. of Eighth International Conference on Computer Vision, Vancouver, Canada, July 9-12, 2001*, Vol. 1, pp. 454-461.
66. D. Martin, C. Fowlkes, D. Tal and J. Malik, “A Database of Human Segmented Natural Images and its Application to Evaluating Segmentation Algorithms and Measuring Ecological Statistics,” *Proc. of Eighth International Conference on Computer Vision, Vancouver, Canada, July 9-12, 2001*, Vol. 2, pp. 416-423.
67. Malik, J., “Visual grouping and object recognition” *Proceedings 11th International Conference on Image Analysis and Processing*, 2001. 26-28 Sept. 2001 Page(s):612 - 621
68. C. Fowlkes, S. Belongie and J. Malik, “Efficient Spatiotemporal Grouping using the Nyström Method,” *Proc. of IEEE CVPR, Hawaii, Dec. 8-14, 2001*, Vol. 1, pp. 231-238.
69. A. Berg and J. Malik, “Geometric Blur for Template Matching,” *Proc. of IEEE CVPR, Hawaii, Dec. 8-14, 2001*, Vol. 1, pp. 607-614.
70. G. Mori, S. Belongie and J. Malik, “Shape contexts enable efficient retrieval of similar shapes,” *Proc. of IEEE CVPR, Hawaii, Dec. 8-14, 2001*, Vol. 1, pp. 723-730.
71. C. Fowlkes, Q. Shan, S. Belongie and J. Malik, “Extracting Global Structure from Gene Expression Profiles”, *CAMDA '01*, Oct. 2001
72. X. Ren and J. Malik, “A Probabilistic Multi-scale model for Contour Completion Based on Image Statistics,” *Proc. of 7th ECCV*, May 2002, Vol. 1, Springer LNCS 2350, pp. 312-327.
73. S. Belongie, C. Fowlkes, F. Chung and J. Malik, “Spectral Partitioning with Indefinite Kernels Using the Nyström Extension,” *Proc. of 7th ECCV*, May 2002, Vol. 3, Springer LNCS 2352, pp. 531-542.
74. G. Mori and J. Malik, “Estimating Human Body Configurations Using Shape Context Matching,” *Proc. of 7th ECCV*, May 2002, Vol. 3, Springer LNCS 2352, pp. 666-680.
75. H. Zhang, J. Malik, “Learning a discriminative classifier using shape context distances,” *Proc. of IEEE Conference on Computer Vision and Pattern Recognition*, June 2003, Pages:I-242 - I-247

76. G. Mori, J. Malik, "Recognizing objects in adversarial clutter: breaking a visual CAPTCHA," Proc. of IEEE Conference on Computer Vision and Pattern Recognition, June 2003. , Pages:I-134 - I-141
77. C. Fowlkes, D. Martin, J. Malik, "Learning affinity functions for image segmentation: combining patch-based and gradient-based approaches," Proc. of IEEE Conference on Computer Vision and Pattern Recognition, June 2003. , Pages:II - 54-61
78. A.A. Efros, A.C. Berg, G. Mori, J. Malik, "Recognizing action at a distance," Proc. of Ninth IEEE International Conference on Computer Vision, Oct. 2003, Pages:726 - 733
79. X. Ren, J. Malik, "Learning a classification model for segmentation," Proc. of Ninth IEEE International Conference on Computer Vision, Oct. 2003, Pages:10 - 17
80. Z. Kim, J. Malik, "Fast vehicle detection with probabilistic feature grouping and its application to vehicle tracking," Proc. of Ninth IEEE International Conference on Computer Vision, Oct 2003, Pages:524 - 531
81. Z. Kim, J. Malik, "High-quality vehicle trajectory generation from video data based on vehicle detection and description," Proc. of IEEE Intelligent Transportation Systems, Oct 2003, Volume: 1, Pages:176 - 182
82. A. Frome, D. Huber, R. Kolluri, T. Buelow, J. Malik, "Recognizing Objects in Range Data Using Regional Point Descriptors", Proc. of Eighth European Conference on Computer Vision, Prague, 2004, Springer Verlag LNCS 3023, pp. 224-237
83. G. Mori, X. Ren, A.A. Efros, J. Malik, "Recovering Human Body Configurations: Combining Segmentation and Recognition," Proc. of IEEE Conference on Computer Vision and Pattern Recognition, June-July 2004, Pages:II-326-333 vol.2
84. A. Ferencz, E. Learned-Miller and J. Malik, "Learning Hyper-features for Visual Identification", Proc. of NIPS 2004, pp. 425-432.
85. L. Walker Renninger, J. Coughlan, P. Verghese and J. Malik, "An Information Maximization Model of Eye Movements", Proc. of NIPS 2004, pp. 1121-1128.
86. Fowlkes, C.C.; Luengo Hendriks, C.L.; Keranen, S.V.E.; Biggin, M.D.; Knowles, D.W.; Sudar, D.; Malik, J.; "Registering Drosophila embryos at cellular resolution to build a quantitative 3D atlas of gene expression patterns and morphology" Computational Systems Bioinformatics Conference, 2005. IEEE 2005 Page(s):354 - 357 Digital Object Identifier 10.1109/CSBW.2005.118
87. A. Berg, T.L. Berg and J. Malik, "Shape Matching and Object recognition using Low Distortion Correspondences", Proc. of CVPR 2005, Vol. 1, pp. 26-33
88. A. Ferencz, E.G. Learned-Miller and J. Malik, "Building a classification cascade for visual identification from one example", Proc. of ICCV 2005, Vol. 1, pp. 286-293
89. X. Ren, A. Berg and J. Malik, "Recovering Human Body Configurations using Pairwise Constraints between Parts", Proc. of ICCV 2005, Vol. 1, pp. 824-831

90. X. Ren, C. Fowlkes and J. Malik, "Scale-Invariant Contour Completion using Conditional Random Fields", Proc. of ICCV 2005, Vol. 2, pp. 1214-1221
91. X. Ren, C. Fowlkes and J. Malik, "Cue Integration for Figure/Ground Labeling", Proc. of NIPS 2005, pp. 1121-1128
92. X. Ren, C. Fowlkes and J. Malik, "Figure/Ground Assignment in Natural Images", Proc. of Ninth ECCV, May 2006, Vol. 2, pp. 614-627, Springer Verlag LNCS 3952
93. H. Zhang, A.C. Berg, M. Maire and J. Malik, "SVM-KNN: Discriminative Nearest Neighbor Classification for Visual Category Recognition", Proc. of CVPR 2006, Vol. 2, pp.2126-2136
94. E. Borenstein and J. Malik, "Shape Guided Object Segmentation", Proc. of CVPR 2006, Vol. 1, pp. 969-976
95. O. Rübél, G. Weber, S. Keränen, C. Fowlkes, C. Luengo Hendriks, N.Y. Shah, M.D. Biggin, H. Hagen, D.W. Knowles, J. Malik, D. Sudar and B. Hamann. "PointCloudXplore: Visual Analysis of 3D Gene Expression Data Using Physical Views and Parallel Coordinates", in Proc. of EuroVis. 2006, pp. 203-210
96. A. Frome, Y. Singer and J. Malik, "Image Retrieval and Classification using Local Distance Functions", Proc. of NIPS 2006, pp. 417-424
97. X. Ren and J. Malik, "Tracking as Repeated Figure/Ground Segmentation", Proc. of CVPR 2007, June 2007, doi 10.1109/CVPR.2007.383177
98. O. Rübél, G. Weber, M. Huang, E. W. Bethel, S. Keränen, C. Fowlkes, C. Luengo Hendriks, A. DePace, L. Simirenko, M.B. Eisen, M.D. Biggin, H. Hagen, J. Malik, D.W. Knowles, and B. Hamann. "PointCloudXplore 2: Visual Exploration of 3D Gene Expression", in Visualization of Large and Unstructured Data Sets, DFG Workshop, Sept. 2007, pp. 125-137.
99. A.C. Berg, F. Grabler and J. Malik, "Parsing Images of Architectural Scenes", Proc. of ICCV 2007, Oct 2007, Digital Object Identifier 10.1109/ICCV.2007.4409091
100. A. Frome, Y. Singer, F. Sha and J. Malik, "Learning Globally-Consistent Local Distance Functions for Shape-Based Image Retrieval and Classification", Proc. of ICCV 2007, Oct 2007, Digital Object Identifier 10.1109/ICCV.2007.4408839
101. M. Maire, P. Arbelaez, C. Fowlkes and J. Malik, "Using Contours to Detect and Localize Junctions in Natural Images", Proc. of CVPR 2008, June 2008
102. S. Maji, A.C. Berg and J. Malik, "Classification Using Intersection Kernel Support Vector Machines is Efficient ", Proc. of CVPR 2008, June 2008
103. P. Arbelaez, M. Maire, C. Fowlkes and J. Malik, "From Contours to Regions: An Empirical Evaluation", Proc. of CVPR 2009, June 2009, pp. 2294-2301
104. T. Brox, C. Bregler and J. Malik, "Large Displacement Optical Flow", Proc. of CVPR 2009, June 2009, pp. 41-48.



105. C. Gu, J. Lim, P. Arbelaez and J. Malik, "Recognition using Regions", Proc. of CVPR 2009, June 2009, pp. 1030-1037.
106. S. Maji and J. Malik, "Object Detection using a Max-Margin Hough Transform", Proc. of CVPR 2009, June 2009, pp. 1038-1045
107. L. Bourdev and J. Malik, "Poselets: Body Part Detectors Trained Using 3D Human Pose Annotations", Proc. of ICCV 2009, Sept. 2009, pp. 1365-1372.
108. J. Lim, P. Arbelaez, C. Gu and J. Malik, "Context by Region Ancestry", Proc. of ICCV 2009, Sept. 2009. pp. 1978-1985.
109. B. Ommer and J. Malik, "Multi-Scale Object Detection by Clustering Lines", Proc. of ICCV 2009, Sept. 2009, pp. 484-491.
110. L. Bourdev, S. Maji, T. Brox and J. Malik, "Detecting People Using Mutually Consistent Poselet Activations", Proc. of ECCV 2010, Sept. 2010, LNCS Vol. 6316, pp. 168-181.
111. T. Brox and J. Malik, "Object Segmentation by Long Term Analysis of Point Trajectories", Proc. of ECCV 2010, Sept. 2010, LNCS Vol. 6315, pp. 282-295.
112. S. Maji, N. Vishnoi and J. Malik, "Biased Normalized Cuts", Proc. of IEEE CVPR 2011, pp. 2057-2064.
113. T. Brox, L. Bourdev, S. Maji and J. Malik, "Object Segmentation by Alignment of Poselet Activations to Image Contours", Proc. of IEEE CVPR 2011, pp. 2225-2232.
114. P. Sundberg, T. Brox, M. Maire, P. Arbelaez and J. Malik, "Occlusion Boundary Detection and Figure/Ground Assignment from Optical Flow", Proc. of IEEE CVPR 2011, pp. 2233-2240.
115. J. Barron and J. Malik, "High-Frequency Shape and Albedo from Shading using Natural Image Statistics", Proc. of IEEE CVPR 2011, pp. 2521-2528.
116. S. Maji, L. Bourdev and J. Malik, "Action Recognition from a Distributed Representation of Pose and Appearance", Proc. of IEEE CVPR 2011, pp. 3177-3184.
117. B. Hariharan, P. Arbelaez, L. Bourdev, S. Maji and J. Malik, "Semantic Contours from Inverse Detectors", Proc. of ICCV 2011, pp. 991-998.
118. L. Bourdev, S. Maji and J. Malik, "Describing People: A Poselet-Based Approach to Attribute Classification", Proc. of ICCV 2011, pp. 1543-1550.
119. J. Barron and J. Malik, "Shape, Albedo, and Illumination from a Single Image of an Unknown Object", Proc. of IEEE CVPR 2012, pp. 334-341.
120. P. Arbelaez, B. Hariharan, C. Gu, S. Gupta, L. Bourdev and J. Malik, "Semantic Segmentation using Regions and Parts", Proc. of IEEE CVPR 2012, 3378-3385
121. Chang, J., Arbelaez, P., Switz, N., Reber, C., Tapley, A., Davis, J.L., Cattamanchi, A., Fletcher, D., and Malik, J.: "Automated Tuberculosis Diagnosis Using Fluorescence Images from a Mobile Microscope." In: Ayache, N., Delingette, H., Golland, P., and Kensaku, M. (eds.) MICCAI 2012, Part III. LNCS, vol. 7512, pp. 345-352. Springer-Verlag, Berlin Heidelberg 2012.

122. J. Barron and J. Malik, "Color Constancy, Intrinsic Images, and Shape Estimation", Proc. of ECCV 2012, pp.57-70.
123. C. Gu, P. Arbelaez, Y. Lin, K. Yu and J. Malik, "Multi-Component Models for Object Detection", Proc. of ECCV (4) 2012, pp.445-458
124. B. Hariharan, J. Malik and D. Ramanan, "Discriminative Decorrelation for Clustering and Classification", Proc. of ECCV (4), 2012, pp.459-472.
125. J. Barron and J. Malik, "Intrinsic Scene Properties from a Single RGB-D Image", Proc. of CVPR 2013.17-24.
126. S. Gupta, P. Arbelaez and J. Malik, "Perceptual Organization and Recognition of Indoor Scenes from RGB-D Images", Proc. of CVPR 2013: 564-571.
127. G. Gkioxari, P. Arbelaez, L. Bourdev and J. Malik, "Articulated Pose Estimation using Discriminative Armllet Classifiers", Proc. of CVPR 2013: 3342-3349.
128. R. Girshick, J. Malik, "Training Deformable Part Models with Decorrelated Features". ICCV 2013: 3016-3023.
129. J.T. Barron, M.D. Biggin, P. Arbelaez, D. W.Knowles, S.V.E. Keranen and J. Malik, "Volumetric Semantic Segmentation using Pyramid Context Features", ICCV 2013, pp. 3448-3455.
130. R. Girshick, J. Donahue, T. Darrell and J. Malik, "Rich feature hierarchies for accurate object detection and semantic segmentation". Proc. of CVPR 2014: 580-587.
131. G. Gkioxari, B. Hariharan, R. Girshick and J. Malik, "Using  $k$ -poselets for detecting people and localizing their key points", Proc. of CVPR 2014: 3582-3589.
132. P. Arbelaez, J. Pont-Tuset, J. Barron, F. Marques and J. Malik, "Multiscale Combinatorial Grouping", Proc. of CVPR 2014: 328-335
133. B. Hariharan, P. Arbelaez, R. Girshick and J. Malik, Simultaneous Detection and Segmentation. ECCV (7) 2014: 297-312.
134. P. Agrawal, R. Girshick, J. Malik, Analyzing the Performance of Multilayer Neural Networks for Object Recognition. ECCV (7) 2014: 329-344.
135. S. Gupta, R. Girshick, P. Arbelaez, J. Malik, Learning Rich Features from RGB-D Images for Object Detection and Segmentation. ECCV (7) 2014: 345-360.
136. K. Fragkiadaki, M. Salas, P. Arbelaez, J. Malik, Grouping-Based Low-Rank Trajectory Completion and 3D Reconstruction. NIPS 2014: 55-63.
137. Ross Girshick, Forrest Iandola, Trevor Darrell, Jitendra Malik, Deformable Part Models are Convolutional Neural Networks. CVPR 2015: 437-446
138. Bharath Hariharan, Pablo Arbelaez, Ross Girshick, Jitendra Malik, Hypercolumns for Object Segmentation and Fine-Grained Localization. CVPR 2015: 447-456.
139. Georgia Gkioxari, Jitendra Malik, Finding Action Tubes. CVPR 2015: 759-768.

140. Shubham Tulsiani, Jitendra Malik, Viewpoints and Keypoints. CVPR 2015: 1510-1519.
141. Michael W. Tao, Pratul P. Srinivasan, Jitendra Malik, Szymon Rusinkiewicz, Ravi Ramamoorthi Depth From Shading, Defocus, and Correspondence Using Light-Field Angular Coherence. CVPR 2015: 1940-1948.
142. Abhishek Kar, Shubham Tulsiani, Joao Carreira, Jitendra Malik, Category-Specific Object Reconstruction From a Single Image. CVPR 2015: 1966-1974.
143. Joao Carreira, Abhishek Kar, Shubham Tulsiani, Jitendra Malik, Virtual View Networks for Object Reconstruction. CVPR 2015: 2937-2946.
144. Katerina Fragkiadaki, Pablo Arbelaez, Panna Felsen, Jitendra Malik, Learning to Segment Moving Objects in Videos. CVPR 2015: 4083-4090.
145. Saurabh Gupta, Pablo Arbelaez, Ross Girshick, Jitendra Malik, Aligning 3D Models to RGB-D Images of Cluttered Scenes. CVPR 2015: 4731-4740.
146. Pulkit Agrawal, Joao Carreira, Jitendra Malik, Learning to See by Moving. ICCV 2015: 37-45.
147. Shubham Tulsiani, Joao Carreira, Jitendra Malik, Pose Induction for Natural Image Categories. ICCV 2015: 64-72.
148. Abhishek Kar, Shubham Tulsiani, Joao Carreira, Jitendra Malik, Amodal Completion and Size Constancy in Natural Scenes. ICCV 2015: 127-135.
149. Georgia Gkioxari, Ross Girshick, Jitendra Malik, Contextual Action Recognition with R\*CNN. ICCV 2015: 1080-1088.
150. Georgia Gkioxari, Ross Girshick, Jitendra Malik, Actions and Attributes from Wholes and Parts. ICCV 2015: 2470-2478.
151. Weicheng Kuo, Bharath Hariharan, Jitendra Malik, DeepBox: Learning Objectness with Convolutional Networks. ICCV 2015: 2479-2487.
152. Katerina Fragkiadaki, Sergey Levine, Panna Felsen, Jitendra Malik, Recurrent Network Models for Human Dynamics. ICCV 2015: 4346-4354.
153. Saurabh Gupta, Judy Hoffman, Jitendra Malik, Cross Modal Distillation for Supervision Transfer. CVPR 2016: 2827-2836
154. Ke Li, Bharath Hariharan, Jitendra Malik, Iterative Instance Segmentation. CVPR 2016: 3659-3667
155. Joao Carreira, Pulkit Agrawal, Katerina Fragkiadaki, Jitendra Malik, Human Pose Estimation with Iterative Error Feedback. CVPR 2016: 4733-4742
156. Ke Li, Jitendra Malik, Fast  $k$ -Nearest Neighbor Search via Dynamic Continuous Indexing, ICML 2016:671-679
157. Ke Li, Jitendra Malik: Amodal Instance Segmentation. ECCV (2) 2016: 677-693

158. Amir R. Zamir, Tilman Wekel, Pulkit Agrawal, Colin Wei, Jitendra Malik, Silvio Savarese: Generic 3D Representation via Pose Estimation and Matching. ECCV (3) 2016: 535-553
159. Tinghui Zhou, Shubham Tulsiani, Weilun Sun, Jitendra Malik, Alexei A. Efros: View Synthesis by Appearance Flow. ECCV (4) 2016: 286-301
160. Pulkit Agrawal, Ashvin Nair, Pieter Abbeel, Jitendra Malik, Sergey Levine. Learning to Poke by Poking: Experiential Learning of Intuitive Physics. NIPS 2016
161. Ashvin Nair, Dian Chen, Pulkit Agrawal, Phillip Isola, Pieter Abbeel, Jitendra Malik, Sergey Levine: Combining self-supervised learning and imitation for vision-based rope manipulation. ICRA 2017: 2146-2153
162. Amir R. Zamir, Te-Lin Wu, Lin Sun, William B. Shen, Bertram E. Shi, Jitendra Malik, Silvio Savarese: Feedback Networks. CVPR 2017: 1308-1317
163. Saurabh Gupta, James Davidson, Sergey Levine, Rahul Sukthankar, Jitendra Malik: Cognitive Mapping and Planning for Visual Navigation. CVPR 2017: 2616-2625
164. Shubham Tulsiani, Tinghui Zhou, Alexei A. Efros, Jitendra Malik: Multi-View Supervision for Single-View Reconstruction via Differentiable Ray Consistency. CVPR 2017, 2626-2634
165. Shubham Tulsiani, Hao Su, Leonidas J. Guibas, Alexei A. Efros, Jitendra Malik: Learning Shape Abstractions by Assembling Volumetric Primitives. CVPR 2017, 2635-2643
166. Ke Li, Jitendra Malik, Fast  $k$ -Nearest Neighbor Search via Prioritized DCI, ICML 2017:2081-2090
167. Panna Felsen, Pulkit Agrawal, Jitendra Malik: What will Happen Next? Forecasting Player Moves in Sports Videos. ICCV 2017:3342-3351
168. Christian Hane, Shubham Tulsiani, Jitendra Malik: Hierarchical Surface Prediction for 3D Object Reconstruction, Proc. Int. Conf. on 3D Vision (3DV), 2017:412-420
169. Abhishek Kar, Christian Hane, Jitendra Malik. Learning a Multi-View Stereo Machine. NIPS 2017:364-375
170. Deepak Pathak, Parsa Mahmoudieh, Guanghao Luo, Pulkit Agrawal, Dian Chen, Yide Shentu, Evan Shelhamer, Jitendra Malik, Alexei A. Efros, Trevor Darrell. Zero-Shot Visual Imitation, ICLR 2018
171. Shubham Tulsiani, Saurabh Gupta, David F. Fouhey, Alexei A. Efros, Jitendra Malik. Factoring Shape, Pose, and Layout From the 2D Image of a 3D Scene, CVPR 2018:302-310
172. Shubham Tulsiani, Alexei A. Efros, Jitendra Malik. Multi-View Consistency as Supervisory Signal for Learning Shape and Pose Prediction, CVPR 2018: 2897-2905
173. Amir R. Zamir, Alexander Sax, William Shen, Leonidas J. Guibas, Jitendra Malik, Silvio Savarese. Taskonomy: Disentangling Task Transfer Learning, CVPR 2018: 3712-3722
174. David F. Fouhey, Wei-cheng Kuo, Alexei A. Efros, Jitendra Malik. From Lifestyle Vlogs to Everyday Interactions, CVPR 2018: 4991-5000

175. Chunhui Gu, Chen Sun, David A. Ross, Carl Vondrick, Caroline Pantofaru, Yeqing Li, Sudheendra Vijayanarasimhan, George Toderici, Susanna Ricco, Rahul Sukthankar, Cordelia Schmid, Jitendra Malik. AVA: A Video Dataset of Spatio-Temporally Localized Atomic Visual Actions, CVPR 2018: 6047-6056
176. Angjoo Kanazawa, Michael J. Black, David W. Jacobs, Jitendra Malik. End-to-End Recovery of Human Shape and Pose, CVPR 2018: 7122-7131
177. Fei Xia, Amir R. Zamir, Zhiyang He, Alexander Sax, Jitendra Malik, Silvio Savarese. Gibson Env: Real-World Perception for Embodied Agents, CVPR 2018: 9068-9079
178. Angjoo Kanazawa, Shubham Tulsiani, Alexei A. Efros, Jitendra Malik. Learning Category-Specific Mesh Reconstruction from Image Collections. ECCV (15) 2018: 386-402
179. Weicheng Kuo, Christian Hane, Ester L. Yuh, Pratik Mukherjee, Jitendra Malik. Cost-Sensitive Active Learning for Intracranial Hemorrhage Detection. MICCAI (3) 2018: 715-723
180. Ashish Kumar, Saurabh Gupta, David F. Fouhey, Sergey Levine, Jitendra Malik. Visual Memory for Robust Path Following. NeurIPS 2018:773-782
181. Shiry Ginosar; Amir Bar; Gefen Kohavi; Caroline Chan; Andrew Owens; Jitendra Malik. Learning Individual Styles of Conversational Gesture, CVPR 2019: 3497-3506.
182. Zhe Cao; Abhishek Kar; Christian Hane; Jitendra Malik. Learning Independent Object Motion From Unlabelled Stereoscopic Videos, CVPR 2019: 5594-5603
183. Angjoo Kanazawa; Jason Y. Zhang; Panna Felsen; Jitendra Malik. Learning 3D Human Dynamics From Video. CVPR 2019: 5614-5623
184. Yedid Hoshen; Ke Li; Jitendra Malik. Non-Adversarial Image Synthesis With Generative Latent Nearest Neighbors, CVPR 2019: 5811-5819.
185. Ke Li, Tianhao Zhang, Jitendra Malik. Diverse Image Synthesis From Semantic Layouts via Conditional IMLE. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 4220-4229
186. Iro Armeni, Zhi-Yang He, JunYoung Gwak, Amir R. Zamir, Martin Fischer, Jitendra Malik, Silvio Savarese. 3D Scene Graph: A Structure for Unified Semantics, 3D Space, and Camera. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 5664-5673
187. Christoph Feichtenhofer, Haoqi Fan, Jitendra Malik, Kaiming He. SlowFast Networks for Video Recognition. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 6202-6211
188. Jason Y. Zhang, Panna Felsen, Angjoo Kanazawa, Jitendra Malik. Predicting 3D Human Dynamics From Video. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 7114-7123

189. Weicheng Kuo, Anelia Angelova, Jitendra Malik, Tsung-Yi Lin. ShapeMask: Learning to Segment Novel Objects by Refining Shape Priors. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 9207-9216
190. Manolis Savva, Abhishek Kadian, Oleksandr Maksymets, Yili Zhao, Erik Wijmans, Bhavana Jain, Julian Straub, Jia Liu, Vladlen Koltun, Jitendra Malik, Devi Parikh, Dhruv Batra. Habitat: A Platform for Embodied AI Research. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 9339-9347
191. Georgia Gkioxari, Jitendra Malik, Justin Johnson. Mesh R-CNN. The IEEE International Conference on Computer Vision (ICCV), 2019, pp. 9785-9795
192. Somil Bansal, Varun Tolani, Saurabh Gupta, Jitendra Malik, Claire Tomlin: Combining Optimal Control and Learning for Visual Navigation in Novel Environments. CoRL 2019: 420-429
193. Ashish Kumar, Saurabh Gupta, Jitendra Malik: Learning Navigation Subroutines from Egocentric Videos. CoRL 2019: 617-626
194. Alexander Sax, Jeffrey O. Zhang, Bradley Emi, Amir Roshan Zamir, Silvio Savarese, Leonidas J. Guibas, Jitendra Malik: Learning to Navigate Using Mid-Level Visual Priors. CoRL 2019: 791-812
195. Ke Li, Tianhao Zhang, Jitendra Malik: Approximate Feature Collisions in Neural Nets. NeurIPS 2019:15816-15824.
196. Amir R. Zamir, Alexander Sax, Nikhil Cheerla, Rohan Suri, Zhangjie Cao, Jitendra Malik, Leonidas J. Guibas: Robust Learning Through Cross-Task Consistency. CVPR 2020 : 11194-11203.
197. Trevor Standley, Amir R. Zamir, Dawn Chen, Leonidas Guibas, Jitendra Malik, Silvio Savarese: Which Tasks Should Be Learned Together in Multi-task Learning? ICML 2020: 9120-9132
198. Haozhi Qi, Chong You, Xiaolong Wang, Yi Ma, Jitendra Malik: Deep Isometric Learning for Visual Recognition. ICML 2020: 7824-7835
199. Karttikeya Mangalam, Harshayu Girase, Shreyas Agarwal, Kuan-Hui Lee, Ehsan Adeli, Jitendra Malik, Adrien Gaidon: It Is Not the Journey but the Destination: Endpoint Conditioned Trajectory Prediction. ECCV (2) 2020:759-776.
200. Ning Yu, Ke Li, Peng Zhou, Jitendra Malik, Larry Davis, Mario Fritz: Inclusive GAN: Improving Data and Minority Coverage in Generative Models. ECCV (22) 2020: 377-393.
201. Jeffrey O. Zhang, Alexander Sax, Amir R. Zamir, Leonidas Guibas, Jitendra Malik: Side-Tuning: A Baseline for Network Adaptation via Additive Side Networks. ECCV (3) 2020: 698-714
202. Zhe Cao, Hang Gao, Karttikeya Mangalam, Qi-Zhi Cai, Minh Vo, Jitendra Malik: Long-term Human Motion Prediction with Scene Context. ECCV (1) 2020: 387-404

203. Shubham Goel, Angjoo Kanazawa, Jitendra Malik: Shape and Viewpoint without Key-points. ECCV (15) 2020: 88-104.
204. Jason Y. Zhang, Sam Pepose, Hanbyul Joo, Deva Ramanan, Jitendra Malik, Angjoo Kanazawa: Perceiving 3D Human-Object Spatial Arrangements from a Single Image in the Wild. ECCV (12)2020: 34-51.
205. Edward J. Smith, Roberto Calandra, Adriana Romero, Georgia Gkioxari, David Meger, Jitendra Malik, Michal Drozdal: 3D Shape Reconstruction from Vision and Touch. NeurIPS 2020.

## Invited talks

### 1988-1989

“Representing constraints for inferring 3-D scene structure from monocular cues,” Workshop on Vision and Three-dimensional representation, University of Minnesota, May 24-26, 1989.

### 1989-1990

“Finding Texture Boundaries by Nonlinear Spatial Filtering”, Indo-United States Workshop on Spectral Analysis in One or Two Dimensions, New Delhi, November 29, 1989.

“Finding Texture Boundaries Using Early Vision Mechanisms”, National Academy of Sciences/ National Research Council Committee on Vision Meeting, Irvine, Jan 19, 1990.

“Finding Image Boundaries”, Intelligence Artificielle: Quelle Realite, IA 90 Workshop, Rabat, Morocco, June 1, 1990.

### 1991-92

“Multi-channel filtering as a substrate for early visual processing”, ESPRIT INSIGHT conference, Nice, France, June 20, 1991.

“Detecting Curvilinear Structure in Images”, ETH Zurich, July 4, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, ETH Zurich, July 5, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, Harvard, Sept. 18, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, MIT, Sept. 23, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, U Mass, Amherst, Oct. 4, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, NYU, Oct 11, 1991.

“Stereopsis from Orientation and Spatial Frequency Disparity”, Yale, Oct 16, 1991.

“Multi-channel filtering as a first stage in visual processing”, CMU, Oct 20, 1992.

“Stereopsis from Orientation and Spatial Frequency Disparity”, CMU, Oct 21, 1991.

“Multi-channel filtering as a first stage in visual processing”, Opt. Soc. of Am. meeting, San Jose, November 6, 1992.

“Stereopsis from Orientation and Spatial Frequency Disparity”, Caltech, Feb 20, 1992.

### 1992-93

“Processing of texture information”, Cold Spring Harbor Course on Computational Neuroscience, July 20, 1992.

“Stereopsis from orientation and spatial frequency disparity” , Sarnoff Research Center, July 23, 1992.

“Vision for Intelligent vehicles”, Asilomar VLSI Conference, Feb 8, 1993.

“On Image Texture,” Robotics Institute, CMU, March 5, 1993  
“Computer Vision: Estimating 3–D scene Properties from 2–D images”, Neyman Seminar, Dept. of Statistics, April 7, 1993.  
“Orientation and Spatial Frequency Disparities” NATO workshop on Binocular Stereopsis and Optical Flow, York University, June 25, 1993.

#### **1993-94**

“The visual processing of texture,” Stockholm Workshop on computational Vision, Sweden, Aug 5, 1993.

Several presentations at the Newton Institute of Mathematical Sciences, Cambridge, during July-December 1993.

“A Computational Model for Shape from Texture,” CIBA Foundation symposium on higher order processing in the visual system, London, Oct 21, 1993.

“A Computational Model for Shape from Texture,” Smith Kettlewell Foundation, San Francisco, March 17, 1994.

“Towards recognition of textured objects,” Syracuse, April 9, 1994.

“Computational vision: Issues and Perspectives”, Interval Corporation, June 10, 1994

“On shape from texture”, Scuola Normale, Pisa, June 28, 1994.

#### **1994-95**

Invited series of lectures on Computational Vision, Inst. Research in Cognitive Science, Univ. of Pennsylvania, Feb 6–10, 1995

#### **1995-96**

“Smart Cars and Smart Roads” Plenary talk, British Machine Vision Conference, Sept 1995.

“Vision and Control” Panel presentation, NSF Workshop on Biology and Control, Nov 1995.

#### **1997-1998**

“Finding objects in large collections of images”, SRI, Aug 21.

Interval seminar, Sept 17

“Finding objects in large collections of images”, Human Computer Interaction seminar, Stanford, Oct 3.

Neyman seminar, Statistics Dept., UC Berkeley, Oct 22

“Computational Mechanisms of Visual Grouping”, Psychology Dept., UC Berkeley, Nov. 7

“Computational Mechanisms of Visual Grouping”, Psychology Dept., Harvard Univ., Nov. 10

“Computational Mechanisms of Visual Grouping”, MIT LIDS colloquium, Nov. 25

Finding objects in large collections of images, Digital Library meeting, Berkeley, Jan 6

“Computational Mechanisms of Visual grouping”, NECI/NYU workshop, New York City, Feb 20

Philips Multimedia Research Center, Feb 25

“Recovering Geometric, Photometric, and Kinematic Properties from Images”, Image Based Rendering Workshop, Stanford, Mar 23

“Computational Mechanisms of Visual Grouping”, AI Colloquium, Stanford, Apr 9

“Graph partitioning and matching problems in computer vision”, DIMACS workshop on Large Scale Optimization, May 27



“Computational Mechanisms of Visual Grouping”, International workshop on Shape, Contour and Grouping, Palermo, Italy, May 29

“Learning to recognize objects in large image collections using color and texture” (keynote talk in Workshop on Learning in Computer Vision), Freiburg, Germany, June 6

### **1998-1999**

“Visual Grouping, Graph Partitioning, and Eigenvalue Problems”, MTNS, Padova, July 7

“Computational mechanisms of visual grouping”, Weizmann Inst, Israel, July 14

“Computational mechanisms of visual grouping”, Hebrew Univ, Jerusalem, Israel, July 15

Video Analysis, Intel Corporation, Sept 24.

“Finding Objects In Images”, ETH Zurich Symposium on Computer Vision and Mental Images, Nov 23

“Computational Mechanisms of Visual Grouping”, DIMACS, New Jersey, March 21.

“Computational Mechanisms of Visual Grouping”, Bodian Seminar, Johns Hopkins, April 12.

“Computational Models of Visual Grouping”, 5th Annual German American Frontiers of Science Symposium, Potsdam, Germany, June 10-13

“Recovering Photometric Properties Of Scenes From Images”, Workshop on Photometric Modeling, CVPR, June 22

“Computational Mechanisms of Visual Grouping”, Gatsby CNS unit, London, June 29

### **1999-2000**

“Computational Mechanisms of Visual Grouping”, Cambridge, July 1, 1999

“Computational Mechanisms of Visual Grouping”, Workshop on Computational Vision and speech recognition: Statistical foundations and applications, Anogia, Crete, July 4, 1999

“Region Based Image Retrieval”, Keynote talk, DAGM-99 (German conference on AI and PR), Sept 16, 1999

“Computational Mechanisms of Visual Grouping”, Max Planck Institute, Tuebingen, Sept 17, 1999

“Cue Combination And Aggregation In Grouping”, ICCV Perceptual Organization workshop Sept 20, 1999

“Recent Advances in Visual Grouping and Their Implications for Models of Object Recognition”, ICCV workshop on generic object recognition, Sept 26, 1999.

“Visual Grouping and Recognition”, Dept Colloquium, Princeton University, Nov 17, 1999.

“Computational Mechanisms of Visual Grouping”, Cognitive Science Colloquium, UC Berkeley, Dec 3, 1999.

“Computational Vision”, National Academy of Sciences workshop on the Interface of Three Areas of Computer Science with the Mathematical Sciences, April 29, 2000.

### **2000-2001**

“Ecological Statistics of Gestalt Grouping Factors” Natural Stimulus Statistics, Cold Spring Harbor Laboratory, Oct 25, 2000

“Convergence of Vision and Graphics” Information Society Technologies, IST 2000 Conference, Nice, Nov. 2000

“Visual Grouping and Recognition”, UCLA Jon Postel Distinguished Lecture, Nov. 9, 2000

“Visual Grouping and Recognition”, Georgia Tech GVV colloquium, Jan 25, 2001

## **2001-2002**

“Ecological Statistics of grouping cues in natural images”, Invited Address, Scale Space '01 workshop, Vancouver, July 7, 2001.

“Lectures on biologically motivated approaches to computer vision,” DIKU, Copenhagen, Aug 6-10, 2001

“Shape Matching for Content Based Image Retrieval,” MMCBIR 2001, INRIA Rocquencourt, Sept. 24, 2001

“ Visual Grouping and Object Recognition,” Int. Conf. On Image Analysis and Processing 2001, Palermo, Italy, Sept 26, 2001

“Shape Matching and Recognition using shape contexts”, Workshop on Shape-based Retrieval and Analysis of 3D models, Princeton, Oct 29, 2001

“Visual Grouping and Recognition”, Columbia Lectures in Computer Science, Dec. 3, 2001

“Visual Grouping and Recognition”, Lecture Series in honor of Azriel Rosenfeld, Univ. of Maryland, Jan 30, 2002.

“Visual Grouping and Object Recognition”, Stanford Computer Forum Workshop on Computer Vision, March 2002

“Recognizing Objects and Actions in Images and Video”, Int. Symposium on Multimedia Mediation Systems, Tokyo, March 2002

“Recognizing Objects and Actions in Images and Video”, Natl. Academy of Sciences Workshop on Role of Mathematical Sciences in Homeland Defense, Washington, April 2002

## **2002-2003**

“Recognizing Objects and Actions in Images and Video”, Distinguished Lecture, UC San Diego, February 10, 2003

“Recognizing Objects and Actions in Images and Video”, Mittag-Leffler Institute, Stockholm, March 2003

“Ecological Statistics and visual grouping”, Mittag-Leffler Institute, Stockholm, March 2003

## **2003-2004**

“Recognizing Objects and Actions”, University of Arizona, Tucson, Oct 3, 2003

## **2004-2005**

“Dense Feature Correspondences make recognition easy”, Sicily Object Recognition Workshop, Oct 11, 2004

“Computer Science Education at UC Berkeley”, Microsoft Research Asia Faculty Summit, Beijing, Nov. 8, 2004

Keynote talk, Workshop on “Computing in the 21st Century” Beijing China, Nov. 9, 2004.

“Recognition and Synthesis of human actions from Video”, Invited Talk, 9th Intl. Fall Workshop on Vision, Modeling and Visualization, Stanford, November 17, 2004

“Ecological Statistics of Perceptual Organization” Cognitive & Linguistic Sciences Colloquium, Brown University, Nov. 29, 2004

“Recognizing Objects and Actions in Images and Video”, Distinguished Colloquium, Univ. of Pennsylvania, Nov. 30, 2004

“Recognizing Objects and Actions”, EECS Department, MIT, Dec 1, 2004

“Recognizing Objects and Actions in Images and Video”, Evans & Sutherland Distinguished Lecture, University of Utah, Feb 23, 2005.

Lectures in the MSRI Program on Vision, Spring 2005 (various)  
“Ecological Statistics of Perceptual Organization”, Computational Vision in Neural and Machine systems, Centre for Vision Research, York University, June 15, 2005

### **2005-2006**

Oxyopia, School of Optometry, UC Berkeley, Oct 28, 2005, “Perceptual Organization and Natural Image Statistics”  
Computer Science Colloquium, ETH Zurich, Nov. 7, 2005, “Recognizing Objects and Actions in Images and Video”  
Exxon-Mobil Pattern Recognition and Image Analysis Workshop, Dec. 2005  
Computer Vision Distinguished Speaker Series, University of Central Florida, Jan 25, 2006, “Recognizing Objects and Actions in Images and Video”  
IMA Workshop March 06 “Natural Image Statistics Enable us to Quantitatively Model Visual Grouping and Figure-Ground Cues”  
NAE West Coast Regional meeting, April 20, 2006  
IMA Workshop on Visual Recognition, May 06

### **2006-2007**

Learning in Cognitive Systems Summer School, Berlin, September 18-20 2006, various lectures.  
Center for Perceptual Systems, UT Austin, Colloquium, Nov 27, 2006, “Probabilistic Models of Perceptual Organization”  
Techvista hosted MSR India Jan 23, 2007, Panel on “Making India a Powerhouse in Research”  
ECE Colloquium, UC Santa Barbara, Apr 13, 2007, “Recognizing Objects and Actions in Images and Video”  
Visual Science Society Symposium, May 11, 2007, “Ecological Statistics of Perceptual organization”  
Invited talk, Scandinavian Conference on Image Analysis, 2007, June 10, 2007, “Recognizing objects and activities in images and video”

### **2007-2008**

CITRIS in London, July 2007, The Future of Image Search.  
Optical Society of America Fall Vision Meeting 2007, invited talk, Sept 17, 2007, “Modeling object recognition”  
CASIS conference, Lawrence Livermore National Laboratory, Keynote talk, Nov 15, 2007, “Recognizing Objects and Actions in Images and Video”  
UCSB Bio-image informatics workshop 200, Panel “Benchmarking and Validation of Computer Vision Methods for Bioimage Analysis”  
SUNS 08, MIT, Feb 1, 2008, “Perceptual Organization in Images of Natural Scenes”  
Indo-Israeli Workshop on Computer Vision, Hyderabad, India, Invited talk, Feb 4, 2008, “Recognizing Objects and Actions in Images and Video”  
Google Tech Talk, Mar 6, 2008, “Looking At People”  
Neural Computation and Adaptive Perception Workshop, Redwood Center, Berkeley, May 7, 2008, “Perceptual Organization in Images of Natural Scenes”  
Object Recognition Workshop, Lake Como, May 18, 2008, “Perceptual Organization in Images of Natural Scenes”  
International Workshop on Computer Vision, Venice, May 28, 2008, “Perceptual Organization

in Images of Natural Scenes”

HP Imaging and Color Symposium, Berkeley, June 20, 2008, “Contours and Junctions in Natural Images”

Workshop on Algorithms for Massive, Modern Data Sets, MMDS 2008, Stanford, June 27, 2008, “Classification using Intersection Kernel SVMs is Efficient”

### **2008-2009**

Adobe Distinguished Lecture Series, Aug 5, 2008, “From Pixels to Perception: Computational Models of Visual Grouping”

ACM SIGKDD, Las Vegas, Keynote Address, Aug 27, 2008 “The Future of Image Search”

HHMI Janelia Farm Research Campus, Sept 15, 2008 “Visual Grouping: Finding Contours and Regions in Natural Images”

UC Irvine, Distinguished Sepaker Series, Oct 17, 2008 “Parsing Images”

USC Computer Science Colloquium, Oct 30, 2008 “Parsing Images”

International Workshop on Video, Barcelona, May 26, 2009, “ Perceptual Organization and Optical Flow”

International Workshop on Recent Trends in Computer Vision, Kyoto, June 8, 2009, “Recognition Using Regions”

Visual Scene Understanding Workshop, CVPR, Miami, June 25, 2009, “The interaction of bottom-up and top-down processing in visual recognition”

### **2009-2010**

Second International Workshop on Shape Perception in Human and Computer Vision, ECVP, Regensburg, Aug 29, 2009, “The interaction of bottom-up and top-down processing in visual recognition”

2009 BIRS Workshop on Computer Vision and the Internet, Banff, Sept 3, 2009, “Detecting people and identifying their poses in images and video”

2010 Winter School on Machine Learning and Computer Vision, Bangalore, Jan 13, 2010, various lectures.

MIT Brain and Cognitive Science Department Colloquium, Feb 18, 2010, “ Visual Object Recognition”

IIT Bombay, June 29, 2010, “Object Detection and Segmentation in Images”

### **2010-2011**

MSR India, July 8, 2010, “Object Recognition”

IIT Hyderabad, July 13, 2010, “Detecting and Segmenting People in Images”

ECCV workshop, Sept 11, 2010, “Detecting and Segmenting Objects Using Poselets”

CCPR Plenary lecture, Oct. 22, 2010, “Detecting and Segmenting Objects in Images”

HHMI Janelia Farm Research Campus, Nov. 15, 2010 “Detecting and Segmenting Objects in Images”

NIPS Deep Learning Workshop, Dec. 10, 2010, “Rich Representations for Learning Visual Recognition”

Colloquium, MPI Tuebingen, Germany, April 11, 2011, “Rich Representations for Learning Visual Recognition”

DAGM Workshop on Unsolved Problems in Pattern Recognition, Heidelberg, April 13, 2011, “Solved, Half-solved and Unsolved Problems in Visual Recognition”

Berkeley-INRIA-Stanford Workshop, May 24, 2011, “Recognizing Objects in Images”  
Intel STC Webinar, June 6, 2011, “Parsing the Appearance of People in Images”

### **2011-2012**

ENS/INRIA Visual Recognition and Machine Learning Summer School, Paris, July 27, 2011, “Recent Progress on Visual Recognition”, and “The Future of Visual Recognition”  
Intl. Conf. on Contemporary Computing, IIIT, India, Aug. 8, 2011, “Image and Video Understanding”  
Frontiers in Computer Vision Workshop, MIT, Aug 21-24, 2011, “History of Computer Vision”, and “The Hilbert Problems of Computer Vision”

### **2012-2013**

International Computer Vision Summer School, Sicily, July 15-21, ”Object Recognition”, and ”Recognition, Reconstruction and Reorganization”  
VisionNYC, Oct 22, 2012, “Shape Estimation, Lightness/ Color Constancy & Illumination from a Single Image of an Object”  
University of Buffalo Distinguished Colloquium, March 7, 2013, “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”  
Stony Brook, March 8, 2013, “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”  
Stanford Center for Image Systems Engineering, May 7, 2013, “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”  
ETH Zurich, May 13, 2013. “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”  
Swiss Vision Day, Zurich, May 15, 2013 “Solved, half-solved and unsolved problems in visual recognition”

### **2013-2014**

INRIA Grenoble  
ENS/INRIA Visual Recognition and Machine Learning Summer School, Paris, ”The Three R’s of Computer Vision : Recognition, Reconstruction and Reorganization”, July 24, 2013  
German Conference on Pattern Recognition, Saarbrücken, Keynote Lecture, ‘The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization” , Sept 4 2013  
Dertouzos Distinguished Lecture, MIT, October 10, 2013, “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”  
ICCV 2013 3DRR workshop lecture Dec. 8, 2013  
Kavli Futures Symposium Dec. 10, 2013  
Cornell Salton Lecture, 2014, “The Three R’s of Computer Vision: Recognition, Reconstruction and Reorganization”

### **2014-2015**

K.S. Fu Lecture, ICPR 2014  
Allen Institute for AI, Seattle, Invited Lecture, Aug. 11, 2014  
A9/Amazon Vision Conference, April 21, 2015, Keynote Talk, ”Scene Understanding in the Era of Deep Learning”

CVPR workshops, "3D from a Single Image", and "Scene Understanding Workshop", Invited Talks, June 12, 2015

### **2015-2016**

INNS Deep Learning Workshop Invited Talk, "Scene Understanding in the Era of Deep Learning", Aug 8, 2015

ICCV 2015 Imagenet/COCO Workshop Invited Talk, "The Hilbert Problems of Computer Vision", Dec. 17, 2015

Stanford AI colloquium, Deep Visual Understanding from Deep Learning, April 15, 2016

Society for Information Display Annual Symposium, Invited Talk, Deep Visual Understanding from Deep Learning, May 25, 2016

CVPR VQA Workshop Invited Talk, Embodied Cognition: Linking vision, motor control and language, June 26, 2016

CVPR POCV Workshop Invited Talk, Feedback in Computer Vision, June 26, 2016

CVPR LSUN Workshop Invited Talk, Scene Understanding in RGB-D and RGB images, June 26, 2016

### **2016-2017**

JASON presentation on Future of AI, July 6, 2016

The Hive, Palo Alto, Deep visual understanding from deep learning, Sept 15, 2016

ECCV 2016 and ACM MM 2016 Amsterdam, "Deep Visual Understanding from Deep Learning" October 15, 2016

ACCV 2016, Taipei, Keynote Deep Visual Understanding from Deep Learning, Nov. 21, 2016

Instt of Information Science, Academia Sinica, Taiwan, Distinguished Lecture. Embodied cognition: Towards combining vision, motor control and language, Nov. 23, 2016

Israeli Instt Advanced Studies, Jerusalem, Winter School, Invited talks, "Deep visual understanding from deep learning" and "Embodied cognition: Towards combining vision, motor control and language", Jan 8, 2017

KLA Tencor Engineering conference. Keynote talk, Computer vision: Past, Present and Future, May 1, 2017

Embedded Vision Summit Deep Visual Understanding from Deep Learning, May 2, 2017

### **2017-2018**

ShanghaiTech Symposium on Information Science and Technology, Distinguished Speaker, "Deep Visual Understanding from Deep Learning, July 4, 2017

CVPR workshop talks "Vision for Robotics" and others

### **2018-2019**