

Publications

126 Vizioli, L., De Martino, F., Petro, L. S., Kersten, D., Ugurbil, K., Yacoub, E., & Muckli, L. (2019). Multivoxel Pattern of Blood Oxygen Level Dependent Activity can be sensitive to stimulus specific fine scale responses [Preprint]. Neuroscience. <https://doi.org/10.1101/798306>

127 Peterson, L. M., Kersten, D. J., & Mannion, D. J. (2018). Surface curvature from kinetic depth can affect lightness. *Journal of Experimental Psychology: Human Perception and Performance*, 44(12), 1856–1864. <https://doi.org/10.1037/xhp0000575>

126 Morgenstern, Y., & Kersten, D. J. (2017). The perceptual dimensions of natural dynamic flow. *Journal of Vision*, 17(12), 7–7. <https://doi.org/10.1167/17.12.7>

125 Thompson, W. B., Legge, G. E., Kersten, D. J., Shakespeare, R. A., & Lei, Q. (2017). Simulating visibility under reduced acuity and contrast sensitivity. *JOSA A*, 34(4), 583–593. <https://doi.org/10.1364/JOSAA.34.000583>

124 Fan, X., Wang, L., Shao, H., Kersten, D., & He, S. (2016). Temporally flexible feedback signal to foveal cortex for peripheral object recognition. *Proc Natl Acad Sci U S A*, 201606137–6. <http://doi.org/10.1073/pnas.1606137113>

123 Qiu, C., Burton, P. C., Kersten, D., & Olman, C. A. (2016). Responses in early visual areas to contour integration are context dependent. *Journal of Vision*, 16(8), 19–18. <http://doi.org/10.1167/16.8.19>

122 Green, C. S., Kattner, F., Siegel, M. H., Kersten, D., & Schrater, P. R. (2015). Differences in perceptual learning transfer as a function of training task. *Journal of Vision*, 15(10):5, 1–14. doi:10.1167/15.10.5.

121 Mannion, Damien J., Daniel J. Kersten, and Cheryl A. Olman. (2015) "Scene coherence can affect the local response to natural images in human V1." *European Journal of Neuroscience* 42 (11), 2895-2903.

120 Kam, T.-E., Mannion, D. J., Lee, S.-W., Doerschner, K., & Kersten, D. J. (2015). Human visual cortical responses to specular and matte motion flows. *Frontiers in Human Neuroscience*, 9, 1–13. <http://doi.org/10.3389/fnhum.2015.00579>

119 Yuille, A.L. & Kersten D (in press) Early Vision. In *From Neuron to Cognition via Computational Neuroscience*, M.A. Arbib, James J. Bonaiuto Editors, Cambridge MA: The MIT Press.

118 Kersten D. & Mamassian, P. (2017) Cast Shadow Illusions. Oxford Compendium of Visual Illusions. Arthur G. Shapiro and Dejan Todorovic, Editors. ([pdf draft](#))

117 Mannion, D. J., Kersten, D. J., & Olman, C. A. (2014) Regions of mid-level human visual cortex sensitive to the global coherence of local image patches. *Journal of Cognitive Neuroscience*. 6 (8), 1764-1774. ([pdf](#))

116 Kersten D. & Yuille, A.L.(2014) Inferential Models of the Visual Cortical Hierarchy. *The New Cognitive Neurosciences*, 5th Edition. Michael S. Gazzaniga and George R. Mangun (editors) ([draft pdf](#)) ([MIT press link](#))

115 Akin, B., Ozdem, C., Eroglu, S., Keskin, D. T., Fang, F., Doerschner, K., et al. (2014). Attention modulates neuronal correlates of interhemispheric integration and global motion perception. *Journal of Vision*, 14(12), 30–30. <http://doi.org/10.1167/14.12.30> ([pdf](#))

114 Kersten D. & Yuille, A.L.(2013) *Vision: Bayesian Inference and Beyond*. *The New Visual Neurosciences*. John S. Werner and Leo M. Chalupa (Editors) MIT Press. Cambridge MA. ([book pdf](#)) ([MIT press link](#))

113 Qiu, Cheng, Kersten D., Olman, C.A. (2013) Segmentation decreases the magnitude of the tilt illusion. *Journal of Vision*, 13(13): 19, 1-17; doi: 10.1167/13.13.19. ([pdf](#))

112 Kersten D., Shakespeare R., and Thompson W. (2013). Predicting Visibility in Designs of Public Spaces. University of Utah Computer Sciences Technical Report. UUCS 13-001 ([pdf](#)).

- 111** Mannion, D. J., Kersten, D. J., & Olman, C. A. (2013). Consequences of polar form coherence for fMRI responses in human visual cortex. *NeuroImage*, 78(C), 152–158. doi:10.1016/j.neuroimage.2013.04.036 ([link](#))
- 110** McMenamin, B. W., Radue, J., Trask, J., Huskamp, K., Kersten, D., & Marsolek, C. J. (2012). The diagnosticity of color for emotional objects. *Motivation and Emotion*. doi:10.1007/s11031-012-9319-0 ([link](#))
- 109** He, D., Kersten, D., & Fang, F. (2012). Opposite modulation of high- and low-level visual aftereffects by perceptual grouping. *Current biology : CB*, 22(11), 1040–1045. doi:10.1016/j.cub.2012.04.026 ([link](#))
- 108** Hegdé, J., Thompson, S., Brady, M., & Kersten, D. (2012). Object Recognition in Clutter: Cortical Responses Depend on the Type of Learning. *Frontiers in Human Neuroscience*. doi:10.3389/fnhum.2012.00170/abstract ([pdf](#))
- 107** Hauffen, K., Bart, E., Brady, M., Kersten, D., & Hegdé, J. (2012). Creating Objects and Object Categories for Studying Perception and Perceptual Learning. *Journal of Visualized Experiments*, (69). doi:10.3791/3358 ([link](#))
- 106** Doerschner, K., Fleming, R. W., Yilmaz, O., Schrater, P. R., Hartung, B., & Kersten, D. (2011). Visual Motion and the Perception of Surface Material. *Current Biology*, 21(23), 2010–2016. doi:10.1016/j.cub.2011.10.036 ([link](#))
- 105** Battaglia P, Kersten D, Schrater PR (2011) How Haptic Size Sensations Improve Distance Perception. *PLoS Comput Biol* 7(6): e1002080. doi:10.1371/journal.pcbi.1002080 ([pdf](#))
- 104** Doerschner, K., Kersten, D., & Schrater, P. R. (2011). Rapid classification of specular and diffuse reflection from image velocities. *Pattern Recognition*, 44(9), 1874–1884. doi:10.1016/j.patcog.2010.09.007 ([pdf](#))
- 103** Boyaci, H., Fang, F., Murray, S. O., & Kersten, D. (2010). Perceptual grouping-dependent lightness processing in human early visual cortex. *Journal of Vision*, 10(9). <http://jwww.journalofvision.org/content/10/9/4.full>

102 Green, C. S., Benson, C., Kersten, D., & Schrater, P. (2010). Alterations in choice behavior by manipulations of world model. *Proceedings of the National Academy of Sciences*, 107(37), 16401-16406.(pdf)

101 Hegde, J., & Kersten, D. (2010). A link between visual disambiguation and visual memory. *J Neurosci*, 30(45), 15124-15133.(pdf)

100 Battaglia P., Kersten D., & Schrater P (2011) The role of generative knowledge in object perception. *Sensory Cue Integration*, Trommershäuser, Landy, & Körding, (Eds). Oxford University Press. (amazon.com)

99 Battaglia, P. W., Di Luca, M., Ernst, M. O., Schrater, P. R., Machulla, T., & Kersten, D. (2010). Within- and cross-modal distance information disambiguate visual size-change perception. *PLoS Comput Biol*, 6(3), e1000697.

98 Kersten, D., & Murray, S. O. (2010). Vision: when does looking bigger mean seeing better? *Curr Biol*, 20(9), R398-399.

96 Gold JM , Abbey C , Tjan BS , and Kersten D (2009) Ideal Observers and Efficiency: Commemorating 50 Years of Tanner and Birdsall: Introduction. *JOSA A*, Vol. 26, Issue 11, pp. IO1-IO2 doi:10.1364/JOSAA.26.000IO1

95 Doerschner K, Kersten D, & Schrater P. (2009) Rapid Classification of Surface Reflectance from Image Velocities. *Computer Analysis of Images and Patterns, Lecture Notes in Computer Science*, Springer Berlin / Heidelberg, volume 5702, pp. 856-864.

94 Fang, F., Boyaci, H., & Kersten, D. (2009). Border ownership selectivity in human early visual cortex and its modulation by attention. *J Neurosci*, 29(2), 460-465. (link)

93 Kersten, D & Mamassian, P (2009) Ideal Observer Theory. In: Squire LR (ed.) *Encyclopedia of Neuroscience*, volume 5, pp. 89-95. Oxford: Academic Press. pdf preprint

92 Fang, F., Boyaci, H., Kersten, D., & Murray, S. O. (2008). Attention-dependent representation of a size illusion in human V1. *Curr Biol*, 18(21), 1707-1712. pdf

91 Hegde, J., Bart, E., & Kersten, D. (2008). Fragment-Based Learning of Visual Object Categories. *Curr Biol.* 18, 597-601. <http://download.current-biology.com/pdfs/0960-9822/PIIS096098220800448X.pdf>

90 Fang F, Kersten & Murray SO (2008) Perceptual grouping and inverse fMRI activity patterns in human visual cortex. *Journal of Vision*, 8(7):2, 1-9, <http://journalofvision.org/8/7/2/>, doi:10.1167/8.7.2.(pdf)

89 Hegdé J, Fang F, Murray SO & Kersten D (2008) Preferential responses to occluded objects in the human visual cortex. *Journal of Vision*. 8 (4), 1-16. <http://journalofvision.org/8/4/16/> (pdf)

88 Boyaci, H., Fang, F., Murray, S. O., & Kersten, D. (2007). Responses to lightness variations in early human visual cortex. *Curr Biol*, 17(11), 989-993. (pdf)

87 Yuille, A., & Kersten, D. (2006). Vision as Bayesian inference: analysis by synthesis? *Trends Cogn Sci*, 10(7), 301-308. (pub med pdf) (pdf)

86 Murray, S. O., Boyaci, H., & Kersten, D. (2006). The representation of perceived angular size in human primary visual cortex. *Nature Neuroscience*. Online: 05 February 2006 | doi:10.1038/nn1641

85 Murray, S. O., Olman, C. A., & Kersten, D. (2006). Spatially specific fMRI repetition effects in human visual cortex. *Journal of Neurophysiology*. (journal link pdf)

84 Battaglia, P. W., Schrater, P., & Kersten, D. (2005). Auxiliary object knowledge influences visually-guided interception behavior. Paper presented at the Symposium on Applied Perception, Graphics and Visualization, A Coruña, Spain. August 26-28. (pdf)

83 Fang, F., Murray, S. O., Kersten, D. J., & He, S. (2005). Orientation-tuned fMRI adaptation in human visual cortex. *J Neurophysiol.* 94: 4188 - 4195 (journal link pdf)

82 Hartung, B., P. Schrater, H. Bülthoff, D. Kersten and V. Franz (2005): Is prior knowledge of object geometry used in visually guided reaching? *Journal of Vision* 5(6), 504-514. (pdf)

81 Murray, S. O., Schrater, P., & Kersten, D. (2004). Perceptual grouping and the interactions between visual cortical areas. *Neural Netw*, 17(5-6), 695-705. [\(pdf\)](#)

80 Olman, C. A., & Kersten, D. (2004). Classification objects, ideal observers & generative models. *Cognitive Science*, 28, 227-239. [\(pdf\)](#)

79 Yuille, A. L., Fang, F., Schrater, P., & Kersten, D. (2004). Human and Ideal Observers for Detecting Image Curves. In S. Thrun, L. Saul & B. Schoelkopf (Eds.), *Advances in Neural Information Processing Systems 16*. Cambridge, MA: MIT Press. [\(pdf\)](#)

78 Olman, C., Ugurbil, K., Schrater, P., & Kersten, D. (2004). BOLD fMRI and psychophysical measurements of contrast response to broadband images. *Vision Research*, 44(7), 669-683. [\(pdf\)](#) **77** Knill, D. C., & Kersten, D. (2004). Visuomotor sensitivity to visual information about surface orientation. *J Neurophysiol*, 91(3), 1350-1366. [\(journal link\)](#) [\(pdf preprint\)](#)

76 Kersten, D., Mamassian, P., & Yuille, A. (2004). Object perception as Bayesian Inference. *Annual Review of Psychology*, 55, 271-304. [\(Annual Reviews html and pdf link\)](#) [\(local pdf\)](#)

75 Liu, Z., & Kersten, D. (2003). Three-dimensional symmetric shapes are discriminated more efficiently than asymmetric ones. *J Opt Soc Am A Opt Image Sci Vis*, 20(7), 1331-1340. [\(preprint\)](#)

74 Brady, M. J., & Kersten, D. (2003). Bootstrapped learning of novel objects. *J Vis*, 3(6), 413-422. [\(pdf\)](#) (<http://journalofvision.org/3/6/2/>) .

73 Kersten, D., & Yuille, A. (2003). Bayesian models of object perception. *Current Opinion in Neurobiology*, 13(2). [\(pdf\)](#)

72 Naor-Raz, G., Tarr, M. J., & Kersten, D. (2003). Is color an intrinsic property of object representation? *Perception*, 32(6), 667-680. [\(pdf\)](#)

****71**** Murray, S. O., Kersten, D., Olshausen, B. A., Schrater, P., & Woods, D. L. (2002). Shape perception reduces activity in human primary visual cortex. *Proc Natl Acad Sci U S A*, 99, 15164-15169. [\(pdf\)](#)

70 Kersten, D. (2002) Object perception: Generative Image Models and Bayesian Inference. In Biologically Motivated Computer Vision. Second International Workshop, BMCV 2002, Tübingen, Germany, November, 2002. Proceedings. H.H. Bülthoff, S.-W. Lee, T.A. Poggio, C. Wallraven (Eds.). Lecture Notes in Computer Science 2525. Springer. ([pdf](#))

69 Wilson S. Geisler and Daniel Kersten (2002) Illusions, perception and Bayes. *Nature Neuroscience*, 5 (6), 508-510. ([pdf](#))

68 Schrater, P. & Kersten, D. (2002). Vision, Psychophysics, and Bayes. In R. P. N. Rao, B. A. Olshausen, & M. S. Lewicki (Ed.), *Statistical Theories of the Brain*. Cambridge, Massachusetts: MIT Press. ([pdf](#))

67 Schrater P. R., Khuu T., & Kersten D. (unpublished manuscript) Noise Induced Perceptual Completion. ([pdf](#))

66 d'Avossa, G., & Kersten, D. Invariant spatial transformations of the optic flow for heading estimation.

65 Madison, C., Thompson, W., Kersten, D., Shirley, P. & Smits, B. (2001). Use of interreflection and shadow for surface contact. *Perception and Psychophysics*, 63, 187-194.

64 Schrater, P. R. & Kersten, D. (2000). How optimal depth cue integration depends on the task. *International Journal of Computer Vision*, 40, 73-91. ([draft pdf](#))

63 Bloj, M., Kersten, D., & Hurlbert, A. C. (1999). 3D Shape Perception Influences Colour Perception via Mutual Illumination. *Nature*. ([pdf](#)).

See too: Gegenfurtner's news & views ([pdf](#)).

62 Kersten, D. & Schrater, P. R., (2002). Pattern Inference Theory: A Probabilistic Approach to Vision. In R. Mausfeld, & D. Heyer (Ed.), *Perception and the Physical World*. Chichester: John Wiley & Sons, Ltd. ([Draft pdf](#)) ([postscript](#))

61 Schrater, P. R., & Kersten, D. (1999). Statistical structure and task dependence in visual cue integration. Submitted to: Workshop on Statistical

and Computational Theories of Vision -- Modeling, Learning, Computing, and Sampling. Fort Collins, Colorado, June 1999. [\(pdf\)](#)

60 Troje, N. F. and Kersten, D. (1999) Viewpoint dependent recognition of familiar faces. *Perception.*, 28, (4), 483 - 487. [\(pdf preprint\)](#)

59 d'Avossa, G., Yacoub, E., Kersten D., Xiaoap, H. Direction dependent occipital and parietal activity during the perception of optic flows simulating eccentric headings. [Draft PDF](#)

58 Kersten, D. (1998) Computational Vision: Principles of Perceptual Inference. Notes for *Neural Information Processing Tutorial*, Denver, CO, December. [\(Tutorial Notes PDF\)](#) [\(Bibliography\)](#) [\(Yuille, Coughlan, Kersten\)](#)

57 Braje, W. L., Legge, G. E. & Kersten, D. (2000). Invariant recognition of natural objects in the presence of shadows. *Perception*, 29, 383-98. [\(earlier version: pre-print PDF\)](#)

56 Mamassian, P., Knill, D.C. & Kersten, D. (1998) The Perception of Cast Shadows. *Trends in Cognitive Sciences*. 2 (8), 288-295. [\(pdf\)](#)

55 Kersten, D. High-level vision as statistical inference. (1999) [\(pdf preprint\)](#) *The New Cognitive Neurosciences*, 2nd Edition, Gazzaniga (Ed.). MIT Press.

54 Braje, W.L., Kersten, D., Tarr, M.J. and Troje, N.F. Illumination effects in face recognition. (1998) *Psychobiology*. 26 (4), 371-380. [\(pdf preprint\)](#)

53 Liu, Z., Kersten, D. And Knill, D.C. (1999) Stimulus information or internal representation?--a case study in human object recognition. *Vision Research*. **39**, 603-612. [\(pdf\)](#)

52 Liu, Z. and Kersten, D. (1998) 2D Observers in 3D Object Recognition? *Vision Research.*, **38**, 2507-2519. [\(pdf\)](#)

51 Liu, Z. and Kersten, D. (1998) 2D Affine Transformations are Unlikely to Account for Human 3D Object Recognition. Proceedings of the International Conference on Computer Vision (ICCV 98).

- 50** Liu, Z. and Kersten, D. (1998) 2D Observers in 3D Object Recognition? Advances in Neural Information Processing Systems 10. MIT Press, Cambridge, Massachusetts. [PDF](#)
- 49** Thompson, W.B., Shirley, P., Smits, B., Kersten, D. J., Madison, C. (1998) . Visual glue. University of Utah Technical Report UUCS-98-007. ([pdf](#)) or <http://www.cs.utah.edu/vissim/papers/glue2/glue.pdf>
- 48** Troje, N. F. and Kersten, D. (1998) Viewer-centered recognition of familiar faces. *Max Planck Institute for Biological Cybernetics*, Technical Report No. 55. Work also appears in *Perception* (60, above).
- 47** Kersten, D. (1997) Perceptual categories for spatial layout. *The Philosophical Transactions of the Royal Society.B*, 352 (1358), 1155-1163. [PDF](#)
- **46****Tarr, M. J., Kersten, D., & Bülthoff, H. H. (1998). Why the visual system might encode the effects of illumination. *Vision Research*, 38, 2259-2275. ([pdf](#))
- 45** Knill, D. C., Mamassian, P. & Kersten, D. (1997) The geometry of shadows *Journal of the Optical Society of America A*. 14 (12), 3216 - 3232.
- 44** Kersten, D. (1997). Inverse 3-D graphics: A metaphor for visual perception. *Behavior Research Methods, Instruments, and Computers.*, **29**, 37-46. ([pdf](#))
- 43** Kersten, D., Troje, N. F. & Bülthoff, H. H. Phenomenal competition for poses of the human head. *Perception*, **25** (1996), 367. ([pdf](#))
- 42** Kersten, D., Mamassian, P. & Knill, D.C. (1997) Moving cast shadows induce apparent motion in depth. *Perception.*, 26 (2), 171-192 ([pdf](#)) ([pdf pre-print](#)).
- 41** Liu, Z., Kersten D. & Knill, D.C. Structural organization improves object discrimination. (Manuscript, see 53 above for journal publication)
- 40** d'Avossa, G., & Kersten, D. (1996). Evidence in human subjects for independent coding of azimuth and elevation for direction of heading from optic flow. *Vision Research*, **36** (18), 2915-2924. ([pdf](#))

- 39** Kersten, D., Knill, D. C., Mamassian, P. and Bülthoff, I. (1996) Illusory motion from shadows. *Nature.*, **279**, (6560), 31. ([pdf](#))
- 38** Mamassian P & Kersten D. (1996) Illumination, shading and the perception of orientation. *Vision Research.*, **36**, 2351-2367.
- 37** Mamassian, P., Kersten, D.; Knill, D. C. Categorical Local Shape Perception. *Perception*, **25** (1996), 95-107. [PDF](#)
- 36** Knill D. C. , Kersten D. & Mamassian, P. (1996) The Bayesian framework for visual information processing: Implications for Psychophysics. Chap. 6. In: *Perception as Bayesian Inference*. David C. Knill and Whitman Richards (eds). Cambridge University Press.
- 35** Knill D.C., Kersten D. and Yuille A. (1996) A Bayesian formulation of visual perception. Chap. 0. In: *Perception as Bayesian Inference*. David C. Knill and Whitman Richards (eds). Cambridge University Press.
- 34** Kersten, D. (1996) Veridicality, utility, and completeness in vision modeling: A commentary on "Bayesian Decision Theory and Psychophysics" In: **Perception as Bayesian Inference**. David C. Knill and Whitman Richards (eds). Cambridge University Press.
- 33** Kersten, D. (1996) Commentary on: Pattern Theory: A Unifying Perspective. In: **Perception as Bayesian Inference**. David C. Knill and Whitman Richards (eds). Cambridge University Press.
- 32** Tjan B., Braje, W., Legge, G.E. & Kersten, D. (1995) Human efficiency for recognizing 3-D objects in luminance noise. *Vision Research*, **35**, 3053-3069.
- 31** Mamassian P., Bülthoff H.H. & Kersten D. (1995) Eye-hand coordination for 3-D oriented objects. Max Planck Institute for Biological Cybernetics, Technical Report **12**. <http://mpik-tueb.mpg.de:4711/projects/TechReport/list.html>
- 30** Kersten, D. & Madarasz, S. (1995) The Visual Perception of Surfaces, their Properties, and Relationships. In *Partitioning Data Sets: With applications to psychology, vision and TARGET tracking*, Edited by I. J. Cox, P. Hansen and B. Julesz, AMS.

- 29** Liu, Z., Knill, D. C., & Kersten, D. (1995). Object Classification for Human and Ideal Observers. *Vision Research*, **35**, 549-568. (pdf)
- 28** Kersten D., Mamassian P., Knill D.C. (1994) Moving cast shadows and the perception of relative depth. Max Planck Institute for Biological Cybernetics, Technical Report **6**. (pdf)
- 27.5** Madarasmi, S., Pong, T.-C., & Kersten, D. (1994). Illusory contour detection using MRF models (Vol. 7, pp. 4343–4348). Presented at the Neural Networks, 1994. IEEE World Congress on Computational Intelligenc., IEEE. (pdf)
- 27** Madarasmi S., Pong T.C. & Kersten D. (1993) An energy minimization approach to surface segmentation using a multi-layer representation. Army High Performance Computing Research Center, Preprint 93-083.
- 26** Knill, D. C., Mamassian, P. & Kersten, D. (1993) *The geometry of shadows*. University of Minnesota. Computer and Information Sciences, TR 93-47.
- 25** Madarasmi S., Kersten, D., & Pong, T.C. (1993) Multi-layer surface segmentation using energy minimization. *IEEE Computer Vision & Pattern Recognition*. 774-775. (abstract) (pdf)
- 24** Madarasmi, S., Kersten, D., & Pong, T. C. (1993). The computation of stereo disparity for transparent and for opaque surfaces. In C. L. Giles, S. J. Hanson, & J. D. Cowan (Ed.), *Advances in Neural Information Processing Systems* 5. San Mateo, CA: Morgan Kaufmann Publishers. pp. 385-392.
- 23** Madarasmi, S., Kersten, D., & Pong, T. C. (1993). The computation of stereo disparity for transparent and for opaque surfaces. Army High Performance Computing Research Center, Preprint 93-084. (URL: <http://www.arc.umn.edu/publications/preprints/abstracts93.html#93-084>)
- 22** Kersten, D., Bühlhoff, H. H., Schwartz, B., & Kurtz, K. (1992) Interaction between transparency and structure from motion. *Neural Computation*, **4**, 573-589. (pdf)
- 21** O'Toole A. J. and Kersten, D. (1992) Learning to see random-dot stereograms. *Perception*, **21**, 227-243. (pdf)

20 Thompson, W. B., Kersten, D., & Knecht, W. R. (1992) Structure-from-motion based on information at surface boundaries. *Biological Cybernetics*, **66**, 327-333.

19 Levin, S. A., Guckenheimer, J., Kersten, D., Kingsbury, D. T., Mangel, M., Reed, M., & Silk, W. (Eds.) (1992). *Mathematics and Biology: The Interface, Challenges, and Opportunities*. Berkeley, California: Lawrence Berkeley Laboratory.

18 Kersten, D. (1991) Transparency and the cooperative computation of scene attributes. *Computational Models of Visual Processing*, M.I.T. Press, Landy M and Movshon A., Eds..

17 Kersten, D. and Bülthoff, H. (1991) Transparency affects perception of structure from motion. Massachusetts Institute of Technology, *Center for Biological Information Processing Tech. Memo*, **36**.

16 Knill, D.C. and Kersten, D. (1991) Ideal Perceptual Observers for Computation, Psychophysics, and Neural Networks. *Vision and Visual Dysfunction*, Cronly-Dillon, Gen. Editor, Vol. **14**, Roger Watt Editor, MacMillan Press.

15 Knill, D. C., & Kersten, D. (1991) Apparent surface curvature affects lightness perception. *Nature*, **351**, 228-229. ([pdf](#) 1.1Mb)

14 Knill D.C., Field, D. and Kersten, D. (1990) Human discrimination of fractal images. *Journal of the Optical Society of America, A*, **7**, 1113-1123. ([pdf](#))

13 Knill, D. C. and Kersten, D. (1990) Learning a near-optimal estimator for surface shape from shading. *Computer Vision, Graphics and Image Processing*, **50**, 75-100. ([pdf](#))

12 Kersten, D. Statistical limits to image understanding. (1990) *Vision: Coding and Efficiency*, (Blakemore, C. ed.), Cambridge University Press, chapter 3, pp. 32-44.

11 Sereno M.E., Kersten D. and Anderson J. A. (1989) A neural network model of an aspect of motion perception. *Science at the John von Neumann National Supercomputer Center: Annual Research Report--1988*, pp. 165-170

10 Kersten, D., Hess, R.F. and Plant, G.T. (1988) Assessing contrast sensitivity behind cloudy media. *Clinical Vision Sciences*, **2**, 143-158. ([pdf](#))

9 Kersten, D., O'Toole A., Sereno, M., Knill D., Anderson, J.A. (1987) Associative learning of scene parameters from images. *Applied Optics*, **26**, 4999-5006. ([pdf](#))

8 Kersten, D. Predictability and redundancy of natural images. (1987) *Journal of the Optical Society of America A*, **4**, 2395-2400. Reprinted in: Image Compression, Rabbani, M. (Ed.), SPIE-The International Society for Optical Engineering. 1992. ([pdf](#))

7 Legge, G.E. & Kersten, D. (1987) Contrast discrimination in peripheral vision. *Journal of the Optical Society of America A*, **4**, 1594-1598.

6 Legge, G.E., Kersten, D. and Burgess, A.E. (1987) Contrast discrimination in noise. *Journal of the Optical Society of America A*, **4**, 391-404.

5 Kersten, D. Statistical efficiency for the detection of visual noise. (1987) *Vision Research*, **27**, 1029-1040. ([pdf](#))

4 Kersten, D. Spatial summation in visual noise. (1984) *Vision Research*, **24**, 1977-1990. ([pdf](#))

3 Burkhardt, D.A., Gottesman, J., Kersten, D. and Legge, G.E. (1984) Symmetry and constancy in the perception of negative and positive luminance contrast. *Journal of the Optical Society of America A*, **1**, 309-316.

2 Legge, G.E. and Kersten, D. (1983) Light and dark bars: contrast discrimination. *Vision Research*, **5**, 473-483.

1 Kersten, D. and Legge, G.E. (1983) Convergence accommodation. *Journal of the Optical Society of America*, **73**, 332-338. ([pdf](#))

0 Kersten, D. (1983) A Comparison of Human and Ideal Performance for the Detection of Visual Pattern. Ph.D. Thesis, University of Minnesota. Minneapolis, Minnesota. [Introduction \(pdf, 560K\)](#), [Chapter 3: Spatial Frequency Summation in Visual Noise \(pdf, 2.5M\)](#), [Chapter 4 Aspects of Phase in Visual Detection \(pdf, 3.6M\)](#).