

# References

- E. H. Adelson and J. R. Bergen. Spatiotemporal energy models for the perception of motion. *Journal of the Optical Society of America A*, 2(2):284–299, 1985.
- J. Allman, F. Miezin, and E. McGuinness. Direction- and velocity-specific responses from beyond the classical receptive field in the middle temporal visual area (MT). *Perception*, 14(2):105–126, 1985.
- A. Allport, E. A. Styles, and S. L. Hsieh. Shifting intentional set – exploring the dynamic control of tasks. In C. Umiltà and M. Moscovitch, editors, *Attention and Performance XV*, pages 421–452. MIT Press, Cambridge, MA, 1994.
- E. M. Altmann. The preparation effect in task switching: carryover of SOA. *Memory and Cognition*, 32(1):153–163, 2004.
- Y. Amit and M. Mascarò. An integrated network for invariant visual detection and recognition. *Vision Research*, 43(19):2073–2088, 2003.
- D. H. Ballard. Generalizing the Hough transform to detect arbitrary patterns. *Pattern Recognition*, 13(2):111–122, 1981.
- K. Barnard, P. Duygulu, R. Guru, P. Gabbur, and D. Forsyth. The effects of segmentation and feature choice in a translation model of object recognition. In *International Conference on Computer Vision and Pattern Recognition*, 2003.
- D. H. Brainard. The psychophysics toolbox. *Spatial Vision*, 10(4):433–436, 1997.
- J. Braun. Visual-search among items of different salience – removal of visual-attention mimics a lesion in extrastriate area V4. *Journal of Neuroscience*, 14(2):554–567, 1994.
- H. Bülthoff, J. Little, and T. Poggio. A parallel algorithm for real-time computation of optical flow. *Nature*, 337(6207):549–555, 1989.
- P. J. Burt and E. H. Adelson. The Laplacian Pyramid as a compact image code. *IEEE Transactions on Communications*, COM-31(4):532–540, 1983.

- L. Chelazzi, E. K. Miller, J. Duncan, and R. Desimone. Responses of neurons in macaque area V4 during memory-guided visual search. *Cerebral Cortex*, 11(8):761–72, 2001.
- D. Chung, R. Hirata, T. N. Mundhenk, J. Ng, R. J. Peters, E. Pichon, A. Tsui, T. Ventrice, D. Walther, P. Williams, and L. Itti. A new robotics platform for neuromorphic vision: Beobots. In *Lecture Notes in Computer Science*, volume 2525, pages 558–566. Springer, Berlin, Germany, 2002.
- J. J. Clark and N. J. Ferrier. Control of visual attention in mobile robots. In *IEEE International Conference on Robotics and Automation*, volume 2, pages 826–831, 1989.
- T. Clarke. Robots in the deep. *Nature*, 421(30):468–470, 2003.
- C. E. Connor, D. C. Preddie, J. L. Gallant, and D. C. van Essen. Spatial attention effects in macaque area V4. *Journal of Neuroscience*, 17(9):3201–3214, 1997.
- T. Darrel, G. Gordon, M. Harville, and J. Woodfill. Integrated person tracking using stereo, color, and pattern detection. *International Journal of Computer Vision*, 37(2):175–185, 2000.
- R. De Jong. An intention-activation account of residual switch costs. In S. Monsell and J. Driver, editors, *Control of Cognitive Processes: Attention and Performance XVIII*, pages 357–376. MIT Press, Cambridge, MA, 2000.
- G. C. DeAngelis, J. G. Robson, I. Ohzawa, and R. D. Freeman. Organization of suppression in receptive fields of neurons in cat visual cortex. *Journal of Neurophysiology*, 68(1):144–163, 1992.
- G. Deco and B. Schürmann. A hierarchical neural system with attentional top-down enhancement of the spatial resolution for object recognition. *Vision Research*, 40(20):2845–2859, 2000.
- A. Delorme, G. Richard, and M. Fabre-Thorpe. Ultra-rapid categorisation of natural scenes does not rely on colour cues: a study in monkeys and humans. *Vision Research*, 40(16):2187–2200, 2000.
- R. Desimone and J. Duncan. Neural mechanisms of selective visual-attention. *Annual Review of Neuroscience*, 18:193–222, 1995.
- S. Dickinson, H. Christensen, J. K. Tsotsos, and G. Olofsson. Active object recognition integrating attention and viewpoint control. *Computer Vision and Image Understanding*, 63(67-3):239–260, 1997.
- J. Duncan. Selective attention and the organization of visual information. *Journal of Experimental Psychology: General*, 113(4):501–517, 1984.

- J. Duncan. Integrated mechanisms of selective attention. *Current Opinion in Biology*, 7:255–261, 1997.
- D. Edgington, D. Walther, K. A. Salamy, M. Risi, R.E. Sherlock, and C. Koch. Automated event detection in underwater video. In *MTS/IEEE Oceans*, San Diego, California, 2003.
- R. Egly, J. Driver, and R. D. Rafal. Shifting visual attention between objects and locations: evidence from normal and parietal lesion subjects. *Journal of Experimental Psychology General*, 123(2):161–177, 1994.
- W. Einhäuser, W. Kruse, K. P. Hoffmann, and P. König. Differences of monkey and human overt attention under natural conditions. *Vision Research*, 46(8-9):1194–1209, 2006.
- C. W. Eriksen and J. D. St. James. Visual attention within and around the field of focal attention: A zoom lens model. *Perception and Psychophysics*, 40(4):225–240, 1986.
- M. Fabre-Thorpe, G. Richard, and S. J. Thorpe. Rapid categorization of natural images by rhesus monkeys. *Neuroreport*, 9(2):303–308, 1998.
- T. Fawcett. ROC Graphs: Notes and practical considerations for data mining researchers. *HP Technical Report*, 4, 2003.
- L. Fei-Fei, R. VanRullen, C. Koch, and P. Perona. Why does natural scene categorization require little attention? Exploring attentional requirements for natural and synthetic stimuli. *Visual Cognition*, 12(6):893–924, 2005.
- R. Fergus, P. Perona, and A. Zisserman. Object class recognition by unsupervised scale-invariant learning. In *International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 264–271, 2003.
- D. J. Freedman, M. Riesenhuber, T. Poggio, and E. K. Miller. A comparison of primate prefrontal and inferior temporal cortices during visual categorization. *Journal of Neuroscience*, 23(12):5235–5246, 2003.
- S. Frintrop, G. Backer, and E. Rome. Selecting what is important: Training visual attention. In *Proceedings of the 28th German Conference on Artificial Intelligence (KI '05)*, Koblenz, Germany, 2005.
- S. P. Gandhi, D. J. Heeger, and G. M. Boynton. Spatial attention affects brain activity in human primary visual cortex. *Proceedings of the National Academy of Sciences of the USA*, 96(6):3314–3319, 1999.

- S. Grossberg and R. D. Raizada. Contrast-sensitive perceptual grouping and object-based attention in the laminar circuits of primary visual cortex. *Vision Research*, 40(10-12):1413–1432, 2000.
- F. Hamker. The emergence of attention by population-based inference and its role in distributed processing and cognitive control of vision. *Computer Vision and Image Understanding*, 100(1-2): 64–106, 2005a.
- F. H. Hamker. The reentry hypothesis: the putative interaction of the frontal eye field, ventrolateral prefrontal cortex, and areas V4, IT for attention and eye movement. *Cerebral Cortex*, 15(4): 431–447, 2005b.
- C. J. Harris and M. Stephens. A combined corner and edge detector. In *4th Alvey Vision Conference*, pages 147–151, 1988.
- B. Hassenstein and W. Reichardt. Systemtheoretische Analyse der Zeit-, Reihenfolgen und Vorzeichenbewertung bei der Bewegungsperzeption der Rüsselkäfers *Chlorophanus*. *Zeitschrift für Naturforschung*, 11b:513–524, 1956.
- J. B. Hayet, F. Lerasle, and M. Devy. Visual landmark detection and recognition for mobile robot navigation. In *International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 313–318, 2003.
- O. Hershler and S. Hochstein. At first sight: a high-level pop out effect for faces. *Vision Research*, 45(13):1707–1724, 2005.
- S. Hochstein and M. Ahissar. View from the top: Hierarchies and reverse hierarchies in the visual system. *Neuron*, 36(5):791–804, 2002.
- C. P. Hung, G. Kreiman, T. Poggio, and J. J. DiCarlo. Fast readout of object identity from macaque inferior temporal cortex. *Science*, 310(5749):863–866, 2005.
- L.M. Hurvich and D. Jameson. An opponent-process theory of color vision. *Psychological Review*, 64:384–404, 1957.
- J. Intriligator and P. Cavanagh. The spatial resolution of visual attention. *Cognitive Psychology*, 43(3):171–216, 2001.
- L. Itti. *Models of bottom-up and top-down visual attention*. PhD thesis, California Institute of Technology, 2000.
- L. Itti. Quantifying the contribution of lowlevel saliency to human eye movements in dynamic scenes. *Visual Cognition*, 12(6):1093–1123, 2005.

- L. Itti and C. Koch. Computational modelling of visual attention. *Nature Reviews Neuroscience*, 2(3):194–203, 2001a.
- L. Itti and C. Koch. Feature combination strategies for saliency-based visual attention systems. *Journal of Electronic Imaging*, 10(1):161–169, 2001b.
- L. Itti, C. Koch, and E. Niebur. A model of saliency-based visual attention for rapid scene analysis. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 20(11):1254–1259, 1998.
- M. Jägersand. Saliency maps and attention in scale and spatial coordinates: an information theoretic approach. In *IEEE International Conference on Computer Vision*, pages 195–202, 1995.
- A.T. Jersild. Mental set and shift. *Archives of Psychology*, 89:5–82, 1927.
- T. Kadir and M. Brady. Scale, saliency and image description. *International Journal of Computer Vision*, 30(2):77–116, 2001.
- D. Kahneman and A. Treisman. Changing views of attention and automaticity. In R. Parasuraman and Daviesm D. A., editors, *Varieties of attention*, pages 29–61. Academic Press, New York, 1984.
- D. Kahneman, A. Treisman, and B. J. Gibbs. The reviewing of object files: object-specific integration of information. *Cognitive Psychology*, 24(2):175–219, 1992.
- R. E. Kalman and R. S. Bucy. New results in linear filtering and prediction theory. *Journal of Basic Engineering*, 83(3):95–108, 1961.
- S. Kastner, P. De Weerd, R. Desimone, and L. G. Ungerleider. Mechanisms of directed attention in the human extrastriate cortex as revealed by functional MRI. *Science*, 282(5386):108–111, 1998.
- D. Y. Kimberg, G. K. Aguirre, and M. D’Esposito. Modulation of task-related neural activity in task-switching: an fMRI study. *Cognitive Brain Research*, 10(1-2):189–196, 2000.
- T. Kirubarajan, Y. Bar-Shalom, and K.R. Pattipati. Multiassignment for tracking a large number of overlapping objects. *IEEE TAES*, 37(1):2–21, 2001.
- T. Kleinsorge. Hierarchical switching with two types of judgment and two stimulus dimensions. *Experimental Psychology*, 51(2):145–149, 2004.
- C. Koch and L. Itti. Computation of intrinsic perceptual saliency in visual environments, and applications, U.S. patent application 09/912,225, July 23 2001.
- C. Koch and S. Ullman. Shifts in selective visual-attention – towards the underlying neural circuitry. *Human Neurobiology*, 4:219–227, 1985.

- I. Koch. Sequential task predictability in task switching. *Psychonomic Bulletin and Review*, 12(1): 107–112, 2005.
- A. F. Kramer and A. Jacobson. Perceptual organization and focused attention: the role of objects and proximity in visual processing. *Perception and Psychophysics*, 50(3):267–284, 1991.
- D. K. Lee, L. Itti, C. Koch, and J. Braun. Attention activates winner-take-all competition among visual filters. *Nature Neuroscience*, 2(4):375–381, 1999.
- S. I. Lee and S. Y. Lee. Top-down attention control at feature space for robust pattern recognition. In *Biologically-Motivated Computer Vision*, Seoul, Korea, 2000.
- S. Y. Lee. Top-down selective attention for robust perception of noisy and confusing patterns. In *International Conference on Artificial Intelligence and Soft Computing*, Zakopane, Poland, 2004.
- G. E. Legge, D. G. Pelli, G. S. Rubin, and M. M. Schleske. The psychophysics of reading. *Vision Research*, 25(2):239–252, 1985.
- F. F. Li, R. VanRullen, C. Koch, and P. Perona. Rapid natural scene categorization in the near absence of attention. *Proceedings of the National Academy of Sciences of the USA*, 99(14):9596–9601, 2002.
- N. K. Logothetis, J. Pauls, H. H. Bülthoff, and T. Poggio. View-dependent object recognition by monkeys. *Current Biology*, 4(5):401–414, 1994.
- D. G. Lowe. Towards a computational model for object recognition in IT cortex. In *Biologically Motivated Computer Vision*, pages 20–31, 2000.
- D. G. Lowe. Distinctive image features from scale-invariant keypoints. *International Journal of Computer Vision*, 60(2):91–110, 2004.
- D. G. Lowe. Object recognition from local scale-invariant features. In *International Conference on Computer Vision*, pages 1150–1157, 1999.
- S. J. Luck, L. Chelazzi, S. A. Hillyard, and R. Desimone. Neural mechanisms of spatial selective attention in areas V1, V2, and V4 of macaque visual cortex. *Journal of Neurophysiology*, 77(1): 24–42, 1997.
- R. Manduchi, P. Perona, and D. Shy. Efficient deformable filter banks. *IEEE Transactions on Signal Processing*, 46(4):1168–1173, 1998.
- D. Martin, C. Fowlkes, and J. Malik. Learning to detect natural image boundaries using local brightness, color and texture cues. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 26(5):530–549, 2004.

- C. J. McAdams and J. H. R. Maunsell. Attention to both space and feature modulates neuronal responses in macaque area V4. *Journal of Neurophysiology*, 83(3):1751–1755, 2000.
- C. J. McAdams and R. C. Reid. Attention modulates the responses of simple cells in monkey primary visual cortex. *Journal of Neuroscience*, 25(47):11023–11033, 2005.
- N. Meiran. Modeling cognitive control in task-switching. *Psychological Research – Psychologische Forschung*, 63(3-4):234–249, 2000.
- N. Meiran. Reconfiguration of processing mode prior to task performance. *Journal of Experimental Psychology – Learning Memory and Cognition*, 22(6):1423–1442, 1996.
- E. Mellinger, A. Pearce, and M. Chaffey. Distributed multiplexers for an ROV control and data system. In *MTS/IEEE Oceans*, Brest, France, 1994.
- F. Miau and L. Itti. A neural model combining attentional orienting to object recognition: Preliminary explorations on the interplay between where and what. In *IEEE Engineering in Medicine and Biology Society*, 2001.
- F. Miau, C. Papageorgiou, and L. Itti. Neuromorphic algorithms for computer vision and attention. In *SPIE 46 Annual International Symposium on Optical Science and Technology*, volume 4479, pages 12–23, 2001.
- R. Milanese, H. Wechsler, S. Gill, J.-M. Bost, and T. Pun. Integration of bottom-up and top-down cues for visual attention using non-linear relaxation. In *International Conference on Computer Vision and Pattern Recognition*, pages 781–785, 1994.
- S. Monsell. Task switching. *Trends in Cognitive Sciences*, 7(3):134–140, 2003.
- C. M. Moore, S. Yantis, and B. Vaughan. Object-based visual selection. *Psychological Science*, 9(2):104–110, 1998.
- J. Moran and R. Desimone. Selective attention gates visual processing in the extrastriate cortex. *Science*, 229(4715):782–784, 1985.
- G. Mori, X. Ren, A. A. Efros, and J. Malik. Recovering human body configurations: Combining segmentation and recognition. In *International Conference on Computer Vision and Pattern Recognition*, 2004.
- B. C. Motter. Neural correlates of attentive selection for color or luminance in extrastriate area V4. *Journal of Neuroscience*, 14(4):2178–2189, 1994.
- V. Navalpakkam and L. Itti. Modeling the influence of task on attention. *Vision Research*, 45(2):205–231, 2005.

- J. B. Newman and D. Stakes. Tiburon, development of an ROV for ocean science research. In *Proceedings MTS/IEEE Oceans*, Brest, France, 1994.
- D. H. O'Connor, M. M. Fukui, M. A. Pinsk, and S. Kastner. Attention modulates responses in the human lateral geniculate nucleus. *Nature Neuroscience*, 5(11):1203–1209, 2002.
- A. Oliva, A. Torralba, M.S. Castelhana, and J.M. Henderson. Top-down control of visual attention in object detection. In *International Conference on Image Processing*, 2003.
- B. A. Olshausen, C. H. Anderson, and D. C. Van Essen. A neurobiological model of visual attention and invariant pattern recognition based on dynamic routing of information. *Journal of Neuroscience*, 13(11):4700–19, 1993.
- R. J. Peters, A. Iyer, L. Itti, and C. Koch. Components of bottom-up gaze allocation in natural images. *Vision Research*, 45(18):2397–2416, 2005.
- M. I. Posner. Orienting of attention. *Quarterly Journal of Experimental Psychology*, 32(1):3–25, 1980.
- M. C. Potter and E. I. Levy. Recognition memory for a rapid sequence of pictures. *Journal of Experimental Psychology*, 81(1):10–5, 1969.
- R. D. Raizada and S. Grossberg. Context-sensitive bindings by the laminar circuits of V1 and V2: A unified model of perceptual grouping, attention, and orientation contrast. *Visual Cognition*, 8: 431–466, 2001.
- R. P. N. Rao. Visual attention during recognition. In *Advances in Neural Information Processing*, 1998.
- R. A. Rensink, J. K. Oregan, and J. J. Clark. To see or not to see: The need for attention to perceive changes in scenes. *Psychological Science*, 8(5):368–373, 1997.
- J. H. Reynolds, T. Pasternak, and R. Desimone. Attention increases sensitivity of V4 neurons. *Neuron*, 26(3):703–714, 2000.
- M. Riesenhuber and T. Poggio. Are cortical models really bound by the "binding problem"? *Neuron*, 24(1):87–93, 111–125, 1999a.
- M. Riesenhuber and T. Poggio. Hierarchical models of object recognition in cortex. *Nature Neuroscience*, 2(11):1019–1025, 1999b.
- B. H. Robison. The coevolution of undersea vehicles and deep-sea research. *Marine Technology Society Journal*, 33:69–73, 2000.



- P. R. Roelfsema, V. A. F. Lamme, and H. Spekreijse. Object-based attention in the primary visual cortex of the macaque monkey. *Nature*, 395(6700):376–381, 1998.
- R. D. Rogers and S. Monsell. Costs of a predictable switch between simple cognitive tasks. *Journal of Experimental Psychology – General*, 124(2):207–231, 1995.
- E. Rosen. Face representation in cortex: Studies using a simple and not so special model, CBCL Paper #228/AI Memo #2003-010. Technical report, Massachusetts Institute of Technology, June 2003.
- A. Rosenfeld and J. L. Pfaltz. Sequential operations in digital picture processing. *Journal of the Association for Computing Machinery*, 13:471–494, 1966.
- F. Rothganger, S. Lazebnik, C. Schmid, and J. Ponce. 3D object modeling and recognition using affine-invariant patches and multi-view spatial constraints. In *International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 272–277, 2003.
- H. Rowley, S. Baluja, and T. Kanade. Neural network-based face detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 20(1):23–38, 1998.
- D. L. Ruderman. Origins of scaling in natural images. *Vision Research*, 37(23):3385–98, 1997.
- M. F. Rushworth, T. Paus, and P. K. Sipila. Attention systems and the organization of the human parietal cortex. *Journal of Neuroscience*, 21(14):5262–5271, 2001.
- M. F. S. Rushworth, R. E. Passingham, and A. C. Nobre. Components of attentional set-switching. *Experimental Psychology*, 52(2):83–98, 2005.
- U. Rutishauser, D. Walther, C. Koch, and P. Perona. Is attention useful for object recognition? In *International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 37–44, 2004a.
- U. Rutishauser, D. Walther, C. Koch, and P. Perona. A system and method for attentional selection, U.S. patent application 10/866,311, June 10 2004b.
- I. A. Rybak, V. I. Gusakova, A. V. Golovan, L. N. Podladchikova, and N. A. Shevtsova. A model of attention-guided visual perception and recognition. *Vision Research*, 38(15-16):2387–2400, 1998.
- J. Saarinen and B. Julesz. The speed of attentional shifts in the visual field. *Proceedings of the National Academy of Sciences of the USA*, 88(5):1812–1814, 1991.
- D. Sagi and B. Julesz. Enhanced detection in the aperture of focal attention. *Nature*, 321:693–695, 1986.

- K. Schill, E. Umkehrer, S. Beinlich, G. Krieger, and C. Zetsche. Scene analysis with saccadic eye movements: Top-down and bottom-up modeling. *Journal of Electronic Imaging*, 10(1):152–160, 2001.
- C. Schmid. A structured probabilistic model for recognition. In *International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 485–490, 1999.
- H. Schneiderman and T. Kanade. A statistical method for 3D object detection applied to faces and cars. In *International Conference on Computer Vision and Pattern Recognition*, pages 746–751, 2000.
- T. Serre and T. Poggio. Standard model v2.0: How visual cortex might learn a universal dictionary of shape components [abstract]. *Journal of Vision*, 5(8):742a, 2005.
- T. Serre, M. Kouh, C. Cadieu, U. Knoblich, G. Kreiman, and T. Poggio. A theory of object recognition: computations and circuits in the feedforward path of the ventral stream in primate visual cortex, CBCL Paper #259/AI Memo #2005-036. Technical report, Massachusetts Institute of Technology, 2005a.
- T. Serre, L. Wolf, and T. Poggio. Object recognition with features inspired by visual cortex. In *IEEE International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 994–1000, San Diego, CA, 2005b.
- D. L. Sheinberg and N. K. Logothetis. Noticing familiar objects in real world scenes. *Journal of Neuroscience*, 21(4):1340–1350, 2001.
- J. Shi and J. Malik. Normalized cuts and image segmentation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 22(8):888–905, 2000.
- S. Shomstein and S. Yantis. Object-based attention: sensory modulation or priority setting? *Perception and Psychophysics*, 64(1):41–51, 2002.
- G. L. Shulman and J. Wilson. Spatial frequency and selective attention to spatial location. *Perception*, 16(1):103–111, 1987.
- E. P. Simoncelli and W. T. Freeman. The steerable pyramid: a flexible architecture for multi-scale derivative computation. In *International Conference on Image Processing*, 1995.
- D. J. Simons and D. T. Levin. Failure to detect changes to people during a real-world interaction. *Psychonomic Bulletin and Review*, 5(4):644–649, 1998.
- D. J. Simons and R. A. Rensink. Change blindness: past, present, and future. *Trends in Cognitive Sciences*, 9(1):16–20, 2005.

- M. H. Sohn, S. Ursu, J. R. Anderson, V. A. Stenger, and C. S. Carter. The role of prefrontal cortex and posterior parietal cortex in task switching. *Proceedings of the National Academy of Sciences of the USA*, 97(24):13448–13453, 2000.
- A. Spector and I. Biederman. Mental set and mental shift revisited. *American Journal of Psychology*, 89(4):669–679, 1976.
- H. Spitzer, R. Desimone, and J. Moran. Increased attention enhances both behavioral and neuronal performance. *Science*, 240(4850):338–340, 1988.
- P. Sudevan and D. A. Taylor. The cueing and priming of cognitive operations. *Journal of Experimental Psychology – Human Perception and Performance*, 13(1):89–103, 1987.
- Y. Sun and R. Fisher. Object-based visual attention for computer vision. *Artificial Intelligence*, 20(11):77–123, 2003.
- S. Thorpe, D. Fize, and C. Marlot. Speed of processing in the human visual system. *Nature*, 381(6582):520–522, 1996.
- S. Thorpe, A. Delorme, and R. Van Rullen. Spike-based strategies for rapid processing. *Neural Network*, 14(6-7):715–725, 2001.
- A. Torralba, K. Murphy, and W. Freeman. Sharing features: efficient boosting procedures for multiclass object detection. In *IEEE International Conference on Computer Vision and Pattern Recognition*, Washington, DC, 2004.
- A. M. Treisman and G. Gelade. A feature-integration theory of attention. *Cognitive Psychology*, 12(1):97–136, 1980.
- J. K. Tsotsos, S. M. Culhane, W. Y. K. Wai, Y. H. Lai, N. Davis, and F. Nufflo. Modeling visual-attention via selective tuning. *Artificial Intelligence*, 78:507–545, 1995.
- J. K. Tsotsos, M. Pomplun, Y. Liu, J. C. Martinez-Trujillo, and E. Simine. Attending to motion: Localizing and classifying motion patterns in image sequences. In *Lecture Notes in Computer Science*, volume 2525, pages 439–452. Springer, Berlin, Germany, 2002.
- J. K. Tsotsos, Y. Liu, J. C. Martinez-Trujillo, M. Pomplun, E. Simine, and K. Zhou. Attending to visual motion. *Computer Vision and Image Understanding*, 100(1-2):3–40, 2005.
- R. VanRullen. On second glance: Still no high-level pop-out effect for faces (in press). *Vision Research*, 2005.
- V. N. Vapnik. *Statistical Learning Theory*. John Wiley, New York, NY, 1998.

- VARs. Video annotation and reference system: <http://www.mbari.org/vars/>, 2005.
- T. Vetter and V. Blanz. A morphable model for the synthesis of 3D faces. In *SIGGRAPH*, pages 187–194, 1999.
- P. Viola and M. J. Jones. Robust real-time face detection. *International Journal of Computer Vision*, 57(2):137–154, 2004.
- G. Wagner and R. M. Boynton. Comparison of four methods of heterochromatic photometry. *Journal of the Optical Society of America*, 62(12):1508–1515, 1972.
- D. Walther and D. Edgington. The art of seeing jellies. *The Neuromorphic Engineer*, 1:6, 2004.
- D. Walther, L. Itti, M. Riesenhuber, T. Poggio, and C. Koch. Attentional selection for object recognition – a gentle way. In *Lecture Notes in Computer Science*, volume 2525, pages 472–479. Springer, Berlin, Germany, 2002a.
- D. Walther, M. Riesenhuber, T. Poggio, L. Itti, and C. Koch. Towards an integrated model of saliency-based attention and object recognition in the primate’s visual system [abstract]. *Journal of Cognitive Neuroscience*, B14 Suppl. S:46–47, 2002b.
- D. Walther, D. R. Edgington, and C. Koch. Detection and tracking of objects in underwater video. In *IEEE International Conference on Computer Vision and Pattern Recognition*, volume 1, pages 544–549, Washington, DC, 2004a.
- D. Walther, U. Rutishauser, C. Koch, and P. Perona. On the usefulness of attention for object recognition. In *Workshop on Attention and Performance in Computational Vision*, pages 96–103, 2004b.
- D. Walther, U. Rutishauser, C. Koch, and P. Perona. Selective visual attention enables learning and recognition of multiple objects in cluttered scenes. *Computer Vision and Image Understanding*, 100(1-2):41–63, 2005a.
- D. Walther, T. Serre, T. Poggio, and C. Koch. Modeling feature sharing between object detection and top-down attention [abstract]. *Journal of Vision*, 5(8):1041a, 2005b.
- D. Walther, L. Fei-Fei, and C. Koch. Measuring the cost of deploying top-down visual attention (submitted). 2006.
- M. Weber, M. Welling, and P. Perona. Unsupervised learning of models for recognition. In *European Conference on Computer Vision*, volume 1842, pages 18–32, 2000.
- J. M. Wolfe and T. S. Horowitz. What attributes guide the deployment of visual attention and how do they do it? *Nature Reviews Neuroscience*, 5(6):495–501, 2004.

- J. M. Wolfe, T. S. Horowitz, N. Kenner, M. Hyle, and N. Vasan. How fast can you change your mind? The speed of top-down guidance in visual search. *Vision Research*, 44(12):1411–1426, 2004.
- N. Yeung, L. E. Nystrom, J. A. Aronson, and J. D. Cohen. Between-task competition and cognitive control in task switching. *Journal of Neuroscience*, 26(5):1429–1438, 2006.
- P. Zarchan and H. Musoff. *Fundamentals of Kalman filtering: a practical approach*. Progress in astronautics and aeronautics. American Institute of Aeronautics and Astronautics, Inc., 2000.