Bibliography

[AASK04] V. Athitsos, J. Alon, S. Sclaroff, and G. Kollios. BoostMap: A Method for Efficient Approximate Similarity Rankings. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2004.

[AGF04] Y. Amit, D. Geman, and X. Fan. A coarse-to-fine strategy for multiclass shape detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2004.

[ARS08] M. Andriluka, S. Roth, and B. Schiele. People Tracking-by-Detection and People Detection-by-Tracking. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[AT06] A. Agarwal and B. Triggs. Hyperfeatures multilevel local coding for visual recognition. In *Proceedings of the European Conference on Computer Vision*, 2006.

[Bal81] D.H. Ballard. Generalizing the Hough Transform to Detect Arbitrary Shapes. *Pattern Recognition*, 13(2):111–122, 1981.

[Bar83] L.W. Barsalou. Ad-hoc Categories. *Memory and Cognition*, 11:211–227, 1983.

[BBM05] A. Berg, T. Berg, and J. Malik. Shape Matching and Object Recognition Low Distortion Correspondences. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[Bea78] P. Beaudet. Rotationally Invariant Image Operators. In *Proc. 4th International Joint Conference on Pattern Recognition*, pages 579–583, 1978.

[BETV08] H. Bay, A. Ess, T. Tuytelaars, and L. Van Gool. SURF: Speeded-Up Robust Features. *Computer Vision and Image Understanding*, 110(3):346–359, 2008.

[Bie87] I. Biederman. Recognition-by-Components: A Theory of Human Image Understanding. *Psychological Review*, 44(2):115–147, 1987.

[BL97] J. Beis and D. Lowe. Shape Indexing Using Approximate Nearest-Neighbour Search in High Dimensional Spaces. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 1997.

[BL02] M. Brown and D.G. Lowe. Invariant Features from Interest Point Groups. In *British Machine Vision Conference*, pages 656–665, Cardiff, Wales, 2002.

[BL03] M. Brown and D.G. Lowe. Recognising Panoramas. In *Proceedings of the IEEE International Conference on Computer Vision*, 2003.

[BL07] M. Brown and D.G. Lowe. Automatic Panoramic Image Stitching using Invariant Features. *International Journal of Computer Vision*, 74(1):59–73, 2007.

[BLJ04] Francis R. Bach, Gert R. G. Lanckriet, and Michael I. Jordan. Fast kernel learning using sequential minimal optimization. Technical Report UCB/CSD-04-1307, EECS Department, University of California, Berkeley, Feb 2004.

[BMP02] S. Belongie, J. Malik, and J. Puzicha. Shape Matching and Object Recognition Using Shape Contexts. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(24):509–522, 2002.

[Bro58] R. Brown. How Shall a Thing Be Called? *Psychological Review*, 65:14–21, 1958.

[Bro98] A. Broder. On the resemblance and containment of documents. In *Compression and Complexity of Sequences*, 1998.

[BT05] G. Bouchard and B. Triggs. Hierarchical Part-Based Visual Object Categorization. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[BTV06] H. Bay, T. Tuytelaars, and L. Van Gool. SURF: Speeded-Up Robust Features. In *Proceedings of the European Conference on Computer Vision*, 2006.

[BZM07] A. Bosch, A. Zisserman, and X. Munoz. Image classification using random forests and ferns. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[Cal04] Caltech 101 Image Database. *http://www.vision.caltech.edu/ImageDatasets/Caltech101/*, 2004.

[Cap05] D. Capel. An Effective Bail-Out Test for RANSAC Consensus Scoring. In *British Machine Vision Conference*, pages 629–638, 2005.

[Car98] S. Carlsson. Order Structure, Correspondence and Shape Based Categories. In *Intl Wkshp on Shape Contour and Grouping*, Sicily, May 1998.

[CBDF04] G. Csurka, C. Bray, C. Dance, and L. Fan. Visual Categorization with Bags of Keypoints. In *Workshop on Statistical Learning in Computer Vision, in conjunction with ECCV*, 2004.

[CD01] O. Cula and K. Dana. Compact representation of bidirectional texture functions. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2001.

[CET01] T. Cootes, G. Edwards, and C. Taylor. Active Appearance Models. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 23(6), June 2001.

[CFH05] D. Crandall, P. Felzenszwalb, and D. Huttenlocher. Spatial priors for part-based recognition using statistical models. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[Cha02] M. Charikar. Similarity Estimation Techniques from Rounding Algorithms. In *ACM Symp. on Theory of Computing*, 2002.

[CHL05] S. Chopra, R. Hadsell, and Y. LeCun. Learning a Similarity Metric Discriminatively, with Application to Face Verification. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, San Diego, CA, June 2005.

[CJL08] J. Choi, W. Jeon, and S-C. Lee. Spatio-temporal pyramid matching for sports videos. In *Proceeding of the ACM International Conference on Multimedia Information Retrieval*, Vancouver, Canada, 2008.

[CL06] G. Carneiro and D. Lowe. Sparse Flexible Models of Local Features. In *Proceedings of the European Conference on Computer Vision*, 2006.

[CM02] D. Comaniciu and P. Meer. Mean Shift: A Robust Approach Toward Feature Space Analysis. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 24(5):603–619, 2002.

[CM05] O. Chum and J. Matas. Matching with PROSAC - Progressive Sample Consensus. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[CM08] O. Chum and J. Matas. Optimal Randomized RANSAC. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 30(8):1472–1482, 2008.

[CMO04] O. Chum, J. Matas, and S. Obdržálek. Enhancing RANSAC by Generalized Model Optimization. In *Asian Conference on Computer Vision*, pages 812–817, 2004.

[CPZ97] Paolo Ciaccia, Marco Patella, and Pavel Zezula. M-tree: An efficient access method for similarity search in metric spaces. In *Proc Int'l Conf on Very Large Data Bases*, August 1997.

[CPZ08] O. Chum, J. Philbin, and A. Zisserman. Near duplicate image detection: min-hash and tf-idf weighting. In *British Machine Vision Conference*, 2008.

[CR00] H. Chui and A. Rangarajan. A New Algorithm for Non-Rigid Point Matching. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, Hilton Head Island, SC, June 2000.

[CSTE01] N. Cristianini, J. Shawe-Taylor, and A. Elisseeff. On kernel-target alignment. In *Advances in Neural Information Processing Systems*, 2001.

[CWM05] O. Chum, T. Werner, and J. Matas. Two-View Geometry Estimation Unaffected by a Dominant Plane. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 772–779, 2005.

[CZ07] O. Chum and A. Zisserman. An Exemplar Model for Learning Object Classes. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[DIIM04] M. Datar, N. Immorlica, P. Indyk, and V. Mirrokni. Locality-Sensitive Hashing Scheme Based on p-Stable Distributions. In *Symposium on Computational Geometry (SOCG)*, 2004.

[DS03] G. Dorko and C. Schmid. Selection of scale-invariant parts for object class recognition. In *Proceedings of the IEEE International Conference on Computer Vision*, 2003.

[DT05a] N. Dalal and B. Triggs. Histograms of oriented gradients for human detection. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[DT05b] N. Dalal and B. Triggs. Histograms of Oriented Gradients for Human Detection. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[EVGW+] M. Everingham, L. Van Gool, C. K. I. Williams, J. Winn, and A. Zisserman. The PASCAL Visual Object Classes Challenge 2008 (VOC2008) Results. http://www.pascal-network.org/challenges/VOC/voc2008/workshop/index.html.

[EZWVG06] M. Everingham, A. Zisserman, C. K. I. Williams, and L. Van Gool. The PASCAL Visual Object Classes Challenge 2006 (VOC2006) Results. http://www.pascal-network.org/challenges/VOC/voc2006/results.pdf, 2006.

[FB81] M. Fischler and R. Bolles. Random Sampling Consensus: A Paradigm for Model Fitting with Application to Image Analysis and Automated Cartography. *Communications of the ACM*, 24:381–395, 1981.

[FBF77] J. Freidman, J. Bentley, and A. Finkel. An Algorithm for Finding Best Matches in Logarithmic Expected Time. *ACM Transactions on Mathematical Software*, 3(3):209–226, September 1977.

[FE73] M.A. Fischler and R.A. Elschlager. The Representation and Matching of Pictorial Structures. *IEEE Transactions on Computers*, 22(1):67–92, 1973.

[FFFP03] L. Fei-Fei, R. Fergus, and P. Perona. A Bayesian Approach to Unsupervised One-Shot Learning of Object Categories. In *Proceedings of the IEEE International Conference on Computer Vision*, 2003.

[FFFPZ05] R. Fergus, L. Fei-Fei, P. Perona, and A. Zisserman. Learning Object Categories from Google's Image Search. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[FG87] W. Förstner and E. Gülch. A Fast Operator for Detection and Precise Location of Distinct Points, Corners and Centres of Circular Features. In *ISPRS Intercommission Workshop*, Interlaken, June 1987.

[FG01] F. Fleuret and D. Geman. Coarse-to-fine face detection. In *International Journal of Computer Vision*, 2001.

[FH05a] P. Felzenszwalb and D. Huttenlocher. Pictorial Structures for Object Recognition. *International Journal of Computer Vision*, 61(1), 2005.

[FH05b] P. Felzenszwalb and D. Huttenlocher. Pictorial Structures for Object Recognition. *International Journal of Computer Vision*, 61(1), 2005.

[FLCS05] M. Fritz, B. Leibe, B. Caputo, and B. Schiele. Integrating Representative and Discriminant Models for Object Category Detection. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[FMR08] P. Felzenszwalb, D. McAllester, and D. Ramanan. A Discriminatively Trained, Multiscale, Deformable Part Model. 2008.

[FMZ08] V. Ferrari, M. Marin, and A. Zisserman. Progressive Search Space Reduction for Human Pose Estimation. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[FP06] J-M. Frahm and M. Pollefeys. RANSAC for (Quasi-) Degenerate data (QDEGSAC). In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 453–460, 2006.

[FPZ03] R. Fergus, P. Perona, and A. Zisserman. Object Class Recognition by Unsupervised Scale-Invariant Learning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[FPZ05] R. Fergus, P. Perona, and A. Zisserman. A Sparse Object Category Model for Efficient Learning and Exhaustive Recognition. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[FSM07] A. Frome, Y. Singer, and J. Malik. Image Retrieval and Classification Using Local Distance Functions. In *Advances in Neural Information Processing Systems 19*, 2007.

[FSSM07] A. Frome, Y. Singer, F. Sha, and J. Malik. Learning Globally-Consistent Local Distance Functions for Shape-Based Image Retrieval and Classification. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[FvE91] D. J. Felleman and D. C. van Essen. Distributed Hierarchical Processing in the Primate Cerebral Cortex. *Cerebral Cortex*, 1:1–47, 1991.

[FZP03] R. Fergus, A. Zisserman, and P. Perona. Object Class Recognition by Unsupervised Scale-Invariant Learning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[GBQV09] S. Gammeter, L. Bossard, T. Quack, and L. Van Gool. I Know What You Did Last Summer: Object-Level Auto-Annotation of Holiday Snaps. In *Proceedings of the IEEE International Conference on Computer Vision*, 2009.

[GD05a] K. Grauman and T. Darrell. Efficient image matching with distributions of local invariant features. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[GD05b] K. Grauman and T. Darrell. The Pyramid Match Kernel: Discriminative Classification with Sets of Image Features. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[GD06] K. Grauman and T. Darrell. Approximate Correspondences in High Dimensions. In *Advances in Neural Information Processing Systems*, 2006.

[GD07a] K. Grauman and T. Darrell. Pyramid Match Hashing: Sub-Linear Time Indexing Over Partial Correspondences. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[GD07b] K. Grauman and T. Darrell. The Pyramid Match Kernel: Efficient Learning with Sets of Features. *Journal of Machine Learning Research (JMLR)*, 8:725–760, April 2007.

[GIM99] A. Gionis, P. Indyk, and R. Motwani. Similarity Search in High Dimensions via Hashing. In *Proceedings of the 25th International Conference on Very Large Data Bases*, 1999.

[GL08] Kristen Grauman and Bastian Leibe. *AAAI 2008 Tutorial on Visual Recognition*, July 2008.

[GL09] J. Gall and V. Lempitsky. Class-specific hough forests for object detection. 2009.

[GPU] GPUSURF Features Website. `http://homes.esat.kuleuven.be/~ncorneli/gpusurf/`

[GR96] S. Gold and A. Rangarajan. A Graduated Assignment Algorithm for Graph Matching. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 18(4):377–388, April 1996.

[GRB08] C. Galleguillos, A. Rabinovich, and S. Belongie. Object Categorization using Co-Occurrence, Location and Appearance. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[HBHW04] T. Hertz, A. Bar-Hillel, and D. Weinshall. Learning Distance Functions for Image Retrieval. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2004.

[HEH06] D. Hoiem, A. A. Efros, and M. Hebert. Putting Objects in Perspective. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[HK08] G. Heitz and D. Koller. Learning Spatial Context: Using Stuff to Find Things. In *Proceedings of the European Conference on Computer Vision*, 2008.

[HKM+99] J. Huang, S. Kumar, M. Mitra, W. Zhu, and R. Zabih. Color-spatial indexing and applications. *International Journal of Computer Vision*, 35(3):245–268, 1999.

[HL06] F. Huang and Y. LeCun. Large-scale Learning with SVM and Convolutional for Generic Object Categorization. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[HLLM06] Y. Hu, M. Li, Z. Li, and W-Y. Ma. *Advances in Multimedia Modeling*, volume 4351, chapter Dual-Space Pyramid Matching for Medical Image Classification, pages 96–105. Springer, 2006.

[HLP07] A. Holub, Y. Liu, and P. Perona. On Constructing Facial Similarity Maps. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[Hou62] P.V.C. Hough. Method and Means for Recognizing Complex Patterns. U.S. Patent 3069654, 1962.

[HS88] C. Harris and M. Stephens. A Combined Corner and Edge Detector. In *Alvey Vision Conference*, pages 147–151, 1988.

[HZ04] R.I. Hartley and A. Zisserman. *Multiple View Geometry in Computer Vision*. Cambridge Univ. Press, 2nd edition, 2004.

[HZCP04] X. He, R. Zemel, and M. Carreira-Perpinan. Multiscale Conditional Random Fields for Image Labeling. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2004.

[IM98] P. Indyk and R. Motwani. Approximate Nearest Neighbors: Towards Removing the Curse of Dimensionality. In *30th Symposium on Theory of Computing*, 1998.

[JH99] A. Johnson and M. Hebert. Using spin images for efficient object recognition in cluttered 3d scenes. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 21(5):433–449, 1999.

[JKG08] P. Jain, B. Kulis, and K. Grauman. Fast Image Search for Learned Metrics. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[JR99] M. Jones and J. Rehg. Statistical color models with application to skin detection. *International Journal of Computer Vision*, 1999.

[KB01] T. Kadir and M. Brady. Scale, Saliency, and Image Description. *International Journal of Computer Vision*, 45(2):83–105, 2001.

[KG09] B. Kulis and K. Grauman. Kernelized Locality-Sensitive Hashing. In *Proceedings of the IEEE International Conference on Computer Vision*, 2009.

[KS07] A. Kumar and C. Sminchisescu. Support kernel machines for object recognition. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[Kuh55] H. Kuhn. The Hungarian Method for the Assignment Problem. *Naval Research Logistic Quarterly*, 2:83–97, 1955.

[KZB04] T. Kadir, A. Zisserman, and M. Brady. An affine invariant salient region detector. In *Proceedings of the European Conference on Computer Vision*, 2004.

[Lak87] G. Lakoff. *Women, Fire, and Dangerous Things – What Categories Reveal about the Mind*. Univ. of Chicago Press, Chicago, 1987.

[LBH08] C. Lampert, M. Blaschko, and T. Hofmann. Beyond Sliding Windows: Object Localization by Efficient Subwindow Search. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[LCB+04] G. Lanckriet, N. Cristianini, P. Bartlett, L. El Ghaoui, and M. Jordan. Learning the kernel matrix with semidefinite programming. *Journal of Machine Learning Research*, 5:27–72, 2004.

[LCCV07] B. Leibe, N. Cornelis, K. Cornelis, and L. Van Gool. Dynamic 3D Scene Analysis from a Moving Vehicle. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[Lee08] John J. Lee. Libpmk: A pyramid match toolkit. Technical Report MIT-CSAIL-TR-2008-17, MIT Computer Science and Artificial Intelligence Laboratory, April 2008.

[LG09] Y. J. Lee and K. Grauman. Foreground focus: Unsupervised learning from partially matching images. *International Journal of Computer Vision*, May 2009.

[LH05] M. Leordeanu and M. Hebert. A Spectral Technique for Correspondence Problems using Pairwise Constraints. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[LHS07] M. Leordeanu, M. Hebert, and R. Sukthankar. Beyond local appearance: Category recognition from pairwise interactions of simple features. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[Lin94] T. Lindeberg. Scale-Space Theory: A Basic Tool for Analysing Structures at Different Scales. *Journal of Applied Statistics*, 21(2):224–270, 1994.

[Lin98] T. Lindeberg. Feature Detection with Automatic Scale Selection. *International Journal of Computer Vision*, 30(2):79–116, 1998.

[LLS04] B. Leibe, A. Leonardis, and B. Schiele. Combined Object Categorization and Segmentation with an Implicit Shape Model. Prague, Czech Republic, May 2004.

[LLS08] B. Leibe, A. Leonardis, and B. Schiele. Robust Object Detection with Interleaved Categorization and Segmentation. *International Journal of Computer Vision*, 77(1-3):259–289, 2008.

[LLV09] A. Lehmann, B. Leibe, and L. Van Gool. PRISM: PRincipled Implicit Shape Model. 2009.

[LM99] T. Leung and J. Malik. Recognizing surfaces using three-dimensional textons. In *Proceedings of the IEEE International Conference on Computer Vision*, 1999.

[LMS06] B. Leibe, K. Mikolajczyk, and B. Schiele. Segmentation Based Multi-Cue Integration for Object Detection. In *British Machine Vision Conference*, 2006.

[LN07] F. Lv and R. Nevatia. Single View Human Action Recognition using Key Pose Matching and Viterbi Path Searching. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[Low99] D.G. Lowe. Object Recognition from Local Scale Invariant Features. In *Proceedings of the IEEE International Conference on Computer Vision*, 1999.

[Low04a] D. Lowe. Distinctive Image Features from Scale-Invariant Keypoints. *International Journal of Computer Vision*, 60(2), 2004.

[Low04b] D. Lowe. Distinctive Image Features from Scale-Invariant Keypoints. *International Journal of Computer Vision*, 60(2):91–110, 2004.

[LS03a] B. Leibe and B. Schiele. Analyzing Contour and Appearance Based Methods for Object Categorization. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[LS03b] B. Leibe and B. Schiele. Interleaved object categorization and segmentation. In *British Machine Vision Conference*, pages 759–768, Norwich, UK, Sept. 2003.

[LS04] B. Leibe and B. Schiele. Scale Invariant Object Categorization Using a Scale-Adaptive Mean-Shift Search. In *DAGM Annual Pattern Recognition Symposium*, Springer LNCS, Vol. 3175, pages 145–153, 2004.

[LS07] H. Ling and S. Soatto. Proximity distribution kernels for geometric context in category recognition. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[LSP04] S. Lazebnik, C. Schmid, and J. Ponce. Semi-local affine parts for object recognition. In *British Machine Vision Conference*, 2004.

[LSP06] S. Lazebnik, C. Schmid, and J. Ponce. Beyond Bags of Features: Spatial Pyramid Matching for Recognizing Natural Scene Categories. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[LSS05] B. Leibe, E. Seemann, and B. Schiele. Pedestrian Detection in Crowded Scenes. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2005.

[lTFV07] F. De la Torre Frade and O. Vinyals. Learning kernel expansions for image classification. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[MC04] J. Matas and O. Chum. Randomized RANSAC with T(d,d) test. 22(10):837–842, 2004.

[MC05] J. Matas and O. Chum. Randomized RANSAC with Sequential Probability Ratio Test. In *Proceedings of the IEEE International Conference on Computer Vision*, pages 1727–1732, 2005.

[MCMP02] J. Matas, O. Chum, U. Martin, and T. Pajdla. Robust Wide Baseline Stereo from Maximally Stable Extremal Regions. In *British Machine Vision Conference*, pages 384–393, 2002.

[Mea07] A. Murilloa and et al. From Omnidirectional Images to Hierarchical Localization. *Robotics and Autonomous Systems*, 55(5):372–382, May 2007.

[MLS06] K. Mikolajczyk, B. Leibe, and B. Schiele. Multiple Object Class Detection With a Generative Model. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[MM09] S. Maji and J. Malik. Object detection using a max-margin hough transform. 2009.

[MS01] K. Mikolajczyk and C. Schmid. Indexing based on Scale Invariant Interest Points. In *Proceedings of the IEEE International Conference on Computer Vision*, pages 525–531, 2001.

[MS03] K. Mikolajczyk and C. Schmid. A Performance Evaluation of Local Descriptors. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[MS04a] K. Mikolajczyk and C. Schmid. Scale & Affine Invariant Interest Point Detectors. *International Journal of Computer Vision*, 60(1):63–86, 2004.

[MS04b] K. Mikolajczyk and C. Schmid. Scale and Affine Invariant Interest Point Detectors. *International Journal of Computer Vision*, 1(60):63–86, October 2004.

[MS05] K. Mikolajczyk and C. Schmid. A Performance Evaluation of Local Descriptors. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 27(10):31–37, 2005.

[MTEF06] K. Murphy, A. Torralba, D. Eaton, and W. Freeman. *Towards Category-Level Object Recognition*, chapter Object Detection and Localization Using Local and Global Features. LNCS, 2006.

[MTJ06] F. Moosmann, B. Triggs, and F. Jurie. Fast discriminative visual codebooks using randomized clustering forests. In *Advances in Neural Information Processing Systems*, 2006.

[MTS+05] K. Mikolajczyk, T. Tuytelaars, C. Schmid, A. Zisserman, J. Matas, F. Schaffalitzky, T. Kadir, and L. Van Gool. A Comparison of Affine Region Detectors. *International Journal of Computer Vision*, 65(1/2):43–72, 2005.

[NC08] L. Van Gool N. Cornelis. Fast Scale Invariant Feature Detection and Matching on Programmable Graphics Hardware. In *IEEE CVPR Workshop on Computer Vision on the GPU*, Anchorage, USA, 2008.

[Nis03] D. Nistér. Preemptive RANSAC for Live Structure and Motion Estimation. In *Proceedings of the IEEE International Conference on Computer Vision*, 2003.

[NJT06] E. Nowak, F. Jurie, and B. Triggs. Sampling strategies for bag-of-features image classification. In *Proceedings of the European Conference on Computer Vision*, 2006.

[NS06] D. Nister and H. Stewenius. Scalable Recognition with a Vocabulary Tree. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[OFA04] A. Opelt, A. Fussenegger, and P. Auer. Weak Hypotheses and Boosting for Generic Object Detection and Recognition. In *Proceedings of the European Conference on Computer Vision*, 2004.

[OM05] S. Obdrzalek and J. Matas. Sub-linear Indeing for Large Scale Object Recognition. In *British Machine Vision Conference*, 2005.

[OPZ06a] A. Opelt, A. Pinz, and A. Zisserman. A Boundary-Fragment-Model for Object Detection. In *Proceedings of the European Conference on Computer Vision*, pages 575–588, 2006.

[OPZ06b] A. Opelt, A. Pinz, and A. Zisserman. Incremental learning of object detectors using a visual shape alphabet. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[Oxf] Oxford Interest Point Webpage. `http://www.robots.ox.ac.uk/~vgg/research/affin`

[PCI+07] J. Philbin, O. Chum, M. Isard, J. Sivic, and A. Zisserman. Object retrieval with large vocabularies and fast spatial matching. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[PCI+08] J. Philbin, O. Chum, M. Isard, J. Sivic, and A. Zisserman. Lost in quantization: Improving particular object retrieval in large scale image databases. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[PDCB06] F. Perronnin, C. Dance, G. Csurka, and M. Bressan. Adapted vocabularies for generic visual categorization. In *Proceedings of the European Conference on Computer Vision*, 2006.

[PZC09] D. Parikh, L. Zitnick, and T. Chen. Unsupervised learning of hierarchical spatial structures in images. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2009.

[QFLG07] T. Quack, V. Ferrari, B. Leibe, and L. Van Gool. Efficient mining of frequent and distinctive feature configurations. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[QLV06] T. Quack, B. Leibe, and L. Van Gool. World-Scale Mining of Objects and Events from Community Photo Collections. In *ACM International Conference on Image and Video Retrieval*, 2006.

[QMO+05] P. Quelhas, F. Monay, J.-M. Odobez, D. Gatica-Perez, T. Tuytelaars, and L. Van Gool. Modeling Scenes with Local Descriptors and Latent Aspects. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[RAN06] *Proc. IEEE Int'l Workshop "25 Years of RANSAC" in conjunction with CVPR'06 (RANSAC25 '06)*, 2006.

[RBK98] H. Rowley, S. Baluja, and T. Kanade. Neural Network-Based Face Detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 20(1):23–38, January 1998.

[RD08] E. Rosten and T. Drummond. Machine Learning for High-Speed Corner Detection. In *Proceedings of the European Conference on Computer Vision*, 2008.

[RES+06] B. Russell, A. Efros, J. Sivic, W. Freeman, and A. Zisserman. Using Multiple Segmentations to Discover Objects and their Extent in Image Collections. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[RFP08] R. Raguram, J-M. Frahm, and M. Pollefeys. A Comparative Analysis of RANSAC Techniques Leading to Adaptive Real-Time Random Sample Consensus. In *Proceedings of the European Conference on Computer Vision*, pages 500–513, 2008.

[RFZ07] D. Ramanan, D.A. Forsyth, and A. Zisserman. Tracking People by Learning Their Appearance. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 29(1):65–81, 2007.

[RMG+76] E. Rosch, C. Mervis, W. Gray, D. Johnson, and P. Boyes-Braem. Basic Objects in Natural Categories. *Cognitive Psychology*, 8:382–439, 1976.

[RTMF08] B.C. Russell, A. Torralba, K.P. Murphy, and W.T. Freeman. LabelMe: a Database and Web-Based Tool for Image Annotation. *International Journal of Computer Vision*, 77(1–3):157–173, 2008.

[SB91] M. Swain and D. Ballard. Color Indexing. *International Journal of Computer Vision*, 7(1):11–32, 1991.

[SDI06] G. Shakhnarovich, T. Darrell, and P. Indyk, editors. *Nearest-Neighbor Methods in Learning and Vision: Theory and Practice*. MIT Press, 2006.

[SH07] R. Salakhutdinov and G. Hinton. Semantic hashing. In *ACM SIGIR*, 2007.

[SLK09] T. Sattler, B. Leibe, and L. Kobbelt. SCRAMSAC: Improving RANSAC's Efficiency with a Spatial Consistency Filter. In *Proceedings of the IEEE International Conference on Computer Vision*, 2009.

[SLMS05] E. Seemann, B. Leibe, K. Mikolajczyk, and B. Schiele. An Evaluation of Local Shape-Based Features for Pedestrian Detection. In *British Machine Vision Conference*, Oxford, UK, 2005.

[SLMS06] E. Seemann, B. Leibe, K. Mikolajczyk, and B. Schiele. Multi-Aspect Detection of Articulated Objects. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[SLZ03] A. Singhal, J. Luo, and W. Zhu. Probabilistic Spatial Context Models for Scene Content Understanding. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[SM97] C. Schmid and R. Mohr. Local Grayvalue Invariants for Image Retrieval. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 19(5):530–534, 1997.

[SMB00] C. Schmid, R. Mohr, and C. Bauckhage. Evaluation of Interest Point Detectors. *International Journal of Computer Vision*, 37(2):151–172, 2000.

[SRE+05] J. Sivic, B. Russell, A. Efros, A. Zisserman, and W. Freeman. Discovering Object Categories in Image Collections. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[STFW05] E. Sudderth, A. Torralba, W. Freeman, and A. Willsky. Learning hierarchical models of scenes, objects, and parts. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[SUR] SURF Features Website. `http://www.vision.ee.ethz.ch/~surf`.

[SVD03] G. Shakhnarovich, P. Viola, and T. Darrell. Fast Pose Estimation with Parameter-Sensitive Hashing. In *Proceedings of the IEEE International Conference on Computer Vision*, 2003.

[SWC06] S. Savarese, J. Winn, and A. Criminisi. Discriminative object class models of appearance and shape by correlatons. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[SWP05] T. Serre, L. Wolf, and T. Poggio. Object Recognition with Features Inspired by Visual Cortex. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, San Diego, CA, June 2005.

[SWRC06] J. Shotton, J. Winn, C. Rother, and A. Criminisi. Textonboost: Joint Appearance, Shape and Context Modeling for Multi-Class Object Recognition and Segmentation. In *Proceedings of the European Conference on Computer Vision*, 2006.

[SZ02] F. Schaffalitzky and A. Zisserman. Multi-view Matching for Unordered Image Sets, or "How do I organize my holiday snaps?". In *Proceedings of the European Conference on Computer Vision*, pages 414–431, 2002.

[SZ03] J. Sivic and A. Zisserman. Video Google: A Text Retrieval Approach to Object Matching in Videos. In *Proceedings of the IEEE International Conference on Computer Vision*, Nice, Oct 2003.

[SZ04] J. Sivic and A. Zisserman. Video Data Mining Using Configurations of Viewpoint Ivariant Regions. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, Washington, D.C., June 2004.

[TFL+06] A. Thomas, V. Ferrari, B. Leibe, T. Tuytelaars, B. Schiele, and L. Van Gool. Towards Multi-View Object Class Detection. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[TFL+07] A. Thomas, V. Ferrari, B. Leibe, T. Tuytelaars, and L. Van Gool. Depth-from-Recognition: Inferring Meta-data through Cognitive Feedback. In *ICCV Workshop on 3D Representations for Recognition*, Rio de Janeiro, Brazil, Oct. 2007.

[TFL+09] A. Thomas, V. Ferrari, B. Leibe, T. Tuytelaars, and L. Van Gool. Shape-from-Recognition: Recognition Enables Meta-Data Transfer. *Computer Vision and Image Understanding*, 2009. (to appear).

[TFW08] A. Torralba, R. Fergus, and Y. Weiss. Small Codes and Large Image Databases for Recognition. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[TG99] T. Tuytelaars and L. Van Gool. Content-based Image Retrieval based on Local Affinely Invariant Regions. In *3rd Intl Conference on Visual Information Systems*, Amsterdam, the Netherlands, June 1999.

[TM07] T. Tuytelaars and K. Mikolajczyk. Local Invariant Feature Detectors: A Survey. *Foundations and Trends in Computer Graphics and Vision*, 3(3):177–280, 2007.

[TMF04] A. Torralba, K. P. Murphy, and W. T. Freeman. Sharing features: efficient boosting procedures for multiclass object detection. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2004.

[Tor03a] A. Torralba. Contextual Priming for Object Detection. *International Journal of Computer Vision*, 53(2):169–191, 2003.

[Tor03b] A. Torralba. Contextual Priming for Object Detection. *International Journal of Computer Vision*, 53(2), 2003.

[TP92] M. A. Turk and A. P. Pentland. Face recognition using eigenfaces. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 586–590, Hawai, June 1992.

[Tri04] B. Triggs. Detecting Keypoints with Stable Position, Orientation and Scale under Illumination Changes. In *Proceedings of the European Conference on Computer Vision*, 2004.

[TSTC03] A. Thayananthan, B. Stenger, P. H. S. Torr, and R. Cipolla. Shape context and chamfer matching in cluttered scenes. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2003.

[TV00a] K. Tieu and P. Viola. Boosting image retrieval. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2000.

[TV00b] T. Tuytelaars and L. Van Gool. Wide Baseline Stereo Matching Based on Local, Affinely Invariant Regions. In *British Machine Vision Conference*, pages 412–422, Bristol, UK, 2000.

[TV04] T. Tuytelaars and L. Van Gool. Matching Widely Separated Views based on Affinely Invariant Neighbourhoods. *International Journal of Computer Vision*, 59(1):61–85, 2004.

[TZ00] P.H.S. Torr and A. Zisserman. MLESAC: a new robust estimator with application to estimating image geometry. *Computer Vision and Image Understanding*, 78(1):138–156, 2000.

[Uhl91] J. Uhlmann. Satisfying General Proximity / Similarity Queries with Metric Trees. *Information Processing Letters*, 40:175–179, 1991.

[VH99] R. Veltkamp and M. Hagedoorn. State-of-the-Art in Shape Matching. In *Tech Report UU-CS-1999-27*, Utrecht University, 1999.

[VJ01] P. Viola and M. Jones. Rapid Object Detection using a Boosted Cascade of Simple Features. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2001.

[VJ04] P. Viola and M. Jones. Robust Real-Time Face Detection. *International Journal of Computer Vision*, 57(2):137–154, 2004.

[VR07] M. Varma and D. Ray. Learning the discriminative power-invariance trade-off. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[VZ02] M. Varma and A. Zisserman. Classifying images of materials: Achieving viewpoint and illumination independence. In *Proceedings of the European Conference on Computer Vision*, 2002.

[WCM05] J. Winn, A. Criminisi, and T. Minka. Object categorization by learned universal visual dictionary. In *Proceedings of the IEEE International Conference on Computer Vision*, 2005.

[Wit83] A.P. Witkin. Scale-Space Filtering. In *Proceedings IJCAI*, pages 1019–1022, Karlsruhe, Germany, 1983.

[WTF09] Y. Weiss, A. Torralba, and R. Fergus. Spectral hashing. In *Advances in Neural Information Processing Systems*, 2009.

[WWP00a] M. Weber, M. Welling, and P. Perona. Towards Automatic Discovery of Object Categories. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2000.

[WWP00b] M. Weber, M. Welling, and P. Perona. Unsupervised Learning of Models for Recognition. In *Proceedings of the European Conference on Computer Vision*, 2000.

[WWP00c] M. Weber, M. Welling, and P. Perona. Unsupervised learning of object models for recognition. In *Proceedings of the European Conference on Computer Vision*, 2000.

[XCYC08] D. Xu, T.J. Cham, S. Yan, and S.-F. Chang. Near Duplicate Image Identification with Spatially Aligned Pyramid Matching. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[Yan06] L. Yang. Distance Metric Learning: A Comprehensive Survey. Technical report, Michigan State Univ., 2006.

[YCH89] A. Yuille, D. Cohen, and P. Hallinan. Feature extraction from faces using deformable templates. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 1989.

[YJSJ08] L. Yang, R. Jin, R. Sukthankar, and F. Jurie. Discriminative visual codebook generation with classifier training for object category recognition. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2008.

[YLD07] T. Yeh, J. Lee, and T. Darrell. Adaptive vocabulary forests for dynamic indexing and category learning. In *Proceedings of the IEEE International Conference on Computer Vision*, 2007.

[YWY07] J. Yuan, Y. Wu, and M. Yang. Discovery of collocation patterns: from visualwords to visual phrases. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2007.

[ZBMM06] H. Zhang, A. Berg, M. Maire, and J. Malik. SVM-KNN: Discriminative Nearest Neighbor Classification for Visual Category Recognition. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, 2006.

[ZMLS07] J. Zhang, M. Marszalek, S. Lazebnik, and C. Schmid. Local Features and Kernels for Classification of Texture and Object Categories: A Comprehensive Study. *International Journal of Computer Vision*, 73(2):213–238, 2007.