

# References

- [1] P. Abbott (ed.), "Tricks of the trade", The *Mathematica* Journal, Wolfram Media Inc., vol. 7, no. 2, 105-127, 1998.
- [2] M. Abramowitz, "Handbook of mathematical functions". Dover Publications, 1971.
- [3] S. T. Acton, A. C. Bovik, and M. M. Crawford, "Anisotropic diffusion pyramids for image segmentation", in Proc. first Intern. Conf. on Image Processing, pp. 478-482, IEEE, 1994.
- [4] S. T. Acton, "Diffusion-based edge detectors", in: Handbook of image and video processing, A. Bovik ed., Academic Press, San Diego, 2000.
- [5] E. H. Adelson and J. R. Bergen, "Spatiotemporal energy models for the perception of motion", Journal of the Optical Society of America-A, vol. 2, no. 2, pp. 284-299, 1985. Also appeared as MIT-MediaLab-TR148. September 1990.
- [6] E. H. Adelson and J. R. Bergen, "Spatiotemporal energy models for the perception of motion", Journal of the Optical Society of America-A, vol. 2, no. 2, pp. 284-299, 1985. Also appeared as MIT-MediaLab-TR148. September 1990.
- [7] J. Aggarwall and N. Nandhakumar, "On the computation of motion from sequences of images", IEEE Tr. PAMI, vol. 76, no. 8, pp. 917-935, 1988. A review.
- [8] A. Almansa and T. Lindeberg, "Enhancement of fingerprint images using shape-adaptated scale-space operators", IEEE Tr. on Image Processing. In: J. Sporring, M. Nielsen, L. Florack, and P. Johansen (eds.) Gaussian Scale-Space Theory: Proc. PhD School on Scale-Space Theory , Copenhagen, Denmark, May 1996, Kluwer Academic Publishers, 1997.
- [9] J. M. Alonso and L. M. Martinez, "Functional connectivity between simple cells and complex cells in cat striate cortex", Nature Neuroscience, vol. 1, pp. 395-403, 1998.
- [10] L. Alvarez, P. L. Lions, and J. M. Morel, "Image selective smoothing and edge detection by nonlinear diffusion. II", SIAM Journal on Numerical Analysis, vol. 29, pp. 845-866, June 1992.
- [11] L. Alvarez, F. Guichard, P. L. Lions, and J. M. Morel, "Axioms and fundamental equations of image processing", Archives for Rational Mechanics, vol. 123, pp. 199-257, September 1993.
- [12] L. Alvarez and J. M. Morel, "Formalization and computational aspect of image analysis", Acta Numerica, 1994.
- [13] L. Alvarez and L. Mazorra, "Signal and image restoration using shock filters and anisotropic diffusion", SIAM Journal on Numerical Analysis, vol. 31, pp. 590-605, January 1994.
- [14] L. Alvarez and J. M. Morel, "Morphological approach to multiscale analysis", in Geometry-Driven Diffusion in Computer Vision (B. M. ter Haar Romeny, ed.), Computational Imaging and Vision, pp. 229-254, Kluwer Academic Publishers B.V., 1994.
- [15] L. Alvarez, "Images and PDE's", in Proc. of 12th Intern. Conf. on Analysis and Optimization of Systems (M.-O. Berger, R. Deriche, I. Herlin, J. Jaffré, and J.-M. Morel, eds.), vol. 219 of Lecture Notes in Control and Information Sciences, pp. 3-14, Springer, London, 1996.
- [16] W. F. Ames, "Numerical methods for partial differential equations". New York, San Francisco: Academic Press, 1977.
- [17] A. A. Amini, T. E. Weymouth, and R. C. Jain, "Using dynamic programming for solving variational problems in vision", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 12, no. 9, pp. 855-867, 1990.
- [18] F. R. Amthor, E. S. Takahashi and C. W. Oyster, "Morphologies of rabbit ganglion cells with concentric receptive fields", Journ. of Comparative Neurology, vol. 280, pp. 72-96, 1989.
- [19] S. Angenent, "On the formation of singularities in the curve shortening flow", Journal of Differential Geometry, vol. 33, pp. 601-633, 1991.
- [20] V. I. Arnold, "Singularity theory". Cambridge: Cambridge University Press, 1981.
- [21] H. Asada and M. Brady, "The curvature primal sketch", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 8, no. 1, pp. 2-14, 1986.

- [22] J. J. Atick and A. N. Redlich, "Mathematical model of the simple cells in the visual cortex", *Biological Cybernetics*, vol. 63, pp. 99-109, 1990.
- [23] N. Ayache, "Medical computer vision, virtual reality and robotics", *Image and Vision Computing*, vol. 13, pp. 295-313, May 1995.
- [24] J. Babaud, A. P. Witkin, M. Baudin, and R. O. Duda, "Uniqueness of the Gaussian kernel for scale-space filtering", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 8, no. 1, pp. 26-33, 1986.
- [25] S. Back, H. Neumann, and H. S. Stiehl, "On segmenting computed tomograms", in *Proceedings of the 3rd Intern. Symposium CAR '89* (H. U. Lemke, M. L. Rhodes, C. C. Jaffee, and R. Felix, eds.), Berlin, Springer-Verlag, 1989.
- [26] S. Back, H. Neumann, and H. S. Stiehl, "On scale-space edge detection in computed tomograms", in *Proceedings of the 11th DAGM-Symposium, Hamburg* (H. Burkhardt, K.-H. Hoehne, and B. Neumann, eds.), Berlin, Springer-Verlag, 1989.
- [27] R. Balart, "Matrix reformulation of the Gabor transform", *Optical Engineering*, vol. 31, pp. 1235-1242, June 1992.
- [28] P. Baldi and W. Heiligenberg, "How sensory maps could enhance resolution through ordered arrangements of broadly tuned receivers", *Biological Cybernetics*, vol. 59, pp. 313-318, 1988.
- [29] C. Ballester and M. Gonzalez, "Affine invariant multiscale segmentation by variational methods", in *Eighth Workshop on Image and Multidimensional Image Processing, (Cannes)*, pp. 220-221, IEEE, September 8-10 1993.
- [30] D. Bar-Natan, "Random dot stereograms", *The Mathematica Journal*, vol. 1, no. 3, pp. 69-75, 1991.
- [31] J. L. Barron, D. J. Fleet, and S. S. Beauchemin, "Performance of optical flow techniques", *Intern. Journal of Computer Vision*, vol. 12, no. 1, pp. 43-77, 1994.
- [32] R. Bauer and B. M. Dow, "Local and global properties of striate cortical organization: an advanced model", *Biological Cybernetics*, vol. 64, pp. 477-483, 1991.
- [33] S. Beauchemin and J. Barron, "The computation of optic flow", *ACM Computing Surveys*, vol. 27, no. 3, pp. 433-467, 1995.
- [34] A. Bebernes and D. Eberly, *Mathematical Problems from Combustion Theory*. Springer-Verlag, 1989.
- [35] J. V. Beck, K. D. Cole, A. Haji-Sheikh, and B. Litkouhi, *Heat Conduction using Green's Functions*. London: Hemisphere Publishing Corporation, 1992.
- [36] W. Beil, "Steerable filters and invariance theory", *Pattern Recognition Letters*, vol. 16, no. 11, pp. 453-460, 1994.
- [37] B. Bell and L. F. Pau, "Contour tracking and corner detection in a logic programming environment", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 12, no. 9, pp. 913-917, 1990.
- [38] S. Belongie, J. Malik and J. Puzicha, "Shape matching and object recognition using shape contexts", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 24, no. 4, pp. 509-522, 2002.
- [39] B. M. Bennett, D. D. Hoffman, and C. Prakash, *Observer Mechanics. A Formal Theory of Perception*. London: Academic Press, 1989. ISBN 0-12-0888635-9.
- [40] F. Bergholm, "Edge focusing", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 9, pp. 726-741, November 1987.
- [41] G. L. Bilbro, W. E. Snyder, S. J. Garnier, , and J. W. Gault, "Mean field annealing: A formalism for constructing GNC-like algorithms", *IEEE Trans. Neural Networks*, vol. 3, January 1992.
- [42] T. O. Binford, "Inferring surfaces from images," *Artificial Intelligence*, vol. 17, pp. 205-244, 1981.
- [43] M. Bister, J. Cornelis, and A. Rosenfeld, "A critical view of pyramid segmentation algorithms", *Pattern Recognition Letters*, vol. 11, pp. 605-617, 1990.
- [44] E. Björkman, J. C. Zagal, T. Lindeberg, P. E. Roland, "Evaluation of design options for scale-space primal sketch analysis of brain activation images", *HBM'2000, Intern. Conf. on Functional Mapping of the Human Brain*, San Antonio, Texas, 2000.
- [45] N. Blachman, "*Mathematica: A Practical Approach*". 2nd edition, *Mathematica 3.0*, Prentice Hall, 631 pp., ISBN 0132592010, 1999.
- [46] A. Blake and A. Zisserman, "Visual Reconstruction". Cambridge, Mass.: MIT Press, 1987.

- [47] H. Blakemore, C. Blakemore and H. Barlow, *Images and Understanding: Thoughts about Images, Ideas about Understanding*, Cambridge University Press, April 1989.
- [48] C. Blakemore (Ed.), *Vision: Coding and Efficiency*, Cambridge University Press, January 1990.
- [49] W. Blaschke and K. Reidemeister, *Differential Geometry*, vol. 1-2. Springer-Verlag, 1923.
- [50] G.G. Blasdel and G. Salama. "Voltage-sensitive dyes reveal a modular organization in monkey striate cortex", *Nature*, vol. 321, pp. 579-585, 1986.
- [51] J. Blom, "Modellen voor de functionele ordening van (1-dim.) zintuig-systemen", Tech. Rep. V-mff-38-85, Department of Medical and Physiological Physics, University of Utrecht, Princetonplein 5, 3584 CC Utrecht, Netherlands, 1985.
- [52] J. Blom, "Affine Invariant Corner Detection", in: PhD Thesis, Utrecht University, NL-Utrecht, 1991.
- [53] J. Blom, "Topological and Geometrical Aspects of Image Structure". PhD thesis, Utrecht University, 1992.
- [54] J. Blom, B. M. ter Haar Romeny, and J. J. Koenderink, "Affine invariant corner detection", tech. rep., 3D Computer Vision Research Group, Utrecht University NL, 1992.
- [55] J. Blom, J. J. Koenderink, B. M. ter Haar Romeny, and A. M. L. Kappers, Topological image-structure for a discrete image on a hexagonal lattice with finite intensity sampling", *J. of Vis. Comm. and Im. Repr.*, 1992.
- [56] J. Blom, B. M. ter Haar Romeny, A. Bel, and J. J. Koenderink, "Spatial derivatives and the propagation of noise in Gaussian scale-space", *J. of Vis. Comm. and Image Repr.*, vol. 4, pp. 1-13, March 1993.
- [57] J. A. Bloom and T.R. Reed, "A Gaussian Derivative-Based Transform", *IEEE Tr. on Image Processing*, Vol. 5, No. 3, 1996.
- [58] D. Blostein and N. Ahuja, "Representation and three-dimensional interpretation of image texture: An integrated approach", in Proc. 1st Int. Conf. on Computer Vision, (London), pp. 444-449, IEEE Computer Society Press, 1987.
- [59] H. Blum, "Biological shape and visual science", *J. Theor. Biology*, vol. 38, pp. 205-287, 1973.
- [60] G. Bluman and S. Kumei, "A remarkable nonlinear diffusion equation", *Journal of Mathematical Physics*, vol. 21, pp. 1019-1023, May 1980.
- [61] T. Bonhoeffer and A. Grinvald, "The layout of iso-orientation domains in area-18 of cat visual-cortex - optical imaging reveals a pinwheel-like organization". *J. Neurosci.* vol. 13, pp. 4157-4180, 1993.
- [62] F. L. Bookstein, "Principal warps: thin-plate splines and the decomposition of deformations", *IEEE trans. Pattern Analysis and Machine Intelligence*, Vol. 11, No. 6, pp. 567-585, 1989.
- [63] G. Borgefors, "Hierarchical Chamfer Matching: A Parametric Edge Matching Algorithm", *IEEE Trans. Pattern Anal. Machine Intell.*, vol. 10, no. 6, 1988.
- [64] A. C. Bovik, M. Clark, and W. S. Geisler, "Multichannel texture analysis using localized spatial filters", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 12, no. 1, pp. 55-73, 1990.
- [65] A. Bovik, "Handbook of image and video processing", Academic Press, 2000.
- [66] B. B. Boycott and H. Wässle. "The morphological types of ganglion cells of the domestic cat's retina". *Journal of Physiology*, 240:379-419, 1974.
- [67] C. B. Boyer, *A History of Mathematics*. Brooklyn, New York: Princeton University Press, January 1968. First Princeton Paperback Printing 1985.
- [68] K. A. Brakke, "The motion of a surface by its mean curvature", tech. rep., Princeton University Press, Princeton NY, 1978.
- [69] A. Brauer, "Über die Nullstellen der Hermiteschen Polynome", *Mathematische Annalen*, vol. 107, pp. 87-89, 1933.
- [70] L. Bretzner and T. Lindeberg, "Feature tracking with automatic selection of spatial scales", In Linde, Sparr (Eds.): *Proc. Swedish Symposium on Image Analysis, SSAB'96 Lund, Sweden*, pp. 24-28, March 1996. Extended version in: *Computer Vision and Image Understanding*. vol. 71, pp. 385--392, Sept. 1998.
- [71] L. Bretzner and T. Lindeberg, "On the handling of spatial and temporal scales in feature tracking", *Proc. First Intern. Conf. on Scale-Space Theory in Computer Vision*, Utrecht, Netherlands, B.M. ter Haar Romeny ed., Springer-Verlag Lecture Notes in Computer Science, volume 1252. July 2-4, 1997.

- [72] L. Bretzner and T. Lindeberg, "Qualitative multi-scale feature hierarchies for object tracking", in M. Nielsen, P. Johansen, O. F. Olsen and J. Weickert (Eds) Proc. 2nd Intern. Conf. on Scale-Space Theory in Computer Vision, Corfu, Greece, September 1999. Springer Lecture Notes in Computer Science, vol 1682, pp. 117--128. Extended version in J. of Visual Communication and Image Representation, 11, 115-129, 2000.
- [73] R. W. Brockett and P. Maragos, "Evolution equations for continuous-scale morphology", in Proc. Intern. Conf. on Acoustics, Speech and Signal Processing, pp. 125-128, IEEE, 1992.
- [74] J. W. Bruce and P. J. Giblin, Curves and Singularities. Cambridge: Cambridge University Press, 1984.
- [75] V. Bruce, P. R. Green, and M. A. Georgeson, Visual Perception. Hove, East Sussex, UK: Psychology Press, 1996.
- [76] A. M. Bruckstein and A. N. Netravali, "On differential invariants of planar curves and recognizing partially occluded planar shapes", in Proc. of Visual Form Workshop, (Capri), Plenum Press, May 1990.
- [77] A. M. Bruckstein, R. J. Holt, A. N. Netravali, and T. J. Richardson, "Invariant signatures for planar shape recognition under partial occlusion", in Proceedings of the 11th IAPR international conference on pattern recognition, 1992. Long version in Computer Vision, Graphics and Image Processing: Image Understanding, vol. 58, nr. 1, pp. 49-65, 1993.
- [78] K. Brunnstrom, J.-O. Eklundh, and T. Lindeberg, "On scale and resolution in active analysis of local image structure", Image and Vision Computing, vol. 8, no. 4, pp. 289-296, 1990.
- [79] K. Brunnstrom, T. Lindeberg, and J.-O. Eklundh, "Active detection and classification of junctions by foveation with a head-eye system guided by the scale-space primal sketch", in Proc. second European Conf. on Computer Vision (G. Sandini, ed.), vol. 588 of Lecture Notes in Computer Science, (Santa Margherita Ligure, Italy), pp. 701-709, Springer-Verlag, May 1992.
- [80] B. Buck, A. C. Merchant, and S. M. Perez, "An illustration of Benford's first digit law using alpha decay half lives". European Journal of Physics, vol. 14, pp. 59-63, 1993.
- [81] C. A. Burbeck and S. M. Pizer, "Object representation by cores: indentifying and representing primitive spatial regions", Tech. Rep. TR94-048b, University of North Carolina at Chapel Hill, 1994.
- [82] P. J. Burt, T. H. Hong, and A. Rosenfeld, "Segmentation and estimation of image region properties through cooperative hierarchical computation", IEEE Tr. on Systems, Man, and Cybernetics, vol. 11, no. 12, pp. 802-825, 1981.
- [83] P. J. Burt, "Fast filter transforms for image processing", Computer Vision, Graphics, and Image Processing, vol. 16, pp. 20-51, 1981.
- [84] P. J. Burt and E. H. Adelson, "The Laplacian pyramid as a compact image code", IEEE Trans. Communications, vol. 9, no. 4, pp. 532-540, 1983.
- [85] P. J. Burt, "Multiresolution images precessing and analysis", chapter in: The pyramid as a structure for efficient computation, pp. 6-35. Berlin: Springer Verlag, 1984. A. Rosenfeld, Ed.
- [86] P. Buser and M. Imbert, "Vision". London, England: The MIT Press, 1994.
- [87] J. Canny, "A computational approach to edge detection", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 8, no. 6, pp. 679-698, 1986.
- [88] V. Cantoni and S. Levialdi, eds., Pyramidal Systems for Computer Vision. Berlin: Springer-Verlag, 1986.
- [89] E. Cartan, "La théorie des groupes finis et continus et la géometrie differentielle traitées par la méthode du repère mobile". Gauthiers-Villars, 1937.
- [90] E. Cartan, "Les problèmes d'équivalence", in Oeuvres Complètes, vol. 2, pp. 1311-1334, Paris: Gauthiers-Villars, 1952.
- [91] E. Cartan, "Leçons sur la geometrie des espaces de Riemann". Paris: Gauthier-Villars, 2 ed., 1963.
- [92] D. Casasent and D. Psaltis, "Position, rotation, and scale invariant optical correlation", Applied Optics, vol. 15, no. 7, pp. 1795-1799, 1976.
- [93] V. Caselles, F. Catté, T. Coll, and F. Dibos, "A geometric model for active contours in image processing", Numerische Mathematik, vol. 66, pp. 1-31, 1993.
- [94] V. Caselles, R. Kimmel, and G. Sapiro, "Geodesic snakes", tech. rep., Department of Mathematics, University of Illes Balears, Palma de Mallorca, Spain, 1994.

- [95] V. Caselles, R. Kimmel, and G. Sapiro, "Geodesic active contours", in Proc. Fifth Intern. Conf. on Computer Vision (E. Grimson, S. Shafer, A. Blake, and K. Sugihara, eds.), pp. 694-699, 1995.
- [96] S. Castan, J. Zhao and J. Shen, "Optimal filter for edge detection methods and results". In Proc. First Eur. Conf. on Computer Vision, pp. 13-17, 1990.
- [97] F. Catté, P. L. Lions, J. M. Morel, and T. Coll, "Image selective smoothing and edge detection by nonlinear diffusion", *SIAM Journal on Numerical Analysis*, vol. 29, pp. 182-193, February 1992.
- [98] F. Catté, F. Guichard, and G. Köpfler, "A morphological approach to mean curvature motion", Tech. Rep. 9310, CEREMADE, Université Paris Dauphine, 1993.
- [99] F. Catté, "Convergence of iterated affine and morphological filters by nonlinear semigroup theory", in Proc. of 12th Intern. Conf. on Analysis and Optimization of Systems (M. O. Berger, R. Deriche, I. Herlin, J. Jaffré, and J. M. Morel, eds.), vol. 219 of Lecture Notes in Control and Information Sciences, pp. 125-133, Springer, London, 1996.
- [100] A. Cayley, "On contour and slope lines", *The London, Edingburgh and Dublin Philosophical Magazine and J. of Science*, vol. 18, no. 120, pp. 264-268, 1859.
- [101] A. Chehikian and J. L. Crowley, "Fast computation of optimal semi-octave pyramids", in Proc. 7th Scand. Conf. on Image Analysis, (Aalborg, Denmark), pp. 18-27, August 1991.
- [102] J. S. Chen and G. Medioni, "Detection, localization and estimation of edges", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 11, pp. 191-198, 1989.
- [103] M. Chen and P. Yan, "A multiscale approach based on morphological filtering", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 11, no. 7, pp. 694-700, 1989.
- [104] W. Chen, T. Kato et al., "LGN activation during visual imagery tasks shown by fMRI", Proc. 2<sup>nd</sup> Intern. Conf. on Functional Mapping of the Human Brain 1996.
- [105] F. H. Cheng and W. H. Hsu, "Parallel algorithm for corner finding on digital curves", *Pattern Recognition Letters*, vol. 8, pp. 47-53, 1988.
- [106] P. S. Churchland and T. J. Sejnowski, "The Computational Brain". MIT Press, 1992.
- [107] J. Clark, "Singularity theory and phantom edges in scale-space", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 10, no. 5, 1988.
- [108] J. J. Clark, "Authenticating edges produced by zero-crossing algorithms", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 11, pp. 43-57, 1989.
- [109] A. Clebsch, "Theorie der Binären Algebraischen Formen". Leipzig: Verlag von Teubner, 1872.
- [110] J. Coggins and A. Jain, "A spatial filtering approach to texture analysis", *Pattern Recognition Letters*, vol. 3, pp. 195-203, 1985.
- [111] M. A. Cohen and S. Grossberg, "Neural dynamics of brightness perception: Features, boundaries, diffusion, and resonance", *Perception and Psychophysics*, vol. 36, no. 5, pp. 428-456, 1984.
- [112] I. Cohen, L. D. Cohen, and N. Ayache, "Using deformable surfaces to segment 3D images and infer differential structures", *Computer Vision, Graphics, and Image Processing*, vol. 56, pp. 242-263, 1992.
- [113] T. Cohignac, F. Eve, F. Guichard, and J. M. Morel, "Numerical analysis of the fundamental equation of image processing", Tech. Rep. 9254, CEREMADE, Université Paris Dauphine, 1992.
- [114] T. Cohignac, F. Guichard, and J. M. Morel, "Multiscale analysis of shapes, images and textures", in Eighth Workshop on Image and Multidimensional Image Processing, (Cannes), pp. 142-143, IEEE, September 8-10 1993.
- [115] T. Cohignac, F. Eve, F. Guichard, and C. Lopez, "Affine morphological scale-space: Numerical analysis of its fundamental equation", tech. rep., Ceremade, Université Paris Dauphine, 1993.
- [116] R. Cormack and R. Fox, "The computation of retinal disparity", *Perception and Psychophysics*, vol. 37, no. 2, pp. 176-178, 1985.
- [117] T. N. Cornsweet, "Visual perception", Academic Press, New York, 1970.
- [118] G. H. Cottet, "Diffusion approximation on neural networks and applications for image processing", in Proc. Sixth European Conf. on Mathematics in Industry (F. Hodnett, ed.), (Stuttgart), pp. 3-9, Teubner, 1992.
- [119] J. Crank, "Mathematics of diffusion". London: Oxford University Press, 1956.

- [120] J. R. Crowley, "A representation for shape based on peaks and ridges in the Difference of Low-Pass Transform", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 6, no. 2, pp. 156-170, 1984.
- [121] J. L. Crowley and R. M. Stern, "Fast computation of the difference of low pass Transform", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 6, pp. 212-222, 1984.
- [122] J. L. Crowley and A. C. Sanderson, "Multiple resolution representation and probabilistic matching of 2-D gray-scale shape", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 9, no. 1, pp. 113-121, 1987.
- [123] C. A. Curcio, K. R. Sloan, R. E. Kalina, A. E. Hendrickson, "Human photoreceptor topography". *Journal of Comparative Neurology*, vol. 292, pp. 497-523, 1990.
- [124] D. M. Dacey and S. Brace, "A coupled network for parasol but not for midget ganglion cells in the primate retina", *Visual Neuroscience*, vol. 9, pp. 279-290, 1992.
- [125] G. Dalmaso, J. M. Morel, and S. Solimini, "A variational method in image segmentation: Existence and approximation results", *Acta Math.*, vol. 168, pp. 89-151, 1992.
- [126] E. Dam & M. Lillholm, "Generic Events for the Isophote Curvature", Graduate project, University of Copenhagen, <http://www.it-c.dk/people/erikdam>, March 1999.
- [127] E. B. Dam and Mads Nielsen, "Non-linear diffusion for interactive multi-scale watershed segmentation. Proceedings for MICCAI 2000, Lecture Notes in Computer Science, volume 1935, October 2000.
- [128] E. Dam & M. Nielsen, "Non-Linear Diffusion for Interactive Multi-scale Watershed Segmentation", in *Proceedings for MICCAI 2000, Pittsburg, Lecture Notes in Computer Science*, vol. 1935, pp. 216-225, 2000.
- [129] E. Dam, P. Johansen, O.F. Olsen, A. Thomsen, T. Darvann, A.B. Dobrzeniecki, N.V. Hermann, N. Kitai, S. Kreiborg, P. Larsen and M. Nielsen: "Interactive Multi-Scale Segmentation in Clinical Use", *CompuRAD, ECR 2000, Vienna, 2000*.
- [130] J. Damon, "Local Morse theory for solutions to the heat equation and Gaussian blurring", *J. of Differential Equations*, vol. 115, no. 2, pp. 368-401, January 1995.
- [131] J. Damon, Chapter "Local Morse Theory for Solutions to the Heat Equation and Gaussian Blurring" in "Gaussian Scale-Space Theory" (Edited by J. Sporring, M. Nielsen, L. Florack, & P. Johansen), *Kluwer Academic Publishers*, 1997.
- [132] J. Damon, "Ridges and cores for two-dimensional images", *Jour. Math. Imag. and Vision*, vol. 10, pp. 163-174, 1999.
- [133] P.-E. Danielsson and O. Seger, "Rotation invariance in gradient and higher order derivative detectors", *Computer Vision, Graphics, and Image Processing*, vol. 49, pp. 198-221, 1990.
- [134] J. G. Daugman, "Uncertainty Relation for Resolution in Space, Spatial Frequency, and Orientation Optimized by Two-Dimensional Visual Cortical Filters", *J. Opt. Soc. Am.*, Vol. 2, 1985.
- [135] J. G. Daugman, "Two-dimensional spectral analysis of cortical receptive fields profile", *Vision Research*, vol. 20, pp. 847-856, 1980.
- [136] J. G. Daugman, "Six formal properties of anisotropic visual filters: structural principles and frequency/orientation selectivity", *IEEE Trans. Systems, Man, and Cybernetics*, vol. 13, pp. 882-887, 1983.
- [137] J. G. Daugman, "Uncertainty relation for resolution in space spatial frequency, and orientation optimized by two-dimensional visual cortical filters", *Journal of the Optical Society of America-A*, vol. 2, pp. 1160-1169, 1985.
- [138] J. G. Daugman, "Pattern and motion vision without Laplacian zero crossings", *Journal of the Optical Society of America-A*, vol. 5, no. 7, pp. 1142-1148, 1988.
- [139] J. G. Daugman, "Complete discrete 2-D Gabor transforms by neural networks for image analysis and compression", *IEEE Tr. Acoust., Speech, Signal Processing*, vol. 36, no. 4, pp. 1169-1179, 1988.
- [140] L. S. Davis, "A survey on edge detection techniques", *Comp. Graph. and Image Proc.*, vol. 4, no. 3, pp. 248-270, 1975.
- [141] G. C. DeAngelis, I. Ohzawa, and R. D. Freeman, "Depth is encoded in the visual cortex by a specialized receptive field structure.", *Nature*, vol. 352, pp. 156-159, 1991.
- [142] G. C. DeAngelis, I. Ohzawa, and R. D. Freeman, "Spatiotemporal organization of simple-cell receptive fields in the cat's striate cortex", *Journal of Neurophysiology*, vol. 69, no. 4, pp. 1091-1135, 1993.

- [143] G. C. DeAngelis, I. Ohzawa, and R. D. Freeman, "Receptive field dynamics in the central visual pathways", *Trends Neurosci.*, vol. 18, pp. 451-458, 1995.
- [144] G. C. DeAngelis, Geoffrey M. Ghose, Izumi Ohzawa, and Ralph D. Freeman, "Functional Micro-Organization of Primary Visual Cortex: Receptive Field Analysis of Nearby Neurons", *The Journal of Neuroscience*, vol. 19, no. 10, pp. 4046-4064, 1999. URL
- [145] E. De Boer and P. Kuypers, "Triggered correlation", *IEEE Trans. Biomedical Engineering*, vol. 15, pp. 169-179, 1968.
- [146] C. de Boor, "A practical guide to splines". Springer Verlag, New York, 1978.
- [147] E. De Micheli, B. Caprile, P. Ottonello, and V. Torre, "Localization and noise in edge detection", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 10, no. 11, pp. 1106-1117, 1989.
- [148] R. Deriche, "Using Canny's criteria to derive an optimal edge detector recursively implemented". *Intern. J. of Computer Vision*, Vol. 1, pp. 167-187, 1987.
- [149] R. Deriche, "Fast algorithms for low-level vision", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 12, no. 1, pp. 78-87, 1990.
- [150] R. Deriche, "Recursively implementing the Gaussian and its derivatives", *Proc. Second Intern. Conf. on Image Processing*, pp. 263-267, Singapore, 1992.
- [151] R. L. De Valois, N. P. Cottaris, L. E. Mahon, S. D. Elfar, J. A. Wilson, "Spatial and temporal receptive fields of geniculate and cortical cells and directional selectivity", *Vision Research*, vol. 40, pp. 3685-3702, 2000.
- [152] F. Devernay and O. Faugeras, "Computing differential properties of 3-D shapes from stereoscopic images without 3-D models", in *Proceedings of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition*, (Seattle, Washington), pp. 208-213, June 1994.
- [153] S. Dickinson, "Object representation and recognition", in: E. Lepore and Z. Pylyshyn (eds.), "What is Cognitive Science?", Basil Blackwell publishers, pp. 172--207, 1999.
- [154] R. W. Ditchburn and B. L. Ginsborg, "Vision with a stabilized retinal image", *Nature*, vol. 170, pp. 36-37, 1952.
- [155] B. Doolittle and E. Maclay, "The forest has eyes". The Greenwich Workshop Press, 1998.
- [156] A. J. van Doorn, J. J. Koenderink, and M. A. Bouman, "The influence of the retinal inhomogeneity on the perception of spatial patterns", *Kybernetik*, vol. 10, pp. 223-230, 1972.
- [157] L. Dorst and R. van den Boomgaard, "Morphological signal processing and the slope transform", *Signal Processing*, vol. 38, pp. 79-98, 1994.
- [158] L. Dorst and R. van den Boomgaard, "Orientation-based representations for mathematical morphology", in *Shape, Structure and Pattern Recognition* (D. Dori and A. Bruckstein, eds.), (Nahariya, Israel), pp. 13-22, October 1993.
- [159] B. Dubuc and S. W. Zucker, "Complexity, confusion, and perceptual grouping. Part I and II, *Int. J. of Computer Vision*, 42(1/2): 55-115, 2001; reprinted in *J. Math. Imaging and Vision*, 15(1/2): 55-115, 2001.
- [160] R. Duits, L. M. J. Florack, B. M. ter Haar Romeny, and J. de Graaf, "On the axioms of scale-space theory." *Proc. Fourth IASTED International Conference on Signal and Image Processing (SIP 2002)*, August 12-14, 2002, Kauai, Hawaii, USA.
- [161] D. Eberly, D. Fritsch, and C. Kurak, "Filtering with a normalized Laplacian of a Gaussian filter", in *Proceedings of the SPIE Intern. Symposium, Mathematical Methods in Medical Imaging*, (San Diego, CA), 1992.
- [162] D. Eberly, R. Gardner, B. Morse, S. Pizer, and C. Scharlach, "Ridges for image analysis." *Journal of Mathematical Imaging and Vision*, July 1993.
- [163] D. Eberly, *Geometric Analysis of Ridges in N-Dimensional Images*. PhD thesis, University of North Carolina at Chapel Hill, Computer Science Department, 1994.
- [164] D. Eberly, "A differential geometric approach to anisotropic diffusion", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), pp. 371-392, Dordrecht: Kluwer Academic Publishers, 1994.
- [165] D. H. Eberly, *Geometric Methods for Analysis of Ridges in N-Dimensional Images*. PhD thesis, The University of North Carolina, Chapel Hill, North Carolina, January 1994. Department of Computer Vision.
- [166] J. Elder and S.W. Zucker. Local scale control for edge detection and blur estimation. In *Lecture*

- Notes in Computer Science, pages 57-69, New York, 1996. Proc. 4<sup>th</sup> European Conf. on Computer Vision, Springer Verlag.
- [167] J. Elder, J. and S. W. Zucker, "Evidence for boundary-specific grouping in human vision", *Vision Research*, 38(1): 143-152, 1998.
- [168] H. Farid and E. P. Simoncelli, "Optimally rotation-equivariant directional derivative kernels", 7th Int'l Conf. on Computer Analysis of Images and Patterns, Kiel, Germany. September 10-12, 1997.
- [169] O. Faugeras, "On the motion of 3D curves and its relationship to optical flow", in Proc. ECCV'90 (O. Faugeras, ed.), (Antibes, France), pp. 107-117, Springer-Verlag, April 1990.
- [170] O. Faugeras, "Cartan's moving frame method and its applications to the geometry and evolution of curves in the Euclidean, affine and projective planes", Tech. Rep. TR-2053, INRIA, 1993.
- [171] O. Faugeras, "Computer vision research at INRIA", *Intern. Journal of Computer Vision*, vol. 10, no. 2, pp. 91-99, 1993.
- [172] O. Faugeras, *Three-Dimensional Computer Vision*. MIT Press, 1994.
- [173] O. Faugeras and R. Keriven, "Affine curvature from affine scale-space", in Proc. Fifth Intern. Conf. on Computer Vision, 1995.
- [174] D. Ferster, K. D. Miller, "Neural Mechanisms of Orientation Selectivity in the Visual Cortex", *Annual Reviews of Neuroscience*, Vol. 23, pp. 441-471, 2000.
- [175] M. Fidrich and J.-P. Thirion, "Multiscale representation and analysis of features from medical images", in Intern. Conf. on Computer Vision, Virtual Reality and Robotics in Medicine (N. Ayache, ed.), vol. 905 of LNCS, Nice, pp. 358-364, April 1995.
- [176] M. Fidrich and J.-P. Thirion, "Multiscale extraction of features from medical images", in Intern. Conf. on Computer Analysis of Images and Patterns (V. Hlavac and R. S'ara, eds.), vol. 970 of LNCS, (Prague), pp. 637-642, September 1995.
- [177] B. Fischer, "Overlap of receptive field centers and representation of the visual field in the cat's optic tract", *Vision Research*, vol. 13, pp. 2113-2120, 1973.
- [178] D. J. Fleet and A. D. Jepson, "Hierarchical construction of orientation and velocity selective filters", *PAMI*, vol. 11, pp. 315-325, March 1989.
- [179] D. J. Fleet and A. D. Jepson, "Computation of component image velocity from local phase information", *Intern. Journal of Computer Vision*, vol. 5, no. 1, pp. 77-104, 1990.
- [180] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Scale and the differential structure of images", *Image and Vision Computing*, vol. 10, pp. 376-388, 1992.
- [181] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "General intensity transformations and second order invariants", in *Theory and Applications of Image Analysis* (P. Johansen and S. Olsen, eds.), vol. 2 of Series in Machine Perception and Artificial Intelligence, pp. 22-29, Singapore: World Scientific, 1992.
- [182] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Cartesian differential invariants in scale-space", *Journal of Mathematical Imaging and Vision*, vol. 3, pp. 327-348, November 1993.
- [183] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Images: Regular tempered distributions", in *Proceedings of the NATO Advanced Research Workshop Shape in Picture - Mathematical description of shape in greylevel images* (Y.-L. O, A. Toet, H. J. A. M. Heijmans, D. H. Foster, and P. Meer, eds.), vol. 126 of NATO ASI Series F, pp. 651-660, Springer Verlag, Berlin, 1994.
- [184] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Linear scale-space", *Journal of Mathematical Imaging and Vision*, vol. 4, no. 4, pp. 325-351, 1994.
- [185] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "General intensity transformations and differential invariants", *Journal of Mathematical Imaging and Vision*, vol. 4, pp. 171-187, May 1994.
- [186] L. M. J. Florack and M. Nielsen, "The intrinsic structure of the optic flow field", ERCIM Technical Report 07/94-R033, 1994.
- [187] L. M. J. Florack, A. H. Salden, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Nonlinear scale-space", *Image and Vision Computing*, vol. 13, pp. 279-294, May 1995.
- [188] L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "The Gaussian scale-space paradigm and the multiscale local jet", *Intern. Journal of Computer Vision*, vol. 18, pp. 61-75,

April 1996.

- [189] L. M. J. Florack, "Data, models and images", in IEEE Intern. Conf. on Image Processing ICIP'96, P. Delogne, ed., Lausanne, CH, pp. 469-472, September 16-19 1996.
- [190] L. M. J. Florack, "The concept of a functional integral - a potentially interesting method for image processing", Tech. Rep. 96/7, Institute of Datalogy, University of Copenhagen, 1996.
- [191] L. M. J. Florack, "Image structure", Kluwer Academic Publishers, Dordrecht, the Netherlands, 1997.
- [192] L. M. J. Florack, "The intrinsic structure of optic flow incorporating measurement duality", Intern. Journal of Computer Vision, vol. 27, no. 3, pp. 263-286, 1998.
- [193] L. M. J. Florack, R. Maas, and W. J. Niessen, "Pseudo-linear scale space theory", International Journal of Computer Vision, vol. 31, no. 2/3, pp. 247-259, 1999.
- [194] L. M. J. Florack, "A spatio-frequency trade-off scale for scale-space filtering", IEEE Tr. on Pattern Anal. and Mach. Intell. PAMI, vol. 22, no. 9, pp. 1050-1055, 2000.
- [195] L. M. J. Florack and A. Kuijper, "The topological structure of scale-space images", Journal of Mathematical Imaging and Vision, Vol. 12, No. 1, pp. 65-79, 2000.
- [196] L. M. J. Florack, "Motion extraction - an approach based on duality and gauge theory," in R. Klette, H. S. Stiehl, M. A. Viergever, and K. L. Vincken, eds., Performance Characterization in Computer Vision, vol. 17 of Computational Imaging and Vision Series. Kluwer Academic Publishers, pp. 69-80, 2000.
- [197] L. M. J. Florack, "A geometric model for cortical magnification," S.-W. Lee, H. H. Bülthoff, and T. Poggio, eds., Biologically Motivated Computer Vision, vol. 1811 of Lecture Notes in Computer Science. Berlin: Springer-Verlag, pp. 574-583, May 2000.
- [198] L. M. J. Florack, "Scale-space theories for scalar and vector images," in M. Kerckhove, ed., Scale-Space and Morphology in Computer Vision: Proceedings of the Third International Conference, Scale-Space 2001, Vancouver, Canada, vol. 2106 of Lecture Notes in Computer Science. Berlin: Springer-Verlag, pp. 193-204, July 2001.
- [199] L. M. J. Florack, "Non-linear scale-spaces isomorphic to the linear case with applications to scalar, vector and multispectral images," Journal of Mathematical Imaging and Vision, vol. 15, pp. 39-53, July/October 2001.
- [200] M. A. Förstner and E. Gülch, "A fast operator for detection and precise location of distinct points, corners and centers of circular features", in Proc. Intercommission Workshop of the Int. Soc. for Photogrammetry and Remote Sensing, (Interlaken, Switzerland), 1987.
- [201] J. B. Fourier, "The Analytical Theory of Heat". New York: Dover Publications, Inc., 1955. Replication of the English translation that first appeared in 1878 with previous corrigenda incorporated into the text, by Alexander Freeman, M. A. Original work: "Theorie Analytique de la Chaleur", Paris, 1822.
- [202] R. D. Freeman and I. Ohzawa, "On the neurophysiological organization of binocular vision", Vision Research, vol. 30, no. 11, pp. 1661-1676, 1990.
- [203] W. T. Freeman and E. H. Adelson, "Steerable filters for early vision, image analysis and wavelet decomposition", in Proc. 3rd Int. Conf. on Computer Vision, (Osaka, Japan), IEEE Computer Society Press, December 1990.
- [204] W. T. Freeman and E. H. Adelson, "The design and use of steerable filters", IEEE Trans. Pattern Analysis and Machine Intelligence, vol. 13, pp. 891-906, September 1991.
- [205] W. T. Freeman and M. Roth, "Orientation histograms for hand gesture recognition", in Proc. of the IEEE Int. Workshop on Automatic Face and Gesture Recognition, 1995.
- [206] D. Fritsch, Registration of Radiotherapy Images Using Multiscale Medial Descriptions of Image Structure. PhD thesis, The University of North Carolina at Chapel Hill, Department of Biomedical Engineering, 1993.
- [207] J. Frohlich and J. Weickert, "Image processing using a wavelet algorithm for nonlinear diffusion", Tech. Rep. 104, Laboratory of Technomathematics, Univ. of Kaiserslautern, Germany, March 1994.
- [208] R. E. Frye and R. S. Ledley, "Derivative of Gaussian functions as receptive field models for disparity sensitive neurons of the visual cortex", Proceedings of the 1996 Fifteenth Southern Biomedical Engineering Conf., pp. 270-273, 1996.
- [209] D. Gabor, "Theory of communications", Journal IEEE London, vol. 93, pp. 429-457, 1946.

- [210] M. Gage, "An isoperimetric inequality with applications to curve shortening", *Duke Mathematical Journal*, vol. 50, pp. 1225-1229, 1983.
- [211] M. Gage, "Curve shortening makes convex curves circular", *Invent. Math.*, vol. 76, pp. 357-364, 1984.
- [212] M. Gage and R. S. Hamilton, "The heat equation shrinking convex plane curves", *Journal of Differential Geometry*, vol. 23, pp. 69-96, 1986.
- [213] M. Gage, "On an area-preserving evolution equation for plane curves", *Contemporary Mathematics*, vol. 51, pp. 51-62, 1986.
- [214] E. B. Gamble and T. Poggio, "Visual integration and detection of discontinuities: The key role of intensity edges", tech. rep., MIT A.I. Lab, 1987. A.I. Memo No. 970.
- [215] J. Gårding, "Shape from texture for smooth curved surfaces in perspective projection", *Journal of Mathematical Imaging and Vision*, vol. 2, pp. 329-352, 1992.
- [216] J. Gårding and T. Lindeberg, "Direct computation of shape cues by multi-scale retinotopic processing." submitted, 1993.
- [217] J. Gårding and T. Lindeberg, "Direct estimation of local surface shape in a fixating binocular vision system", in *Proc. 3rd European Conf. on Computer Vision (J.-O. Eklundh, ed.)*, vol. 800 of *Lecture Notes in Computer Science*, (Stockholm, Sweden), pp. 365-376, Springer-Verlag, May 1994.
- [218] J. Gårding and T. Lindeberg, "Direct computation of shape cues based on scale-adapted spatial derivative operators", *Intern. Journal of Computer Vision*, vol. 17, no. 2, pp. 163-192, 1996.
- [219] J. L. Gardner, A. Anzai, I. Ohzawa, and R. D. Freeman, "Linear and nonlinear contributions to orientation tuning of simple cells in the cat's striate cortex". *Visual Neuroscience* 16: 1115-1121, 1999.
- [220] L. J. Garey (Ed.): "Brodman's localisation in the cerebral cortex", *Smith Gordo & Co*, 1992.
- [221] J.M. Gauch, "Image Segmentation and Analysis via Multiscale Gradient Watershed Hierachies", *IEEE Transactions on Image Processing*, 8(1):69-79, January 1999.
- [222] D. Geiger and A. Yuille, "A common framework for image segmentation", *Intern. Journal of Computer Vision*, vol. 6, no. 3, pp. 227-243, 1991.
- [223] S. Geman and D. Geman, "Stochastic relaxation, gibbs distributions, and the bayesian restoration of images", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 6, pp. 721-741, 1984.
- [224] R. Geraets, A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Affine scale-space for discrete pointsets", in *Proc. Soc. for Neural Networks (C. Gielen, ed.)*, Nijmegen, the Netherlands, SNN, 1995.
- [225] R. Geraets, A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Object recognition by affine evolution of measured interest points", in *Proc. Computing Science in the Netherlands, Utrecht, the Netherlands*, pp. 86-97, SION, 1995.
- [226] G. Gerig, O. Kubler, R. Kikinis, and F. A. Jolesz, "Nonlinear anisotropic filtering of MRI data", *Journal of Mathematical Imaging and Vision*, vol. 11, pp. 221-232, June 1992.
- [227] G. Gerig, G. Szekely, and T. Koller, "Line-finding in 2-D and 3-D by multi-valued non-linear diffusion of feature maps", in *DAGM Symposium, Informatik aktuell (S. J. Poepl and H. Handels, eds.)*, pp. 289-296, Springer-Verlag, 1993. *Mustererkennung 1993*, 15.
- [228] G. Gerig, G. Szekely, G. Israel, and M. Berger, "Detection and characterization of unsharp blobs by curve evolution", in *Proc. Information Processing in Medical Imaging (IPMI'95) (Y. B. et al., ed.)*, Series on *Computational Imaging and Vision*, pp. 165-176, Kluwer Academic Publishers, June 1995.
- [229] H. J. M. Gerrits, B. de Haan, and A. J. H. Vendrik, "Experiments with retinal stabilized images. relations between the observations and neural data", *Vision Research*, vol. 6, pp. 427-440, 1966.
- [230] J. M. Geusebroek, A. Dev, R. van den Boomgaard, A. W. M. Smeulders, F. Cornelissen and H. Geerts, "Color Invariant edge detection". In: *Scale-Space theories in Computer Vision, Lecture Notes in Computer Science*, vol. 1252, pp. 459-464, Springer-Verlag, 1999.
- [231] J. M. Geusebroek, R. van den Boomgaard, A. W. M. Smeulders and A. Dev. "Color and scale: the spatial structure of color images". In: *Eur. Conf. on Computer Vision 2000, Lecture Notes in Computer Science*, Vol. 1842, Springer, pp. 331-341, June 26 - July 1, 2000.
- [232] J. M. Geusebroek, A. W. M. Smeulders and R. van den Boomgaard, "Measurement of Color Invariants". *Proc. CVPR*, vol. 1, pp. 50-57, June 13-15, 2000.

- [233] J. M. Geusebroek, D. Koelma, A. W. M. Smeulders and Th. Gevers. "Image Retrieval and Segmentation based on Color Invariants". Proc. CVPR, June 13-15, 2000.
- [234] T. Gevers and A. W. Smeulders. "Color based object recognition". *Patt. Recogn.* **32**, 453-464, 1999.
- [235] G. M. Ghose, I. Ohzawa, and R. D. Freeman, "Receptive field maps of correlated discharge between pairs of neurons in the cat's visual cortex", *Journal of Neurophysiology*, vol. 71, no. 1, pp. 330-346, 1994.
- [236] J. Gibbon and R. M. Church, "Time-left: linear versus logarithmic subjective time". *Journal of Experimental Psychology: Animal Behavior Processes*, vol. 7, pp. 87-108, 1981.
- [237] J. J. Gibson, *The Perception of the Visual World*. Boston: Houghton-Mifflin, 1950.
- [238] B. Gillam and B. Rogers, "Orientation disparity, deformation, and stereoscopic slant perception", *Perception*, vol. 20, pp. 441-448, 1991.
- [239] R. Gilmore, *Catastrophe theory for scientists and engineers*. New York: Wiley-Interscience, 1981.
- [240] G. H. Golub and C. F. Van Loan, *Matrix Computations*. Baltimore: The Johns Hopkins University Press, 1989. Second Edition.
- [241] Goodchild, A.K., K.K. Ghosh, and P.R. Martin. "Comparison of photoreceptor spatial density and ganglion cell morphology in the retina of human, macaque monkey, cat, and the marmoset *Callithrix jacchus*". *Journal of Comparative. Neurology*. 366 : 55-75, 1996.
- [242] C. d. Graaf, S. M. Pizer, A. Toet, J. J. Koenderink, and P. P. van Rijk, "Pyramid segmentation of medical 3D images", in Proc. of the 1984 Int. Joint Alpine Symposium, pp. 71-77, IEEE, 1984.
- [243] N. Graham, "The visual system does a crude Fourier analysis of patterns", in *SIAM-AMS Proceedings* (S. Grossberg, ed.), vol. 13, (Hillsdale, New Jersey), pp. 1-16, American Mathematical Society, Lawrence Erlbaum Associates, 1981.
- [244] A. Gray, "Modern differential geometry of curves and surfaces". CRC Press Inc., Boca Raton, 1993, second edition 1997.
- [245] M. Grayson, "The heat equation shrinks embedded plane curves to round points", *Journal of Differential Geometry*, vol. 26, pp. 285-314, 1987.
- [246] H. Greenspan, S. Belongie, R. Goodman, P. Perona, S. Rakshit, and C. H. Anderson, "Overcomplete steerable pyramid filters and rotation invariance", in Proc. IEEE Computer Soc. Conf. on Computer Vision and Pattern Recognition, CVPR'94, pp. 222-228, IEEE, 1994.
- [247] W. E. L. Grimson, "From images to surfaces". Cambridge MA: MIT Press, 1981.
- [248] S. Grossberg and D. Todorovic, "Neural dynamics of 1-D and 2-D brightness perception: A unified model of classical and recent phenomena", *Perception and Psychophysics*, vol. 43, pp. 241-277, 1988.
- [249] F. Guichard, "Multiscale analysis of movies", in Eighth Workshop on Image and Multidimensional Image Processing, (Cannes), pp. 236-237, IEEE, September 8-10 1993.
- [250] A. Guiducci, "Corner characterization by differential geometry techniques", *Pattern Recognition Letters*, vol. 8, pp. 311-318, 1988.
- [251] R. W. Guillery, "A quantitative study of synaptic interconnections in the dorsal lateral geniculate nucleus in the cat", *Zeitschrift für Zellforschung*, vol. 96, pp. 39-48, 1969.
- [252] R. W. Guillery, "The organization of synaptic interconnections in the laminae of the dorsal lateral geniculate nucleus in the cat", *Zeitschrift für Zellforschung*, vol. 96, pp. 1-38, 1969.
- [253] R. W. Guillery, "Patterns of synaptic interconnections in the dorsal lateral geniculate nucleus of cat and monkey: A brief review", *Vision Research (Suppl.)*, vol. 3, pp. 211-227, 1971.
- [254] M. M. Gupta and G. K. Knopf, eds., "Neuro-vision systems, principles and applications". A selected reprint volume, IEEE Press, New York, 1993.
- [255] B. Gurevich, "Foundations of the theory of algebraic invariants". Groningen: P. Noordhoff, 1979.
- [256] W. Hackbush, "Multi-grid methods and applications". New York: Springer-Verlag, 1985.
- [257] J. S. Hadamard, "Sur les problèmes aux dérivées partielles et leur signification physique." *Bull. Univ. Princeton*, vol. 13, pp. 49-62, 1902.
- [258] T. Hall, "Carl Friedrich Gauss, a biography". M.I.T. Press, Cambridge, 1970.
- [259] R. M. Haralick, "Zero-crossing of second directional derivative edge operator", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 6, pp. 58-68, 1984.

- [260] H. K. Hartline, "The receptive fields of optic nerve fibers", *American Journal of Physiology*, vol. 130, pp. 690-699, 1940.
- [261] M. Hashimoto and J. Sklansky, "Multiple order derivatives for detecting local image characteristics", *Computer Vision, Graphics, and Image Processing*, vol. 39, pp. 28-55, 1987.
- [262] D. J. Heeger, "Optical flow using spatiotemporal filters", *Intern. Journal of Computer Vision*, vol. 1, pp. 279-302, 1988.
- [263] H. J. A. M. Heijmans, "Mathematical morphology: a geometrical approach in image processing", *Nieuw Archief voor Wiskunde*, vol. 10, pp. 237-276, November 1992.
- [264] F. Heitger, L. Rosenthaler, R. von der Heydt, E. Peterhans, and O. Kübler, "Simulation of neural contour mechanisms: from simple to end-stopped cells", *Vision Research*, vol. 32, no. 5, pp. 963-981, 1992.
- [265] E. Hering. "Outlines of a theory of the light sense". Harvard University Press, Cambridge, 1964.
- [266] D. Hilbert, "Über die Theorie der algebraischen Formen", *Math. Annalen*, vol. 36, pp. 473-534, 1890.
- [267] D. Hilbert, "Über die vollen Invariantensystemen", *Math. Annalen*, vol. 42, pp. 313-373, 1893.
- [268] H. Hildreth, "The detection of intensity changes by computer and biological visual systems", *Computer Vision, Graphics, and Image Processing*, vol. 22, pp. 1-27, 1983.
- [269] E. Hildreth, "The measurement of visual motion". Cambridge, Mass.: M. I. T. Press, 1983.
- [270] E. C. Hildreth, "Computations underlying the measurement of visual motion", *Artificial Intelligence*, vol. 23, pp. 309-354, 1984.
- [271] B. K. P. Horn and B. Schunck, "Determining optic flow". *Artificial Intelligence*, vol. 23, pp. 185-203, 1981.
- [272] B. K. P. Horn, "Robot Vision". Cambridge MA: MIT Press, 1986.
- [273] B. Horn and M. Brooks, eds., "Shape from shading". Cambridge, Mass.: M. I. T. Press, 1989.
- [274] D. H. Hubel and T. N. Wiesel, "Receptive fields, binocular interaction, and functional architecture in the cat's visual cortex", *Journal of Physiology*, vol. 160, pp. 106-154, 1962.
- [275] D. H. Hubel and T. N. Wiesel, "Brain mechanisms of vision", *Scientific American*, vol. 241, pp. 45-53, 1979.
- [276] D. H. Hubel, "Eye, brain and vision", vol. 22 of *Scientific American Library*. New York: Scientific American Press, 1988.
- [277] R. A. Hummel, B. B. Kimia, and S. W. Zucker, "Gaussian blur and the heat equation: Forward and inverse solutions", in *Proc. CVPR*, pp. 668-671, 1985.
- [278] R. A. Hummel and D. Lowe, "Computing Gaussian blur", in *Proc. ICPR 1986*, pp. 910-912, 1986.
- [279] R. A. Hummel, B. B. Kimia, and S. W. Zucker, "Deblurring Gaussian blur", *Computer Vision, Graphics, and Image Processing*, vol. 38, pp. 66-80, 1987.
- [280] R. A. Hummel, "The scale-space formulation of pyramid data structures", in *Parallel Computer Vision* (L. Uhr, ed.), pp. 187-123, Academic Press, New York, 1987.
- [281] R. A. Hummel, "Representations based on zero crossings in scale-space", in *Proc. IEEE Computer Vision and Pattern Recognition Conf.*, pp. 204-209, June 1986. Also in: "Readings in Computer Vision: Issues, Problems, Principles and Paradigms", M. Fischler and O. Firschein (eds.), Morgan Kaufmann, 1987.
- [282] R. A. Hummel and R. Moniot, "Reconstructions from zero-crossings in scale-space", *IEEE Trans. Acoustics, Speech, and Signal Processing*, vol. 37, no. 12, pp. 2111-2130, 1989.
- [283] T. Iijima, "Basic theory on the normalization of a pattern", *Bulletin of Electrical Laboratory*, vol. 26, pp. 368-388, 1962. In Japanese.
- [284] T. Iijima, "Basic equation of figure and observational transformation", *Tr. of the Institute of Electronics and Communication Engineers of Japan*, vol. 54-C, no. 9, pp. 37-38, 1971. English Abstracts.
- [285] T. Iijima, "Basic theory on the construction of figure space", *Tr. of the Institute of Electronics and Communication Engineers of Japan*, vol. 54-C, no. 8, pp. 35-36, 1971. English Abstracts.
- [286] T. Iijima, "A suppression kernel of a figure and its mathematical characteristics", *Tr. of the Institute of Electronics and Communication Engineers of Japan*, vol. 54-C, no. 9, pp. 30-31, 1971. English Abstracts.
- [287] T. Iijima, "Basic theory on normalization of figure", *Tr. of the Institute of Electronics and Communication Engineers of Japan*, vol. 54-C, no. 11, pp. 24-25, 1971. English Abstracts.

- [288] T. Iijima, "A system of fundamental functions in an abstract figure space", Tr. of the Institute of Electronics and Communication Engineers of Japan, vol. 54-C, no. 11, pp. 26-27, 1971. English Abstracts.
- [289] T. Iijima, "Basic theory on feature extraction of figures", Tr. of the Institute of Electronics and Communication Engineers of Japan, vol. 54-C, no. 12, pp. 35-36, 1971. English Abstracts.
- [290] T. Iijima, "Basic theory on the structural recognition of a figure", Tr. of the Institute of Electronics and Communication Engineers of Japan, vol. 55-D, no. 8, pp. 28-29, 1972. English Abstracts.
- [291] T. Iijima, "Theoretical studies on the figure identification by pattern matching", Tr. of the Institute of Electronics and Communication Engineers of Japan, vol. 54-D, no. 8, pp. 29-30, 1972. English Abstracts.
- [292] T. Jackway, "Morphological scale-space", in Proc. 11th Int. Conf. Pattern Recognition (ICPR 11), vol. C, (The Hague), pp. 252-255, Aug. 30 - Sept. 3 1992.
- [293] T. Jackway and M. Deriche, "Scale-space properties of multiscale morphological dilation-erosion", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 18, no. 1, pp. 38-51, 1996.
- [294] P. T. Jackway and M. Deriche, "Scale-space properties of the multiscale morphological dilation-erosion", IEEE PAMI, vol. 18, no. 1, pp. 38-51, 1996.
- [295] M. Jägersand, "Saliency maps and attention selection in scale and spatial coordinates: An information theoretic approach", in Proc. Fifth Intern. Conf. on Computer Vision (E. Grimson, S. Shafer, A. Blake, and K. Sugihara, eds.), (MIT Cambridge, MA), pp. 195-202, IEEE, June 20-23 1995.
- [296] E. T. Jaynes, "Prior probabilities", Proc. IEEE SSC-4, pp. 227-241, 1968.
- [297] A. D. Jepson and D. J. Fleet, "Scale-space singularities", in Proc. first European Conf. on Computer Vision (O. Faugeras, ed.), (Berlin), pp. 50-56, Springer-Verlag, 1990. Lecture Notes in Computer Science.
- [298] P. Johansen, S. Skelboe, K. Grue, and J. D. Andersen, "Representing signals by their top points in scale-space", in Proceedings of the 8-th Intern. Conf. on Pattern Recognition, (Paris), pp. 215-217, October 27-31 1986.
- [299] Johansen, "On the classification of toppoints in scale-space", Journal of Mathematical Imaging and Vision, vol. 4, no. 1, pp. 57-68, 1994.
- [300] J.-J. Jolion and A. Rozenfeld, "A pyramid framework for early vision". Dordrecht, Netherlands: Kluwer Academic Publishers, 1994.
- [301] J. P. Jones and L. A. Palmer, "The two-dimensional spatial structure of simple receptive fields in cat striate cortex", Journal of Neurophysiology, vol. 58, pp. 1187-1211, 1987.
- [302] G. J. Jones and J. Malik, "A computational framework for determining stereo correspondence from a set of linear spatial filters", Image and Vision Computing, vol. 10, no. 10, pp. 699-708, 1992.
- [303] D. B. Judd and G. Wyszecki. "Color in business, science and industry". Wiley, New York, NY, 1975.
- [304] J. Kacur, K. Mikula, "Slow and fast diffusion effects in image processing", Computing and Visualization in Science, Springer Berlin, vol. 3, nr. 4, 2001.
- [305] S. N. Kalitzin, B. M. ter Haar Romeny, A. H. Salden, P. F. M. Nacken, and M. A. Viergever, "Topological numbers and singularities in scalar images. scale-space evolution properties", Journal of Mathematical Imaging and Vision, vol. 7, 1996.
- [306] S. N. Kalitzin, B. M. ter Haar Romeny, and M. A. Viergever, "Invertible orientation bundles on 2D scalar images", in Proc. First Intern. Conf. on Scale-Space Theory in Computer Vision, Lecture Notes in Computer Science, (Utrecht, the Netherlands), pp. 77-88, Springer Verlag, July 1997.
- [307] S. N. Kalitzin, B. M. ter Haar Romeny, and M. A. Viergever, "On topological deep-structure segmentation", in Proc. Intern. Conf. on Image Processing, (Santa Barbara, California), pp. 863-866, October 26-29 1997.
- [308] S. N. Kalitzin, "Topological numbers and singularities in scalar images. scale-space evolution properties", in Gaussian Scale-Space Theory (Jon Sparring, Mads Nielsen, Luck Florack and Peter Johansen, Eds.), pp. 181-189, Kluwer Academic Publishers, 1997.
- [309] S. N. Kalitzin, B. M. ter Haar Romeny, and M. A. Viergever, "Invertible apertured orientation filters in image analysis". Intern. J. of Computer Vision, vol. 31, no. 2/3, pp. 145-158, 1998.
- [310] K. Kanatani, "Group-theoretical methods in image understanding", vol. 20 of Series in Information Sciences. Springer-Verlag, 1990.
- [311] E. R. Kandel, J. H. Schwartz, and T. M. Jessell, "Principles of Neural Science". McGraw-Hill Companies, New York, fourth edition, 2000.

- [312] D. Kapur and J. L. Mundy, "Geometric Reasoning". MIT Press, 1995.
- [313] N. Karssemeijer, "Detection of stellate distortions in mammograms using scale-space operators", in Proc. Information Processing in Medical Imaging, pp. 335-346, 1995.
- [314] N. Karssemeijer and G. te Brake, "Detection of stellate distortions in mammograms", IEEE Tr. Medical Imaging, vol. 15, no. 5, pp. 611-619, 1996.
- [315] M. Kass and A. Witkin, "Analyzing oriented patterns", Computer Vision, Graphics, And Image Processing, vol. 37, pp. 362-385, 1985.
- [316] M. Kass, A. Witkin, and D. Terzopoulos, "Snakes: Active contour models", Intern. Journal of Computer Vision, vol. 1, no. 4, pp. 321-331, 1988.
- [317] T. P. Kaushal, "Towards visually convincing image segmentation", Image and Vision Computing, vol. 10, pp. 617-624, November 1992.
- [318] R. G. Kessel and R. H. Kardon, "Tissues and organs, a text atlas of scanning electron microscopy", W. H. Freeman and Company, San Francisco and Oxford, 1979.
- [319] S. Kichenassamy, "Nonlinear diffusions and hyperbolic smoothing for edge enhancement", in Proc. of 12th Intern. Conf. on Analysis and Optimization of Systems (M. O. Berger, R. Deriche, I. Herlin, J. Jaffré, and J. M. Morel, eds.), vol. 219 of Lecture Notes in Control and Information Sciences, pp. 119-124, Springer, London, 1996.
- [320] B. B. Kimia, "Deblurring Gaussian blur, continuous and discrete approaches", Master's thesis, McGill University, Electrical Eng. Dept., Montreal, Canada, 1986.
- [321] B. B. Kimia, A. Tannenbaum, and S. W. Zucker, "Towards a computational theory of shape, an overview", in Proc. first European Conf. on Computer Vision, vol. 427 of Lecture Notes in Computer Science, (New York), pp. 402-407, Springer-Verlag, 1990.
- [322] B. B. Kimia, "Entropy scale-space", in Proc. of Visual Form Workshop, (Capri, Italy), Plenum Press, May 1991.
- [323] B. B. Kimia, A. Tannenbaum, and S. W. Zucker, "On the evolution of curves via a function of curvature I: the classical case", Journal of Mathematical Analysis and Applications, vol. 163, pp. 438-458, 1992.
- [324] B. B. Kimia and S. W. Zucker, "Analytic inverse of discrete Gaussian blur", Optical Engineering, vol. 32, no. 1, pp. 166-176, 1986.
- [325] B. B. Kimia and K. Siddiqi, "Geometric heat equation and nonlinear diffusion of shapes and images", Computer Vision and Image Understanding, vol. 64, pp. 305-322, 1996.
- [326] L. Kitchen and A. Rosenfeld, "Gray-level corner detection", Pattern Recognition Letters, vol. 1, pp. 95-102, 1982.
- [327] F. Klein, "Erlanger Programm", Math. Annalen, vol. 43, pp. 63-100, 1893.
- [328] C. B. Knudsen and H. I. Christensen, "On methods for efficient pyramid generation", in Proc. 7th Scand. Conf. on Image Analysis, (Aalborg, Denmark), pp. 28-39, August 1991.
- [329] H. Kobayashi, L. White, Joseph, and A. Abidi, Asad, "An active resistor network for Gaussian filtering of images", IEEE Journal of Solid-State Circuits, vol. 26, pp. 738-748, May 1991.
- [330] J. J. Koenderink and A. J. van Doorn, "Geometry of binocular vision and a model for stereopsis", Biological Cybernetics, vol. 21, pp. 29-35, 1976.
- [331] J. J. Koenderink and A. J. van Doorn, "Visual detection of spatial contrast; influence of location in the visual field, target extent and illuminance level", Biological Cybernetics, vol. 30, pp. 157-167, 1978.
- [332] J. J. Koenderink and A. J. van Doorn, "The structure of two-dimensional scalar fields with applications to vision", Biological Cybernetics, vol. 33, pp. 151-158, 1979.
- [333] J. J. Koenderink and A. J. van Doorn, "The internal representation of solid shape with respect to vision", Biological Cybernetics, no. 32, pp. 211-216, 1979.
- [334] J. J. Koenderink and A. J. van Doorn, "Photometric invariants related to solid shape", Optica Acta, vol. 27, pp. 981-996, 1980.
- [335] J. J. Koenderink and A. J. van Doorn, "A description of the structure of visual images in terms of an ordered hierarchy of light and dark blobs", in Second Int. Visual Psychophysics and Medical Imaging Conf., 1981.IEEE Cat. No. 81 CH 1676-6.
- [336] J. J. Koenderink, "The structure of images", Biological Cybernetics, vol. 50, pp. 363-370, 1984.

- [337] J. J. Koenderink, "Simultaneous order in nervous nets from a functional standpoint", *Biological Cybernetics*, vol. 50, pp. 35-41, 1984.
- [338] J. J. Koenderink, "Geometrical structures determined by the functional order in nervous nets", *Biological Cybernetics*, vol. 50, pp. 43-50, 1984.
- [339] J. J. Koenderink, "The concept of local sign", in *Limits in Perception* (A. J. van Doorn, W. A. van de Grind, and J. J. Koenderink, eds.), pp. 495-547, Utrecht: VNU Science Press, 1984.
- [340] J. J. Koenderink, A. J. van Doorn, and W. A. van de Grind, "Spatial and temporal parameters of motion detection in the peripheral visual field", *Journal of the Optical Society of America-A*, vol. 2, pp. 252-259, February 1985.
- [341] J. J. Koenderink, "The structure of the visual field", in *The Physics of Structure Formation, Theory and Simulation* (W. Guettinger and G. Dangelmayr, eds.), Springer-Verlag, 1986. Proceedings of an Intern. Symposium, Tuebingen, Fed. Rep. of Germany, October 27-November 2.
- [342] J. J. Koenderink and A. J. van Doorn, "Dynamic shape", *Biological Cybernetics*, vol. 53, pp. 383-396, 1986.
- [343] J. J. Koenderink, "Optic flow", *Vision Research*, vol. 1, pp. 161-180, 1986.
- [344] J. J. Koenderink, "Image structure", in *Mathematics and Computer Science in Medical Imaging* (M. A. Viergever and A. Todd-Pokropek, eds.), (Berlin), Springer-Verlag, 1986. Proceedings of the NATO Advanced Study Institute of Mathematics and Computer Science in Medical Imaging, held in Il Ciocco, Italy, September 21 - October 4.
- [345] J. J. Koenderink and A. J. van Doorn, "Representation of local geometry in the visual system", *Biological Cybernetics*, vol. 55, pp. 367-375, 1987.
- [346] J. J. Koenderink, "Design principles for a front-end visual system", in *Neural Computers* (R. Eckmiller and C. v. d. Malsburg, eds.), Springer-Verlag, 1987. Proceedings of the NATO Advanced Research Workshop on Neural Computers, held in Neuss, Fed. Rep. of Germany, September 28-October 2.
- [347] J. J. Koenderink, "An internal representation for solid shape based on the topological properties of the apparent contour", in *Image Understanding* (J. Richards and S. Ullman, eds.), pp. 257-285, Norwood, New Jersey: Alex Publishing Corporation, 1987.
- [348] J. J. Koenderink and A. J. van Doorn, "Facts on optic flow", *Biological Cybernetics*, vol. 56, pp. 247-254, 1987.
- [349] J. J. Koenderink, "Image structure", in *Mathematics and Computer Science in Medical Imaging* (Viergever/Todd-Pokropek, ed.), pp. 67-104, Springer-Verlag, 1988. NATO ASI F39.
- [350] J. J. Koenderink: "Scale-Time", *Biological Cybernetics*, vol. 58, pp. 159-162, 1988.
- [351] J. J. Koenderink and A. J. Van Doorn, "Operational significance of receptive field assemblies", *Biological Cybernetics*, vol. 58, pp. 163-171, 1988.
- [352] J. J. Koenderink and W. Richards, "Two-dimensional curvature operators", *Journal of the Optical Society of America-A*, vol. 5, no. 7, pp. 1136-1141, 1988.
- [353] J. J. Koenderink and A. J. van Doorn, "The basic geometry of a vision system", pp. 481-485. Kluwer Academic Publishers, 1988. Trappl, R. (Ed.).
- [354] J. J. Koenderink, "Design for a sensorium", pp. 185-207. D-6940 Weinheim, Federal Republic of Germany: VCH Verlagsgesellschaft mbH, 1988. Editors: von Seelen, Werner and Shaw, Gordon and Leinhos, Ulrich M.
- [355] J. J. Koenderink, "A hitherto unnoticed singularity of scale-space", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 11, no. 11, pp. 1222-1224, 1989.
- [356] J. J. Koenderink, "Solid Shape". Cambridge, Mass.: MIT Press, 1990.
- [357] J. J. Koenderink and A. J. van Doorn, "Receptive field families", *Biological Cybernetics*, vol. 63, pp. 291-298, 1990.
- [358] J. J. Koenderink, "The brain a geometry engine", *Psychological Research*, vol. 52, pp. 122-127, 1990.
- [359] J. J. Koenderink, "Perception and control of self-motion". In: *Some theoretical aspects of optic flow*, pp. 53-68. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc., 1990. R. Warren, Ed.
- [360] J. J. Koenderink and A. J. van Doorn, "Advances in neural computers", chapter in: *Receptive field taxonomy*. Elsevier, 1990. R. Eckmuller, Ed.

- [361] J. J. Koenderink, "Mapping formal structures on networks", pp. 93-98. North-Holland: Elsevier Science Publishers B. V., 1991. Eds.: Kohonen, T. and Mäkisara, K. and Simula, O. and Kangas, J.
- [362] J. J. Koenderink and A. J. van Doorn, "Affine structure from motion", *Journal of the Optical Society of America-A*, vol. 8, no. 2, pp. 377-385, 1991.
- [363] J. J. Koenderink, "Local image structure", in *Proc. Scand. Conf. on Image Analysis*, (Aalborg, DK), pp. 1-7, August 1991.
- [364] J. J. Koenderink and A. J. van Doorn, "Receptive field assembly pattern specificity", *J. of Vis. Comm. and Im. Repr.*, vol. 3, no. 1, pp. 1-12, 1991.
- [365] J. J. Koenderink and A. J. van Doorn, "Generic neighborhood operators", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 14, pp. 597-605, June 1992.
- [366] J. J. Koenderink, "Local image structure", in *Theory and Applications of Image Analysis* (P. Johansen and S. Olsen, eds.), vol. 2 of *Series in Machine Perception and Artificial Intelligence*, pp. 15-21, Singapore: World Scientific, 1992.
- [367] J. J. Koenderink, *Fundamentals of Bicentric Perspective*, vol. 653 of *Lecture Notes in Computer Science*, pp. 233-251. Heidelberg Berlin: Springer Verlag, 1992. Bensoussan A. and Verjus J. P. (Eds.).
- [368] J. J. Koenderink, A. Kappers, and A. van Doorn, "Local operations: The embodiment of geometry", in *Artificial and Biological Vision Systems* (G. A. Orban and H. H. Nagel, eds.), *ESPRIT: Basic Research Series*, pp. 1-23, DG XIII Commission of the European Communities, 1992.
- [369] J. J. Koenderink, "Iseikonic invariants in bicentric perspective", *Tech. Rep. UBI-T-92.MF-058*, Utrecht Biophysics Research Institute, Division: Medical and Physiological Physics, Buys Ballot Laboratory, Utrecht University, 1992.
- [370] J. J. Koenderink and A. J. van Doorn, "Second order optic flow", *Journal of the Optical Society of America-A*, vol. 8, no. 2, pp. 530-538, 1992.
- [371] J. J. Koenderink and A. J. van Doorn, "Surface shape and curvature scales", *Image & Vision Computing*, vol. 10, pp. 557-565, 1992.
- [372] J. J. Koenderink and A. J. van Doorn, "Local features of smooth shapes: Ridges and courses", in *Proc. SPIE Geometric Methods in Computer Vision II*, vol. 2031, (San Diego, CA), pp. 2-13, *Proceedings SPIE*, July, 12-13 1993.
- [373] J. J. Koenderink and A. J. van Doorn, "Two-plus-one dimensional differential geometry", *Pattern Recognition Letters*, vol. 21, pp. 439-443, May 1994.
- [374] J. J. Koenderink and A. J. van Doorn. "Illuminance texture due to surface mesostructure". *J. Opt. Soc. Am. A*, vol. 13, no. 3, pp. 452-463, 1996.
- [375] J. J. Koenderink and A. J. van Doorn. "Metamerism in complete sets of image operators". In: *Advances in Image Understanding*, Bowyer K., Ahuja N. (eds.), IEEE Computer Society Press, Los Alamitos, California, 113-129, 1996.
- [376] J. J. Koenderink, A. J. van Doorn, C. Christou and J. S. Lappin, "Shape constancy in pictorial relief". *Perception*, vol. 25, pp. 155-164, 1996.
- [377] J. J. Koenderink, A. J. van Doorn, C. Christou and J. S. Lappin, "Perturbation study of shading in pictures". *Perception*, vol. 25, pp. 1009-1026, 1996.
- [378] J. J. Koenderink, A. J. van Doorn and A. M. L. Kappers, "Pictorial surface attitude and local depth comparisons". *Perception & Psychophysics*, vol. 58, no. 2, pp. 163-173, 1996.
- [379] J. J. Koenderink, A. J. van Doorn and M/ Stavridi, "Bidirectional reflection distribution function expressed in terms of surface scattering modes". In: *Proc. Europ. Conf. on Computer Vision - ECCV '96*, B. Buxton, R. Cipolla (eds.), Springer Verlag, Berlin, pp. 28-39, 1996.
- [380] J. J. Koenderink, A. M. L. Kappers, J. T. Todd, J. F. Norman and F. Phillips, "Surface range and attitude probing in stereoscopically presented dynamic scenes". *Journal of Experimental Psychology: Human Perception and Performance*, vol. 22, pp. 869-878, 1996.
- [381] J. J. Koenderink, "Scale in perspective", in *Gaussian Scale-Space*, Kluwer Academic Press, 1997. Sporring, J. et al. (eds.).
- [382] J. J. Koenderink and A. J. van Doorn, "The generic bilinear calibration-estimation problem". *Intern. Journal of Computer Vision*, vol. 23, no. 3, pp. 217-234, 1997.
- [383] J. J. Koenderink, A. J. van Doorn, A. M. L. Kappers and J. Todd, "The visual contour in depth". *Perception & Psychophysics*, vol. 59, no. 6, pp. 828-838, 1997.

- [384] J. J. Koenderink, A. M. L. Kappers, F. E. Pollick and M. Kawato, "Correspondence in pictorial space". *Perception & Psychophysics*, vol. 59, no. 6, pp. 813-827, 1997.
- [385] J. J. Koenderink, "Receptive field calculus". In: *Progress in Neural Networks, Vol. 4: Machine Vision*, Omidvar O.M., Mohan R. (eds.), Ablex Publishing Corporation, Greenwich, Connecticut, pp. 1-28, 1997.
- [386] J. J. Koenderink, "Pictorial relief". In: *Advances in visual form analysis*, Arcelli C., Cordella L.P., Sanniti di Baja G. (eds.), World Scientific, Singapore, pp. 308-317, 1997.
- [387] J. J. Koenderink and A. J. van Doorn, "Image structure". In: *Mustererkennung 1997*, Paulus E., Wahl F.M. (eds.), Springer-Verlag, Berlin, pp. 3-35, 1997.
- [388] J. J. Koenderink and A. J. van Doorn, "Local image operators and iconic structure". In: *Algebraic frames for the perception-action cycle*, Sommer G., Koenderink J.J. (eds.), Springer-Verlag, Berlin, 66-93, 1997.
- [389] J. J. Koenderink, "Color Space". Utrecht University, the Netherlands, 1998.
- [390] Koenderink J.J., Doorn A.J. van, "The structure of locally orderless images". *Intern. Journal of Computer Vision*, vol. 31, no. 2/3, pp. 159-168, 1999.
- [391] J. J. Koenderink and A. J. van Doorn, "Blur and disorder". In: *Scale-space theories in computer vision*, M. Nielsen, P. Johansen, O. F. Olsen and J. Weickert (eds.), *Lecture Notes in Computer Science*, Vol. 1682, Springer, Berlin, pp. 1-9, 1999.
- [392] J. J. Koenderink and A. J. van Doorn, "The structure of colorimetry". In: *Algebraic frames for the perception-action cycle*, Sommer G., Zeevi Y.Y. (eds.), Springer, Berlin, pp. 69-77, 2000.
- [393] G. Koepfler, C. Lopez, and J. M. Morel, "A multiscale algorithm for image segmentation by variational method", *SIAM Journal on Numerical Analysis*, 1994.
- [394] A. S. E. Koster, K. L. Vincken, C. N. De Graaf, O. C. Zander, and M. A. Viergever, "Heuristic linking models in multiscale image segmentation", *Computer Vision and Image Understanding*, vol. 65, no. 3, pp. 382-402, 1997.
- [395] A. Kuijper, L. M. J. Florack, "Calculations on critical points under Gaussian blurring", in *Proc. 2<sup>nd</sup> Intern. Conf. on Scale-Space Theory in Computer Vision (Corfu, Greece)*, *Lecture Notes in Computer Vision*, vol. 1682, pp. 318-329, 1999.
- [396] A. Kuijper, L. M. J. Florack, "Hierarchical pre-segmentation without prior knowledge", in *Proc. 8<sup>th</sup> IEEE Intern. Conf. on Computer Vision (Vancouver CA)*, pp. 487-493, 2001.
- [397] A. Kuijper, L. M. J. Florack, "Understanding and modeling the evolution of critical points under Gaussian blurring", in *Proc. 7<sup>th</sup> Eur. Conf. on Computer Vision (Copenhagen DK)*, *Lecture Notes in Computer Vision*, vol. 2350, pp. 143-157, 2001.
- [398] A. Kuijper, L. M. J. Florack, "The relevance of non-generic events in scale-space models", in *Proc. 7<sup>th</sup> Eur. Conf. on Computer Vision (Copenhagen DK)*, *Lecture Notes in Computer Vision*, vol. 2350, pp. 190-204, 2001.
- [399] A. Kuijper, L. M. J. Florack, "Scale-space hierarchy", *J. of Math. Imaging and Vision*, 2002.
- [400] A. Kuijper, "The deep structure of Gaussian scale-space images", PhD thesis, Utrecht University, 2002.
- [401] I. Laptev, H. Mayer, T. Lindeberg, W. Eckstein, C. Steger, A. Baumgartner, "Automatic extraction of roads from aerial images based on scale-space and snakes", *Machine Vision and Applications*, 2000.
- [402] T. S. Lee, "Image representation using 2D Gabor wavelets", *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 18, pp. 959-971, 1996.
- [403] R. Lenz, "Group theoretical methods in image processing", vol. 413 of *Lecture Notes in Computer Science*, Goos, G. and Hartmanis, J. (Eds.), Berlin: Springer Verlag, 1990.
- [404] W. R. Levick, "Sampling of information space by retinal ganglion cells", in *Visual Neuroscience (J. D. Pettigrew, K. J. Sanderson, and W. R. Levick, eds.)*, ch. 3, pp. 33-43, Cambridge University Press, 1986.
- [405] Z. Li and J. J. Atick, "Towards a theory of striate cortex", *Neural Computation*, vol. 6, pp. 127-146, 1994.
- [406] X. Li and T. Chen, "Optimal  $L_1$  approximation of the Gaussian kernel with application to scale-space construction", *IEEE Tr. Patter Anal. and Machine Intell.*, vol. 17, no. 10, pp. 1015-1019, 1995.
- [407] L. M. Lifshitz and S. M. Pizer, "A multiresolution hierarchical approach to image segmentation based

- on intensity extrema", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 12, no. 6, pp. 529-541, 1990.
- [408] T. Lindeberg, "Scale-space for discrete signals", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 12, no. 3, pp. 234-245, 1990.
- [409] T. Lindeberg and J. O. Eklundh, "Scale detection and region extraction from a scale-space primal sketch", in *Proc. 3rd Int. Conf. on Computer Vision*, (Osaka, Japan), pp. 416-426, December 1990.
- [410] T. Lindeberg, "Discrete scale-space theory and the scale-space primal sketch". PhD thesis, Royal Institute of Technology, Department of Numerical Analysis and Computing Science, Royal Institute of Technology, S-100 44 Stockholm, Sweden, May 1991.
- [411] T. Lindeberg and J. O. Eklundh, "On the computation of a scale-space primal sketch", *Journal of Visual Comm. and Image Rep.*, vol. 2, pp. 55-78, 1991.
- [412] T. Lindeberg, "Scale-space behaviour of local extrema and blobs", *Journal of Mathematical Imaging and Vision*, vol. 1, pp. 65-99, March 1992.
- [413] T. Lindeberg, "On the behaviour in scale-space of local extrema and blobs", in *Theory and Applications of Image Analysis* (P. Johansen and S. Olsen, eds.), vol. 2 of *Series in Machine Perception and Artificial Intelligence*, pp. 38-47, Singapore: World Scientific, 1992.
- [414] T. Lindeberg, "Effective scale: A natural unit for measuring scale-space lifetime", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 15, October 1993.
- [415] T. Lindeberg and L. M. J. Florack, "On the decrease of resolution as a function of eccentricity for a foveal vision system", *Tech. Rep. TRITA-NA-P9229*, Dept. of Numerical Analysis and Computing Science, Royal Institute of Technology, November 1992.
- [416] T. Lindeberg and J. O. Eklundh, "The scale-space primal sketch: Construction and experiments", *Image and Vision Computing*, vol. 10, pp. 3-18, January 1992.
- [417] T. Lindeberg and J. Gårding, "Shape from texture from a multi-scale perspective", in *Proceedings of the fourth ICCV*, H. H. Nagel et al., eds., Berlin, Germany, pp. 683-691, IEEE Computer Society Press, 1993.
- [418] T. Lindeberg, "Detecting salient blob-like image structures and their scales with a scale-space primal sketch - a method for focus-of-attention", *Intern. Journal of Computer Vision*, vol. 11, no. 3, pp. 283-318, 1993.
- [419] T. Lindeberg, "Discrete derivative approximations with scale-space properties: A basis for low-level feature extraction", *Journal of Mathematical Imaging and Vision*, vol. 3, no. 4, pp. 349-376, 1993.
- [420] T. Lindeberg, "Feature detection with automatic scale selection", *Tech. Rep. ISRN KTH/NA/P-96/18-SE*, KTH - NADA, May 1996. Earlier version presented in *Proc. 8th Scandinavian Conf. on Image Analysis*, Tromso, Norway, pp 857-866, 1993.
- [421] T. Lindeberg, "Scale-Space Theory in Computer Vision". The Kluwer Intern. Series in Engineering and Computer Science, Dordrecht, the Netherlands: Kluwer Academic Publishers, 1994.
- [422] T. Lindeberg, "Scale-space theory: A basic tool for analysing structures at different scales", *J. of Applied Statistics*, 21(2), Supplement on *Advances in Applied Statistics: Statistics and Images*: 2, pp. 224--270, 1994.
- [423] T. Lindeberg and J. Gårding, "Shape-adapted smoothing in estimation of 3-D depth cues from affine distortions of local 2-D structure", in *Proc. 3rd European Conf. on Computer Vision* (J.-O. Eklundh, ed.), vol. 800 of *Lecture Notes in Computer Science*, (Stockholm, Sweden), pp. 389-400, Springer-Verlag, May 1994.
- [424] T. Lindeberg, "On scale selection for differential operators", *Proc. 8th Scandinavian Conf. Image Analysis* (K. H. K. A. Hogdra, B. Braathen, ed.), (Tromso, Norway), pp. 857-866, Norwegian Society for Image Processing and Pattern Recognition, May 1994.
- [425] T. Lindeberg, "Scale-space behaviour and invariance properties of differential singularities", in *Proc. of the NATO Advanced Research Workshop Shape in Picture -- Mathematical Description of Shape in Greylevel Images* (Y.-L. O, A. Toet, H. J. A. M. Heijmans, D. H. Foster, and P. Meer, eds.), vol. 126 of *NATO ASI Series F*, pp. 591-600, Springer Verlag, Berlin, 1994.
- [426] T. Lindeberg and B. M. ter Haar Romeny, "Linear scale-space: I. Basic theory. II. Early visual operations", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), *Computational Imaging and Vision*, pp. 1-38,39-72, Dordrecht, the Netherlands: Kluwer Academic Publishers, 1994.

- [427] T. Lindeberg, "Junction detection with automatic selection of detection scales and localization scales", in Proc. First Intern. Conf. on Image Processing, vol. I, Austin, TX, pp. 924-928, IEEE CS, November 1994.
- [428] T. Lindeberg and L. M. J. Florack, "Foveal scale-space and linear increase of receptive field size as a function of eccentricity", Tech. Rep. ISRN KTH/NA/P-94/27-SE, Dept. of Numerical Analysis and Computing Science, Royal Institute of Technology, August 1994.
- [429] T. Lindeberg, "Scale-space for N-dimensional discrete signals", in Proc. of the NATO Advanced Research Workshop Shape in Picture - Mathematical Description of Shape in Greylevel Images (Y.-L. O, A. Toet, H. J. A. M. Heijmans, D. H. Foster, and P. Meer, eds.), vol. 126 of NATO ASI Series F, pp. 571-590, Springer Verlag, Berlin, 1994.
- [430] T. Lindeberg, "Scale-space theory: a basic tool for analyzing structures at different scales", Journal of Applied Statistics, vol. 21, no. 2, pp. 223-261, 1994. Special issue on Statistics and Images.
- [431] T. Lindeberg, "Direct estimation of affine deformations of brightness patterns using visual front-end operators with automatic scale selection", in Proc. 5th Intern. Conf. on Computer Vision (E. Grimson, ed.), (Cambridge, MA), pp. 134-141, IEEE Computer Society Press, June 1995.
- [432] T. Lindeberg, "A scale selection principle for estimating image deformations", Tech. Rep. ISRN KTH/NA/P-96/16-SE, KTH - NADA, May 1996. Shortened version in Proc. 5th Int. Conf. on Computer Vision, Boston, Massachusetts, pp 134-141, 1995.
- [433] T. Lindeberg and D. Fagerström, "Scale-space with causal time direction", Proc. 4<sup>th</sup> Europ. Conf. on Computer Vision, Cambridge, UK, (B. Buxton and R. Cipolla, Eds). April 14-18, vol. 1064 of Lecture Notes in Computer Science, pp. 229-240, Springer-Verlag, Berlin, 1996.
- [434] T. Lindeberg, "Linear spatio-temporal scale-space", Proc. First Intern. Conf. on Scale-Space Theory in Computer Vision, B.M. ter Haar Romeny ed., Utrecht, Netherlands, Springer-Verlag Lecture Notes in Computer Science, volume 1252, July 2-4, 1997.
- [435] T. Lindeberg, "On automatic selection of temporal scales in time-casual scale-space", in Proc. AFPAC'97: Algebraic Frames for the Perception-Action Cycle", G. Sommer and J. J. Koenderink, eds., vol. 1315 of Lecture Notes in Computer Science, Kiel, Germany, pp. 94--113, Springer Verlag, Berlin, Sept. 1997.
- [436] T. Lindeberg and J. Gårding, "Shape-adapted smoothing in estimation of 3-D depth cues from affine distortions of local 2-D brightness structure", Image and Vision Computing, vol. 15, pp. 415-434, 1997.
- [437] T. Lindeberg and Li, "Segmentation and classification of edges using minimum description length approximation and complementary junction cues", Computer Vision and Image Understanding, vol. 67, no. 1, pp. 88-98, 1997.
- [438] T. Lindeberg, "Feature detection with automatic scale selection", Intern. Journal of Computer Vision, vol. 30, no. 2, pp. 77-116, 1998.
- [439] T. Lindeberg, "Edge detection and ridge detection with automatic scale selection", Intern. Journal of Computer Vision, vol. 30, no. 2, pp. 117-154, 1998.
- [440] T. Lindeberg, "A scale selection principle for estimating image deformations", Image and Vision Computing, vol. 16, no. 14, pp. 961-977, 1998.
- [441] T. Lindeberg, Lidberg and Roland, "Analysis of brain activation patterns using a 3-D scale-space primal sketch", Human Brain Mapping, vol 7, no 3, pp 166--194, 1999.
- [442] M. Lindenbaum, M. Fischer, and A. Bruckstein, "On Gabor's contribution to image enhancement", Pattern Recognition Society, vol. 27, no. 1, pp. 1-8, 1994.
- [443] A. Liu, S. M. Pizer, D. Eberly, B. Morse, J. Rosenman, and V. Carrasco, "Volume registration using the 3D core", in Proc. SPIE Medical Imaging VIII, (Newport Beach, CA), February 1994.
- [444] J. Llacer, B. M. ter Haar Romeny, L. M. J. Florack, and M. A. Viergever, "The use of geometric prior information in bayesian tomographic image reconstruction: a preliminary report", in Proc. SPIE Conf. on Mathematical Methods in Medical Imaging, vol. 1768, San Diego, pp. 82-96, 23-24 July 1992.
- [445] J. Llacer, B. M. ter Haar Romeny, L. M. J. Florack, and M. A. Viergever, "The representation of medical images by visual response functions", IEEE Engineering in Medicine and Biology, vol. 3, no. 93, pp. 40-47, 1993.
- [446] N. K. Logothetis, H. Guggenberger, S. Peled, and J. Pauls, "Functional imaging of the monkey brain". Nature Neuroscience, volume 2, no 6, pp. 555-562, 1999.

- [447] M. Loog, J. J. Duistermaat, and L. M. J. Florack, "On the behavior of spatial critical points under Gaussian blurring. A folklore theorem and scale-space constraints," in M. Kerckhove, ed., *Scale-Space and Morphology in Computer Vision: Proceedings of the Third International Conference, Scale-Space 2001*, Vancouver, Canada, vol. 2106 of *Lecture Notes in Computer Science*. Berlin: Springer-Verlag, pp. 183-192, 2001.
- [448] H. Lotze, "Mikrokosmos". Leipzig: Hirzel, 1884.
- [449] A. M. López, F. Lumbreras, J. Serrat and J. J. Villanueva, "Evaluation of methods for ridge and valley detection", *IEEE Tr. on Pattern Analysis and Machine Intelligence (PAMI)*, vol. 21, pp. 327-335, 1999.
- [450] A. M. López, F. Lumbreras, J. Serrat and J. J. Villanueva, "New improvements in the multiscale analysis of trabecular bone patterns", *Frontiers in Artificial Intelligence and Applications*, Volumen: *Pattern Recognition and Applications*, IOS Press - Ohmsa, pags: 251-260, 2000.
- [451] A. M. López, F. Lumbreras, J. Serrat and J. J. Villanueva, "Multilocal creaseness based on the level set extrinsic curvature", *Computer Vision and Image Understanding (CVIU)*, vol. 77, pp. 111-144, 2000.
- [452] K.-C. Low and J. M. Coggins, "Multiscale vector fields for image pattern recognition", tech. rep., Univ. North Carolina, Dept. of Comp. Science, 1989.
- [453] D. G. Lowe, "Organization of smooth image curves at multiple scales", *Intern. Journal of Computer Vision*, vol. 3, pp. 119-130, 1989.
- [454] Y. Lu and R. C. Jain, "Behaviour of edges in scale-space", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 11, no. 4, pp. 337-357, 1989.
- [455] B. Lucas and T. Kanade, "An iterative image-registration technique with an application to stereo vision", *Proc. IJCAI*, pp. 674-679, Vancouver, Ca, 1981.
- [456] R. Maas, M. Nielsen, W. J. Niessen, B. M. ter Haar Romeny, and M. A. Viergever, "A scale-space approach to binocular stereo". In: *Abstracts of the ASCI Imaging Workshop 1995* (L. J. van Vliet and I. T. Young, eds.), (Venray, The Netherlands), p. 34, ASCI, 25-27 October 1995.
- [457] R. Maas, M. Nielsen, W. J. Niessen, B. M. ter Haar Romeny, L. M. J. Florack, and M. A. Viergever, "Local disparity measurements using scalable operators", in *Proc. DIKU PhD Summerschool on Gaussian Scale-Space Theory* (P. Johansen, ed.), no. 96/19 in *Tech. Rep.*, (Copenhagen, Denmark), pp. 80-87, DIKU, 10-13 May 1996. Also in *Proc. 5th Danish Conf. on Pattern Recognition and Image Analysis* (P. Johansen, ed.), no. 96/22 in *Tech. Rep.*, (Copenhagen, Denmark), pp. 99-106, 26-27 August 1996.
- [458] J. MacLean, S. Raab, L. A. Palmer, "Contribution of linear mechanisms to the specifications of local motion by simple cells in areas 17 and 18 of the cat", *Visual Neuroscience*, vol. 1, 271-294, 1994.
- [459] R. Mäder. Programming in *Mathematica*. Addison-Wesley Pub. Co. 3rd edition, 1996.
- [460] R. Mäder. *The Mathematica programmer II*. Academic Press, 1996.
- [461] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Extraction of invariant ridgelike features for CT and MR brain image matching", in *Proc. Int. Conf. on Volume Image Processing* (M. A. Viergever, ed.), (Utrecht), pp. 129-132, SCVR, 1993.
- [462] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Evaluation of ridge seeking operators for multimodality medical image matching", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 18, no. 4, pp. 353-365, 1996.
- [463] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Comparison of feature-based matching of CT and MR brain images", in *CVRMed* (N. Ayache, ed.), vol. 905 of *Lecture Notes in Computer Science*, (Berlin), pp. 219-228, Springer-verlag, 1995.
- [464] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Comparison of edge-based and ridge-based registration of CT and MR brain images", *Medical Image Analysis*, vol. 1, no. 2, pp. 151-161, 1996.
- [465] J. B. A. Maintz, F. J. Beekman, W. de Bruin, P. A. van den Elsen, P. P. van Rijk, and M. A. Viergever, "Automatic registration and intensity scaling of SPECT brain images", *Journal of nuclear medicine*, vol. 37, no. 5, supplement, p. 213P, 1996. abstract.
- [466] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Registration of SPECT and MR brain images using a fuzzy surface", in *Medical Imaging '96 - Image processing* (M. H. Loew and K. M. Hanson, eds.), vol. 2710, (Bellingham, WA, USA), pp. 821-829, SPIE, 1996.
- [467] J. B. A. Maintz, P. A. van den Elsen, and M. A. Viergever, "Registration of 3D medical images using simple morphological tools", in *IPMI '97* (J. Duncan and G. Gindi, eds.), vol. 1230 of *Lecture Notes in*

- Computer Science, pp. 204-217, 1997.
- [468] J. Malik and P. Perona, "A computational model of texture segmentation", in Proc. CVPR 1989, pp. 326-332, 1989.
- [469] J. Malik and P. Perona, "Preattentive texture discrimination with early vision mechanisms", Journal of the Optical Society of America, vol. 7, pp. 923-932, May 1990.
- [470] J. Malik and R. Rosenholtz, "A differential method for computing local shape-from-texture for planar and curved surfaces", in Proc. IEEE Comp. Soc. Conf. on Computer Vision and Pattern Recognition, pp. 267-273, 1993.
- [471] R. Malladi, J. Sethian, and B. Vemuri, "Shape modeling with front propagation: a level set approach", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 17, no. 2, pp. 158-174, 1995.
- [472] R. Malladi and J. A. Sethian, "Level sets and fast marching methods in image processing and computer vision", in Proc. third Intern. Conf. on Image Processing (P. Delogne, ed.), pp. 489-492, IEEE, 1996.
- [473] S. G. Mallat, "A theory for multiresolution signal decomposition: The wavelet representation", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 11, no. 7, pp. 674-694, 1989.
- [474] S. G. Mallat and S. Zhong, "Characterization of signals from multi-scale edges", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 14, pp. 710-723, 1992.
- [475] Z. Z. Mansour and D. C. Wilson, "Decomposition methods for convolution operators", Computer Vision, Graphics, and Image Processing, vol. 53, pp. 428-434, September 1991.
- [476] S. Marcelja, "Mathematical Description of the Responses of Simple Cortical Cells", J. Opt. Soc. Am., Vol. 70, 1980.
- [477] D. Marr, "Vision". W. H. Freeman and Co., 1982.
- [478] D. C. Marr and E. C. Hildreth, "Theory of edge detection", Proc. Roy. Soc. London rm B, vol. 207, pp. 187-217, 1980.
- [479] J. B. Martens, "Deblurring digital images by means of polynomial transforms", Computer Vision, Graphics, and Image and Stochastic Processing, vol. 50, pp. 157-176, 1990.
- [480] C. Mason and E. R. Kandel, "Central visual pathways", in Principles of Neural Science, pp. 420-434, Prentice-Hall Intern. Inc., 1991. Kandel, E. R. and Schwartz, J. H. and Jessell, T. M. (Eds.).
- [481] S. Massey and G.A. Jones, "Decomposition and Hierarchy: Efficient Structural Matching of Large Multi-scale Representations", Proceedings 2. International Conference on Scale-Space Theories in Computer Vision, Lecture Notes in Computer Vision, volume 1682, 1999.
- [482] J. C. Maxwell, "On hills and dales", The London, Edingburgh and Dublin Philosophical Magazine and J. of Science, vol. 40, no. 269, pp. 421-425, 1870. Reprinted in Niven, W. D The Scientific Papers of James Clark Maxwell, Vol II 1956, Dover Publications New York.
- [483] B. A. McGuire, C. D. Gilbert, P. K. Rivlin, T. N. Wiesel, "Targets of horizontal connections in macaque primary visual cortex. J. Comp. Neurol. vol. 305, pp. 370-392, 1991.
- [484] T. McInerney and D. Terzopoulos, "Deformable models in medical images analysis: a survey", Medical Image Analysis, vol. 2, pp. 91-108, 1996.
- [485] J. McLean and L. A. Palmer, "Contribution of linear spatiotemporal receptive field structure to velocity selectivity of simple cells in area 17 of cat.", Vision Research, vol. 29, pp. 675-679, 1989.
- [486] T. A. McMahon and J. T. Bonner, "On size and life", Scientific American Books, Inc., W. H. Freeman and Company, New York, 1983.
- [487] M. Michaelis, Low level image processing using steerable filters. PhD thesis, Technische Fakultät der Christian-Albrechts-Universität Kiel, Germany, Dec. 1995.
- [488] M. Michaelis, G. Sommer, "A Lie group approach to steerable filters". Pattern Recognition Letters, vol. 16, no.11, pp. 1165-1174, 1995.
- [489] J. Milnor, "Morse theory", vol. 51 of Annals of Mathematics Studies. Princeton University Press, 1963.
- [490] A. M. Misha and M. Carver, "The silicon retina", Scientific American, pp. 40-45, May 1991.
- [491] C. W. Misner, K. S. Thorne, and J. A. Wheeler, Gravitation. San Francisco: Freeman, 1973.

- [492] F. Mokhtarian and A. Mackworth, "Scale-based description of planar curves and two-dimensional shapes", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 8, pp. 34-43, 1986.
- [493] F. Mokhtarian, "Multi-scale description of space curves and three-dimensional objects", in *Proc. IEEE CVPR*, (Ann Arbor, Michigan), 1988.
- [494] F. Mokhtarian, "The renormalized curvature scale-space and the evolutions properties of planar curves", in *Proc. IEEE CVPR*, (Ann Arbor, Michigan), pp. 318 - 326, 1988.
- [495] F. Mokhtarian, "Evolution properties of space curves", in *Proc. IEEE CVPR*, (Tarpon Springs, Florida), pp. 100-105, 1988.
- [496] F. Mokhtarian, "Fingerprint theorems for curvature and torsion zero-crossing", in *Proc. IEEE CVPR*, (San Diego, California), pp. 269-275, 1989.
- [497] F. Mokhtarian and A. Mackworth, "A theory of multi-scale, curvature-based shape representation for planar curves", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 14, pp. 789-805, 1992.
- [498] F. Mokhtarian, "Multi-scale torsion-based shape representations for space curves", in *Proc. IEEE CVPR*, (New York City, NY), 1993.
- [499] O. Monga, N. Ayache, and P. T. Sander, "From voxel to intrinsic surface features", *Image and Vision Computing*, vol. 10, pp. 403-417, July/August 1992.
- [500] O. Monga and S. Benayoun, "Using partial derivatives of 3D images to extract typical surface features", *Computer Vision and Image Understanding*, vol. 61, no. 2, pp. 171-189, 1995.
- [501] J. M. Morel and S. Solimini, "Segmentation of images by variational methods: A constructive approach", *Rev. Matematica de la Universidad Complutense*, vol. 1, no. 3, pp. 169-182, 1988.
- [502] J. M. Morel and S. Solimini, *Variational Methods in Image Segmentation*. No. 14 in *Progress in Non-linear Differential Equations and their Applications*, Basel, Switzerland: Birkhäuser Verlag, 1995. ISBN 3-7643-3720-6.
- [503] Morrison, "Powers of ten: about the relative size of things in the universe". W. H. Freeman and Company, 1985. See also
- [504] B. S. Morse, S. M. Pizer, and A. Liu, "Multiscale medial analysis of medical images", in *Information Processing in Medical Imaging (IPMI 14)* (H. Barrett and A. Gmitro, eds.), (Berlin), Springer-Verlag, 1993.
- [505] B. S. Morse, S. M. Pizer, D. T. Puff, and C. Gu, "Zoom-invariant vision of figural shape: Effects on cores of image disturbances", *Tech. Rep. TR96-005*, University of North Carolina, Dept. of Computer Science, 1996.
- [506] D. Mumford and J. Shah, "Boundary detection by minimizing functionals", in *Proc. IEEE Conf. on Computer Vision and Pattern Recognition*, (San Francisco), 1985.
- [507] D. Mumford and J. Shah, "Optimal approximations by piecewise smooth functions and associated variational problems", *Communications on Pure and Applied Mathematics*, vol. XLII, pp. 577-685, July 1989.
- [508] D. Mumford, "On the computational architecture of the neocortex. I. the role of the thalamo-cortical loop", *Biological Cybernetics*, vol. 65, pp. 135-145, 1991.
- [509] D. Mumford, "On the computational architecture of the neocortex: II. The role of cortico-cortical loops.", *Biological Cybernetics*, vol. 66, pp. 241-251, 1992.
- [510] D. Mumford, "Bayesian rationale for the variational formulation", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), *Computational Imaging and Vision*, pp. 135-146, Kluwer Academic Publishers B.V., 1994.
- [511] J. L. Mundy and A. Zisserman, eds., *Geometric Invariance in Computer Vision*. Cambridge, Massachusetts: MIT Press, 1992.
- [512] H. Neumann, H. Ottenberg, and H. S. Stiehl, "Accuracy of regularized differential operators for discontinuity localization in 1-D and 2-D intensity functions", *Tech. Rep. FBI-HH-M-186/90*, Universität at Hamburg, Fachbereich Informatik, 1990.
- [513] H. Neumann and H. S. Stiehl, "A competitive/cooperative (artificial neural) network approach to the extraction of n-th order junctions", in *Proceedings of the 11th DAGM-Symposium*, Hamburg (H. Burkhardt, K.-H. Hoehne, and B. Neumann, eds.), (Berlin), Springer-Verlag, 1989.
- [514] M. Nielsen, "Isotropic regularization", in *Proc. British Machine Vision Conf.*, pp. 135-144, 1993.
- [515] M. Nielsen, "From paradigm to algorithms in computer vision". PhD thesis, Datalogisk Institut

- Kopenhagen University, Denmark, Dept. of Computer Science, Universitetsparken 1, DK-2100 Kopenhagen 0, Denmark, 1995. ISSN 0107-8283.
- [516] M. Nielsen and R. Deriche, "Binocular dense depth reconstruction using isotropy constraint", in Proc. 9th Scand. Conf. on Image Analysis, (Uppsala, Sweden), pp. 49-56, 1995.
- [517] M. Nielsen, L. M. J. Florack, and R. Deriche, "Regularization, scale-space, and edge detection filters", in Proc. Fourth European Conf. on Computer Vision, (Cambridge, UK), April 14-18 1996.
- [518] M. Nielsen, R. Maas, W. Niessen, L. Florack, and B. M. ter Haar Romeny, "Local disparity structure by scale-space operators", Tech. Rep. 96-17, DIKU Computer Science Department, Copenhagen University, 1996.
- [519] M. Nielsen, "Scale-Space Generators and Functionals". In J. Sporring, M. Nielsen, L. Florack, and P. Johansen (eds.) Gaussian Scale-Space Theory, pp. 99-114, Kluwer Academic Publishers, 1997.
- [520] M. Nielsen, L. M. J. Florack, and R. Deriche, "Regularization, scale space, and edge detection filters", *J. Mathematical Imaging and Vision*, vol. 7, pp. 291-307, October 1997.
- [521] M. Nielsen and O. F. Olsen, "The structure of the optic flow field", Proc. ECCV, Lecture Notes in Computer Science, vol. 1407, pp. 271-287, 1994.
- [522] M. Nielsen, P. Johansen, O. F. Olsen, J. Weickert (Eds.), "Scale-space theories in computer vision", Lecture Notes in Computer Science, Vol. 1682, Springer, Berlin, 1999. ISBN 3-540-66498-X.
- [523] M. Nielsen, M. Lillholm, "What do features tell about images?", In "Scale-space theories in computer vision", Lecture Notes in Computer Science, Vol. 2106, pp. 39-50, Springer, Berlin, 2001.
- [524] W. J. Niessen, B. M. ter Haar Romeny, and M. A. Viergever, "Numerical analysis of geometry-driven diffusion equations", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), vol. 1 of Computational Imaging and Vision, pp. 393-410, Dordrecht: Kluwer Academic Publishers, 1994.
- [525] W. J. Niessen, B. M. ter Haar Romeny, L. M. J. Florack, A. H. Salden, and M. A. Viergever, "Nonlinear diffusion of scalar images using well-posed differential operators", in *Proc. of Computer Vision and Pattern Recognition*, (Seattle, WA), pp. 92-97, IEEE Computer Society Press, 1994.
- [526] W. J. Niessen, J. S. Duncan, L. M. J. Florack, B. M. ter Haar Romeny, and M. A. Viergever, "Spatiotemporal operators and optic flow", in *Physics-Based Modeling in Computer Vision* (S. T. Huang and D. N. Metaxas, eds.), pp. 78-84, IEEE Computer Society Press, 1995.
- [527] W. J. Niessen, J. S. Duncan, B. M. ter Haar Romeny, and M. A. Viergever, "Spatiotemporal analysis of left ventricular motion", in *Medical Imaging 95: Image Processing* (M. H. Loew, ed.), pp. 250-261, SPIE Press, Bellingham, 1995.
- [528] W. J. Niessen, J. S. Duncan, and M. A. Viergever, "A scale-space approach to motion analysis", in *Computing Science in the Netherlands 95* (J. C. Van Vliet, ed.), pp. 170-181, Stichting Mathematisch Centrum, Amsterdam, 1995.
- [529] W. J. Niessen, B. M. ter Haar Romeny, L. M. J. Florack, and M. A. Viergever, "A general framework for geometry-driven evolution equations", *Intern. Journal of Computer Vision*, vol. 21, no. 3, pp. 187-205, 1997.
- [530] W. J. Niessen, K. L. Vincken, and M. A. Viergever, "Comparison of multiscale representations for a linking-based image segmentation model", in *Proc. IEEE Workshop on Mathematical Methods in Biomedical Image Analysis*, (San Francisco), pp. 263-272, 1996.
- [531] W. J. Niessen, M. Nielsen, L. M. J. Florack, R. Maas, B. M. ter Haar Romeny, and M. A. Viergever, "Multiscale optic flow using physical constraints", in *Proc. DIKU PhD Summerschool on Gaussian Scale-Space Theory*, no. 96/19 in DIKU Tech. Rep., (Copenhagen, Denmark), 1996.
- [532] W. J. Niessen, J. S. Duncan, M. Nielsen, L. M. J. Florack, B. M. ter Haar Romeny, and M. A. Viergever, "A multi-scale approach to image sequence analysis", *Computer Vision and Image Understanding*, vol. 65, no. 2, pp. 259-268, 1997.
- [533] W. J. Niessen and R. Maas, "Multiscale optic flow and stereo", in *Gaussian Scale-Space Theory* (J. Sporring, M. Nielsen, L. Florack, and P. Johansen, eds.), *Computational Imaging and Vision*, pp. 31-42, Dordrecht: Kluwer Academic Publishers, 1997.
- [534] W. J. Niessen, B. M. ter Haar Romeny, L. M. J. Florack, and M. A. Viergever, "A general framework for geometry-driven evolution equations", *Intern. Journal of Computer Vision*, vol. 21, no. 3, pp. 187-205, 1997.
- [535] W. J. Niessen, A. M. Lopez, W. J. Van Enk, P. M. Van Roermund, B. M. ter Haar Romeny, and M.

- A. Viergever, "In vivo analysis of trabecular bone architecture", in Proc. Information Processing in Medical Imaging 1997 (J. S. Duncan and G. Gindi, eds.), vol. 1230 of Lecture Notes in Computer Science, pp. 435-440, 1997.
- [536] W.J. Niessen, K.L. Vincken, J. Weickert, M.A. Viergever, "Nonlinear multiscale representations for image segmentation", *Computer Vision and Image Understanding*, Vol. 66, 233-245, 1997.
- [537] W. J. Niessen, K. L. Vincken, J. Weickert, and M. A. Viergever, "Three-dimensional MR brain segmentation", in Proc. Sixth Int. Conf. on Computer Vision (ICCV '98, Bombay, Jan. 4-7, 1998), 53-58, 1998.
- [538] W.J. Niessen, K.L. Vincken, J. Weickert, B.M. ter Haar Romeny, M.A. Viergever, "Multiscale segmentation of three-dimensional MR brain images", *Intern. Journal of Computer Vision*, Vol. 31, 185-202, 1999.
- [539] M. Nitzberg and T. Shiota, "Nonlinear image filtering with edge and corner enhancement", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 14, no. 8, pp. 826-833, 1992.
- [540] N. Nordström, "Biased anisotropic diffusion -- a unified regularization and diffusion approach to edge detection", *Image and Vision Computing*, vol. 8, no. 11, pp. 318-327, 1990. Also in: Proc. 1st European Conf. on Computer Vision, LNCS-Series Vol. 427, Springer-Verlag, pages 18-27.
- [541] I. Ohzawa, G. C. DeAngelis, and R. D. Freeman, "Stereoscopic depth discrimination in the visual cortex: Neurons ideally suited as disparity detectors", *Science*, vol. 249, pp. 1037-1041, August 1990.
- [542] I. Ohzawa, G. C. DeAngelis, and R. D. Freeman, "Encoding of binocular disparity by simple cells in the cat's visual cortex", *Journal of Neurophysiology*, vol. 75, no. 5, pp. 1779-1805, 1996.
- [543] M. Okutomi and T. Kanade, "A locally adaptive window for signal matching", *Intern. Journal of Computer Vision*, vol. 7, no. 2, pp. 143-162, 1992.
- [544] O. F. Olsen and M. Nielsen, "Multi-scale gradient magnitude watershed segmentation". *Lecture Notes in Computer Science*, vol. 1310, pp 6-13, 1997.
- [545] O. F. Olsen, "Generic image structure", PhD Thesis, University of Copenhagen, Dept. of Computer Science, Techn. Rep. DIKU-00-04, June 2000.
- [546] B. A. Olshausen and D. J. Field, "Emergence of simple-cell receptive field properties by learning a sparse code for natural images". *Nature*, 381: 607-609, 1996.
- [547] B. A. Olshausen and D. J. Field, "Sparse coding with an overcomplete basis set: A strategy employed by V1?", *Vision Research*, 37: 3311-3325, 1997.
- [548] J. Olver, "Applications of Lie Groups to Differential Equations", vol. 107 of Graduate Texts in Mathematics. Springer-Verlag, 1993.
- [549] J. Olver, G. Sapiro, and A. Tannenbaum, "Differential invariant signatures and flows in computer vision: A symmetry group approach", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), Computational Imaging and Vision, pp. 255-306, Dordrecht: Kluwer Academic Publishers, 1994.
- [550] J. Olver, *Equivalence, Invariants, and Symmetry*. Cambridge University Press, 1995.
- [551] A. H. J. Oomes and P. R. Snoeren, "Structural information in scale space", in *Proceedings DIKU PhD Summerschool on Classical Scale-Space Theory*, (Copenhagen, Denmark), 1996.
- [552] S. Osher and J. Sethian, "Fronts propagating with curvature dependent speed: algorithms based on the Hamilton-Jacobi formalism", *Journal of Computational Physics*, vol. 79, pp. 12-49, 1988.
- [553] G. Østerberg, "Topography of the layer of rods and cones in the human retina", *Acta Ophthalmologica*, vol. 6, pp. 1-103, 1935.
- [554] N. Otsu, *Mathematical Studies on Feature Extraction in Pattern Recognition*. PhD thesis, Researches of the Electrotechnical Laboratory, Ibaraki, Japan, 1981.
- [555] N. Otte and H.-H. Nagel, "Optical flow estimation: Advances and comparisons", in: Proc. European Conf. on Computer Vision (Stockholm), *Lecture Notes in Computer Science*, vol. 800, pp. 51-60, Springer Berlin, 1994.
- [556] J. Pacacios, *Dimensional Analysis*. London: MacMillan and Co. Ltd, 1964.
- [557] R. Pankhurst, "Dimensional Analysis and Scale Factors". Chapman and Hall Ltd, London, 1964.
- [558] A. C. Papanicolaou, "Fundamentals of Functional Brain Imaging", Swets & Zeitlinger, 2000.
- [559] E. J. Pauwels, M. Proesmans, L. J. Van Gool, T. Moons, and A. Oosterlinck, "Image enhancement

- using coupled anisotropic diffusion equations", in Proc. on the 11th European Conf. on Circuit Theory and Design, vol. 2, pp. 1459-1464, 1993.
- [560] E. J. Pauwels, P. Fiddelaers, T. Moons, and L. J. van Gool, "An extended class of scale-invariant and recursive scale-space filters", IEEE Tr. on Pattern Anal. and Machine Perception, vol. 17, no. 1, pp. 691-701, 1995.
- [561] S. Pedersen and M. Nielsen, "The Hausdorff dimension and scale-space normalisation of natural images, J. of Visual Communication and Image Representation, vol. 11, no. 2, pp. 266-277, 2000.
- [562] P. Perona and J. Malik, "Scale-space and edge detection using anisotropic diffusion", in IEEE Computer Society Workshop on Computer Vision, (Miami, FL), pp. 16-22, 1987.
- [563] P. Perona and J. Malik, "Scale-space and edge detection using anisotropic diffusion", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 12, pp. 629-639, July 1990.
- [564] P. Perona, "Deformable kernels for early vision", in IEEE CVPR, pp. 222-227, June 1994.
- [565] P. Perona, "Steerable-scalable kernels for edge detection and junction analysis", in Proc. 2nd European Conf. on Computer Vision, (Santa Margherita Ligure, Italy), pp. 3-18, May 1992.
- [566] Perona, T. Shiota, and J. Malik, "Anisotropic diffusion", in Geometry-Driven Diffusion in Computer Vision (B. M. ter Haar Romeny, ed.), Computational Imaging and Vision, pp. 73-92, Kluwer Academic Publishers B.V., 1994.
- [567] P. Perona, "Deformable kernels for early vision." IEEE Pattern Anal. and Machine Perc., vol. 17, no. 5, pp. 488-499, 1995.
- [568] E. Peterhans and R. von der Heydt, "Subjective contours - bridging the gap between psychophysics and physiology", Trends in Neurosciences, vol. 14, no. 3, pp. 112-119, 1991.
- [569] E. Peterhans and R. von der Heydt, Representation of vision. Trends and tacit assumptions, ch. Elements of form perception in monkey prestriate cortex, pp. 111-124. Cambridge: Cambridge University Press, 1991. A. Gorea, Y. Fregnac, Z. Kapoula and J. Findlay, Eds.
- [570] M. Petrou and P. Bosdogianni, "Image processing; the fundamentals", John Wiley & Sons, Chichester, 1999.
- [571] C. A. Pickover, "Strange Brains and Genius: The Secret Lives of Eccentric Scientists and Madmen", Plenum Publishing, 1998. ISBN 0-306-45784-9.
- [572] M. A. Piech, "Decomposing the Laplacian", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 12, no. 8, pp. 830-831, 1990.
- [573] S. M. Pizer, J. J. Koenderink, L. M. Lifshitz, L. Helmink, and A. D. J. Kaasjager, "An image description for object definition, based on extremal regions in the stack", Information Processing in Medical Imaging, Proceedings of the 8th conference, pp. 24-37, 1985.
- [574] S. M. Pizer, E. P. Amburn, J. D. Austin, R. Cromartie, A. Geselowitz, T. Greer, B. M. ter Haar Romeny, J. B. Zimmerman and K. J. Zuiderveld: "Adaptive Histogram Equalization and its variations", Computer Vision, Graphics and Image Processing, vol. 39, pp. 355-368, 1987.
- [575] S. M. Pizer, J. M. Gauch, L. M. Lifshitz, and W. R. Oliver, "Image description via annihilation of essential structures", Tech. Rep. TR88-001, University of North Carolina at Chapel Hill, 1988.
- [576] S. M. Pizer, J. M. Gauch, J. M. Coggins, R. E. Fredericksen, T. J. Cullip, and V. L. Interrante, "Multiscale, geometric image descriptions for interactive object definition", in Mustererkennung 1989 (Proc. 11th Symposium of DAGM), Informatik-Fachberichte 219, pp. 229-239, DAGM [The German Association for Pattern Recognition], Springer-Verlag, 1989.
- [577] S. M. Pizer, J. M. Gauch, T. J. Cullip, and R. E. Fredericksen, "Descriptions of intensity structure via scale and symmetry", in Proceedings First Conf. on Visualization in Biomedical Computing, pp. 94-101, 1990.
- [578] S. M. Pizer and B. M. ter Haar Romeny, "Fundamental properties of medical image perception", Journal of Digital Imaging, vol. 4, pp. 1-20, Febr. 1990.
- [579] S. M. Pizer, C. A. Burbeck, J. M. Coggins, D. S. Fritsch, and B. S. Morse, "Object shape before boundary shape: Scale-space medial axes", Journal of Mathematical Imaging and Vision, vol. 4, no. 3, pp. 303-313, 1994.
- [580] T. Poggio, H. Voorhees, and A. Yuille, "A regularized solution to edge detection", AI memo 833, MIT, May 1985.

- [581] T. Poggio, V. Torre, and C. Koch, "Computational vision and regularization theory", *Nature*, vol. 317, pp. 314-319, 1985.
- [582] G. F. Poggio, F. Gonzalez, and F. Krause, "Stereoscopic mechanisms in monkey visual cortex: Binocular correlation and disparity sensitivity", *J. Neurosci.*, vol. 8, no. 12, pp. 4531-4550, 1988.
- [583] D. A. Pollen and S. F. Ronner, "Phase Relationships Between Adjacent Simple Cells in the Visual Cortex", *Science* Vol. 212, 1981.
- [584] D. A. Pollen and S. F. Ronner, "Spatial computation performed by simple and complex cells in the visual cortex of the cat", *Vision Research*, vol. 22, pp. 101-118, 1982.
- [585] E. Pöppel, "Time Perception", In: *Handbook of Sensory Physiology*, R. Held, H.W. Leibowitz, H.-L. Teuber, eds., pp. 713-729, Springer, Heidelberg (1978).
- [586] T. Poston and I. Steward, "Catastrophe theory and its applications". London: Pitman, 1978.
- [587] F. Preteux, "Watershed and skeleton by influence zones: A distance-based approach", *Journal of Mathematical Imaging and Vision*, vol. 1, pp. 239-256, September 1992.
- [588] K. H. Pribram, "Brain and perception: Holonomy and structure in figural processing". Lawrence Erlbaum Associates, 1991.
- [589] M. Proesmans, E. Pauwels, and L. Van Gool, "Coupled geometry-driven diffusion equations for low level vision", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), pp. 191-228, Kluwer Academic Publishers B.V., 1994.
- [590] M. H. Protter and H. F. Weinberger, "Maximum principles in differential equations". New York: Prentice-Hall, 1984.
- [591] D. Puff, D. Eberly, and S. Pizer, "Object-based interpolation via the multiscale medial axis", in *Proc. SPIE Medical Imaging VIII*, February 1994.
- [592] E. Radmoser, O. Scherzer, J. Weickert, "Scale-space properties of regularization methods", M. Nielsen, P. Johansen, O.F. Olsen, J. Weickert (Eds.), *Scale-space theories in computer vision*, Lecture Notes in Computer Science, Vol. 1682, Springer, Berlin, 211-222, 1999.
- [593] E. Radmoser, O. Scherzer, J. Weickert, "Scale-space properties of nonstationary iterative regularization methods", *Journal of Visual Communication and Image Representation* (Special Issue on Scale-Space Theories in Computer Vision, invited paper), 2000.
- [594] S. V. Raman, S. Sarkar, and K. L. Boyer, "Tissue boundary refinement in magnetic resonance images using contour-based scale-space matching", *IEEE Tr. on Medical Imaging*, vol. 10, pp. 109-121, June 1991.
- [595] K. Rangarajan, M. Shah, and D. Van Brackle, "Optimal corner detector", in *Proc. IEEE ICCV*, (Tampa, FL), pp. 90-94, 1988.
- [596] A. R. Rao and B. G. Schunk, "Computing oriented texture fields", *Computer Vision, Graphical Models and Image Processing*, vol. 53, pp. 157-185, 1991.
- [597] R. P. N. Rao, B. A. Olshausen, and Michael S. Lewicki (Eds.), "Probabilistic models of the brain: perception and neural function", MIT Press, 2001.
- [598] Lord Rayleigh, "The principle of similitude", *Nature*, vol. XCV, pp. 66-68, 644, March 1915.
- [599] W. E. Reichardt, "Autocorrelation, a principle for the evaluation of sensory information by the central nervous system". W. A. Rosenblith (ed.). MIT Press, Cambridge Mass., 1961.
- [600] W. E. Reichardt, "Movement perception in insects", In W. E. Reichardt (ed.), *Processing of optical data by organisms and by machines*. New York, Academic Press, 1961.
- [601] W. E. Reichardt and M. Egelhaaf, "Properties of individual movement detectors as derived from behavioural experiments on the visual system of the fly", *Biological Cybernetics*, vol. 58, pp. 287-294, 1988.
- [602] Z. Réti, "Deblurring images blurred by the discrete Gaussian", *AML*, vol. 8, no. 4, pp. 29-35, 1995.
- [603] W. Richards, ed., *Natural computation*. Cambridge, Ma.: MIT Press, 1988.
- [604] J. H. Rieger, "Generic evolutions of edges on families of diffused greyvalue surfaces", *Journal of Mathematical Imaging and Vision*, vol. 5, pp. 207-217, September 1995.
- [605] D. L. Ringach, G. Sapiro and R. Shapley, "A subspace reverse correlation technique for the study of visual neurons", *Vision Research*, Vol 37, No 17, pp. 2455-2464, 1997.
- [606] J. Rissanen, "Modeling by the shortest data description," *Automatica*, vol. 14, pp. 465-471, 1978.

- [607] G. X. Ritter and J. N. Wilson, "Handbook of computer vision algorithms in image algebra", CRC Press, Boca Raton, 2001.
- [608] R. W. Rodieck, "The first steps in seeing". Sinauer Associates, Inc., Sunderland MA, 1998.
- [609] A. Rosenfeld and M. Thurston, "Edge and curve detection for visual scene analysis", IEEE Trans. on Computers, vol. C-20, pp. 562-569, May 1971.
- [610] A. Rosenfeld, "Multiresolution Image Processing and Analysis", vol. 12 of Springer Series in Information Sciences. Springer-Verlag, 1984.
- [611] P. L. Rosin, A. C. F. Colchester, and D. J. Hawkes, "Early image representation using regions defined by maximum gradient profiles between singular points", Pattern Recognition, vol. 25, no. 7, pp. 695-711, 1992.
- [612] L. Rosin, "Representing curves at their natural scales", Pattern Recognition, vol. 25, no. 11, pp. 1315-1325, 1992.
- [613] J. Rubner and K. Schulten, "Development of feature detectors by self-organization", Biological Cybernetics, vol. 62, pp. 193-199, 1990.
- [614] L. I. Rudin, S. Osher, and E. Fatemi, "Nonlinear total variation based noise removal algorithms", Physica D, vol. 60, pp. 259-268, 1992.
- [615] H. Ruskeepää, "*Mathematica* Navigator: Graphics and methods of applied Mathematics". Academic Press, London, 1999. ISBN 0126036403.
- [616] J. C. Russ, The Image Processing Handbook. Boca Raton: CRC Press, 1994. Second Edition.
- [617] P. Saint-Marc, J. S. Chen, and G. Medioni, "Adaptive smoothing: A general tool for early vision", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 13, no. 6, pp. 514-529, 1991.
- [618] A. H. Salden, B. M. ter Haar Romeny, L. M. J. Florack, J. J. Koenderink, and M. A. Viergever, "A complete and irreducible set of local orthogonally invariant features of 2-dimensional images", in Proceedings 11th IAPR Internat. Conf. on Pattern Recognition (I. T. Young, ed.), (The Hague, the Netherlands), pp. 180-184, IEEE Computer Society Press, Los Alamitos, August 30-September 3 1992.
- [619] A. H. Salden, L. M. J. Florack, B. M. ter Haar Romeny, J. J. Koenderink, and M. A. Viergever, "Multi-scale analysis and description of image structure", Nieuw Archief voor Wiskunde, vol. 10, no. 3, pp. 309-326, 1992.
- [620] A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Image structure generating normalised geometric scale spaces", in Volume Image Processing '93 (M. A. Viergever, ed.), (Utrecht, the Netherlands), pp. 141-143, 1993.
- [621] A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Dynamic scale-space theories", in Proc. Conf. on Differential Geometry and Computer Vision: From Pure over Applicable to Applied Differential Geometry, (Nordfjordeid, Norway), August 1-7 1995.
- [622] A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Classical scale space theory from physical principles", Journal of Mathematical Imaging and Vision, 1998.
- [623] A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Linear scale space theory from physical properties", J. of Mathematical Imaging and Vision, vol. 9. no.2, pp. 103-140, 1998.
- [624] A. H. Salden, B. M. ter Haar Romeny, and M. A. Viergever, "Algebraic invariants of linear scale spaces." Journal of Mathematical Imaging and Vision, March 1999.
- [625] P. Sander and S. W. Zucker: "Singularities of principal direction fields from 3D images", IEEE tr. on Pattern Analysis and Machine Intelligence, vol. 14, no. 3., pp. 309-317, 1992.
- [626] W. Sanns, "Catastrophe theory with *Mathematica*, a geometric approach", Der Andere Verlag, Osnabrück, Germany. ISBN 3-934366-76-7.
- [627] G. Sapiro and A. Tannenbaum, "Affine invariant scale-space", Intern. Journal of Computer Vision, vol. 11, pp. 25-44, 1993.
- [628] G. Sapiro and A. Tannenbaum, "On invariant curve evolution and image analysis", Indiana Journal of Mathematics, vol. 42, no. 3, pp. 985-1009, 1993.
- [629] G. Sapiro and A. Tannenbaum, "Area and length preserving geometric invariant scale-spaces", Tech. Rep. LIDS-2200, MIT, 1993. Accepted for publication in IEEE-PAMI. Also in Proc. ECCV '94, Stockholm, May 1994.

- [630] G. Sapiro, "From active contours to anisotropic diffusion: connections between basic pde's in image processing", in Proc. third Intern. Conf. on Image Processing (P. Delogne, ed.), pp. 477-480, IEEE, 1996.
- [631] W. Scanns, "Catastrophe theory with *Mathematica*, a geometric approach". Der Andere Verlag, ISBN 3934366767, 2000.
- [632] H. Scharr, J. Weickert, "An anisotropic diffusion algorithm with optimized rotation invariance", G. Sommer, N Krüger, C. Perwass (Eds.), Mustererkennung 2000, Springer, Berlin, 460-467, 2000.
- [633] O. Scherzer and J. Weickert, "Relations between regularization and diffusion filtering", J. of Math. Imaging and Vision, vol. 12, no. 1, pp. 43-63, 2000. Revised version of Technical Report DIKU-98/23, Dept. of Computer Science, University of Copenhagen, Denmark, 1998.
- [634] C. Schmidt and R. Mohr, "Combining greyvalue invariants with local constraints for object recognition", in Proc. Intern. Conf. on Computer Vision and Pattern Recognition CVPR, (San Francisco), IAPR, June 16-20 1996.
- [635] C. Schmidt and R. Mohr, "Object recognition using local characterization and semi-local constraints", tech. rep., INRIA, 1996.
- [636] C. Schnörr, J. Weickert, "Variational image motion computation: theoretical framework, problems and perspectives", G. Sommer, N Krüger, C. Perwass (Eds.), Mustererkennung 2000, Springer, Berlin, 476-487, 2000. Invited paper.
- [637] I. J. Schönberg, "On smoothing operations and their generating functions", Bull. Amer. Math. Soc., vol. 59, pp. 199-230, 1953.
- [638] B. G. Schunck, "The motion constraint equation for optical flow", in Proceedings of the 7<sup>th</sup> Intern. Conf. on Pattern Recognition, pp. 22-24, 1984.
- [639] L. Schwartz, "Theorie des distributions", vol. I, II of Actualites scientifiques et industrielles; Vol. 1091 and 1122. Paris: Publications de l'Institut de Mathématique de l'Université de Strasbourg, 1950-1951. See also: Hermann, Paris, 1951, 2nd edition 1966.
- [640] E. L. Schwartz, "Topographical mapping in primate visual cortex: history, anatomy, and computation". In D.H. Kelly, editor, Visual Science and Engineering: models and applications, chapter 8, pages 293-360. Marcell Dekker, Inc, New York, 1994.
- [641] A. Seckel, "The art of optical illusions", Carlton Books Ltd., 2000.
- [642] J. Serra, Image Analysis and Mathematical Morphology. London, New York, Paris, San Diego, San Francisco, Sao Paulo, Sydney, Tokyo and Toronto: Academic Press, 1982.
- [643] J. A. Sethian, An Analysis of Flame Propagation. Ph.D. thesis, Dept. of Mathematics, University of California, Berkeley, CA, 1982.
- [644] J. A. Sethian, "Curvature and the evolution of fronts", Communications Mathematical Physics, vol. 101, pp. 487-499, 1985.
- [645] J. A. Sethian, "A review of recent numerical algorithms for hypersurfaces moving with curvature dependent speed", J. Differential Geometry, vol. 31, pp. 131-161, 1989.
- [646] Sethian, J.A., Fast Marching Methods and Level Set Methods: Evolving Interfaces in Computational Geometry, Fluid Mechanics, Computer Vision and Materials Sciences, Cambridge University Press, 1999.
- [647] J. Shah, "Segmentation by nonlinear diffusion", Proc. Conf. on Computer Vision and Pattern Recognition, pp. 202-207, June 1991.
- [648] J. Shah, "Segmentation by minimizing functionals: Smoothing properties", SIAM J. Control and Optimization, vol. 30, pp. 99-111, January 1992.
- [649] S. M. Sherman and C. Kock, "The control or retinogeniculate transmission in the mammalian lateral geniculate nucleus", Experimental Brain Research, vol. 63, pp. 1-20, 1986.
- [650] S. M. Sherman and C. Kock, "Thalamus", in The Synaptic Organization of the Brain (G. M. Shepherd, ed.), pp. 246-278, New York: Oxford University Press, 1990. Third Edition.
- [651] S. M. Sherman, "Dynamic gating of retinal transmission to the visual cortex by the lateral geniculate nucleus", in Thalamic Networks for Relay and Modulation (D. Minciacchi, M. Molinari, G. Macchi, and E. G. Jones, eds.), pp. 61-79, Oxford: Pergamon Press, 1993.
- [652] S. M. Sherman, "Dual response modes in lateral geniculate neurons: Mechanisms and functions", Visual Neuroscience, vol. 13, no. 2, pp. 205-213, 1990.

- [653] D. A. Sholl, "Dendritic organization in the neurons of the visual cortices of the cat". *Journal of Anatomy*, 87: 387-406, 1953.
- [654] A. Shokoufandeh, S. Dickinson, C. Jonsson, L. Bretzner, and T. Lindeberg, "On the representation and matching of qualitative shape at multiple scales", *Proceedings European Conference on Computer Vision*, Copenhagen, May, pp. 759-775, 2002.
- [655] D. Shy and P. Perona, "X-y separable pyramid steerable scalable kernels", in *Proc. IEEE Computer Soc. Conf. on Computer Vision and Pattern Recognition, CVPR'94*, pp. 237-244, IEEE, 1994.
- [656] K. Siddiqi, A. Shokoufandeh, S. Dickinson, and S. W. Zucker, "Shock graphs and shape matching", *Int. J. of Computer Vision*, 35(1): 13-32, 1999.
- [657] J. G. Simmonds, *A Brief on Tensor Analysis. Undergraduate Texts in Mathematics*, Springer-Verlag, 1995. Second Edition.
- [658] E. P. Simoncelli, W. T. Freeman, E. H. Adelson, and D. Heeger, "Shiftable multi-scale transforms", *IEEEIT*, vol. 38, pp. 587-607, March 1992.
- [659] E. P. Simoncelli and W. Freeman, "The steerable pyramid: a flexible architecture for multi-scale derivative computation", in *Proc. of the 2nd Annual IEEE Int. Conf. on Image Processing*, IEEE, oct 1995.
- [660] E. P. Simoncelli and H. Farid, "Steerable wedge filters for local orientation analysis", *IEEE Tr. on Image Processing*, vol. 5, no. 9, pp. 1377, 1996.
- [661] E. P. Simoncelli, "A rotation invariant pattern signature", in *Proc. of the 3rd IEEE Int. Conf. on Image Processing*, pp. 185-188, 1996.
- [662] E. P. Simoncelli, "A rotation invariant pattern signature", in *Proc. of the 3rd IEEE Int. Conf. on Image Processing*, pp. 185-188, 1996.
- [663] W. Snyder, Y.-S. Han, G. Bilbro, R. Whitaker, and S. Pizer, "Image relaxation: Restoration and feature extraction", *IEEE Tr. PAMI*, vol. 17, no. 6, pp. 620-624, 1995.
- [664] G. Sperling and Z. L. Lu, "A systems analysis of visual motion perception". In: *High-level motion processing*. Takeo Watanabe (Ed). Cambridge MA: MIT Press, pp.153-183, 1998.
- [665] L. Spillmann and J. S. Werner, *Visual Perception: the Neurophysiological Foundations*. Academic Press Inc., 1989.
- [666] M. Spivak, *Calculus on Manifolds*. New York, New York, USA: W. A. Benjamin, Inc., 1965.
- [667] M. Spivak, *A Comprehensive Introduction to Differential Geometry*, vol. I-V. Houston, Texas: Publish or Perish, Inc., second edition ed., 1979.
- [668] J. Sporring, "The entropy of scale-space", in *Proceedings 13th ICPR*, Austria, 1996.
- [669] J. Sporring, M. Nielsen, L. Florack, and P. J. (Eds.), "Gaussian Scale-Space". Dordrecht: Kluwer Academic Publishers, 1996.
- [670] J. Sporring and J. Weickert, "On generalized entropies and scale-space", in *Scale-Space Theory in Computer Vision* (B. ter Haar Romeny, L. Florack, J. Koenderink, and M. Viergever, eds.), vol. 1252 of *Lecture Notes in Computer Science*, pp. 53-64, Springer, Berlin, 1997.
- [671] J. Sporring, M. Nielsen, J. Weickert, O.F. Olsen, "A note on differential corner measures", *Proc. 14th Int. Conf. Pattern Recognition (ICPR 14, Brisbane, Aug. 17-20, 1998)*, IEEE Computer Society Press, Los Alamitos, Vol. 1, 652-654, 1998.
- [672] J. Sporring, M. Nielsen, O.F. Olsen, J. Weickert, "Smoothing images creates corners", *Image and Vision Computing*, Vol. 18, 261-266, 2000. Revised version of Technical Report DIKU-98/1, Dept. of Computer Science, University of Copenhagen, Denmark, 1998.
- [673] J. Staal, S. Kalitzin, B. M. ter Haar Romeny and M. A. Viergever, "Detection of critical structures in scale-space". *Lecture Notes of Computer Science*, vol. 1682, pp. 105-116, 1999.
- [674] P. Tavan, H. Grubmuller, and Kuhnel, "Self-organization of associative memory and pattern classification: Recurrent signal processing on topological feature maps", *Biological Cybernetics*, vol. 64, pp. 95-105, 1990.
- [675] P. C. Teo, Y. Hel-Or, Lie generators for computing steerable functions. *Pattern Recognition Letters*, vol. 19, pp. 7-17, 1998.
- [676] B. M. ter Haar Romeny, L. M. J. Florack, J. J. Koenderink, and M. A. Viergever, "Invariant third order properties of isophotes: T-junction detection", in *Proc.7th Scand. Conf. on Image Analysis* (P. Johansen and S. Olsen, eds.), Aalborg DK, pp. 346-353, August 1991. Also in: *Theory & Applications of*

Image Analysis (P. Johansen and S. Olsen, eds.), vol. 2 of Series in Machine Perception and Artificial Intelligence, pp. 30-37, Singapore: World Scientific, 1992.

[677] B. M. ter Haar Romeny, L. M. J. Florack, J. J. Koenderink, and M. A. Viergever, "Scale-space: Its natural operators and differential invariants", in Information Processing in Medical Imaging (A. C. F. Colchester and D. J. Hawkes, eds.), vol. 511 of Lecture Notes in Computer Science, pp. 239-255, Springer-Verlag, Berlin, July 1991.

[678] B. M. ter Haar Romeny and L. M. J. Florack, "A multiscale geometric model of human vision", in Perception of Visual Information (W. R. Hendee and P. N. T. Wells, eds.), ch. 4, pp. 73-114, Berlin: Springer-Verlag, 1993. Second edition 1996.

[679] B. M. ter Haar Romeny, L. M. J. Florack, A. H. Salden, and M. A. Viergever, "Higher order geometrical image structure", in Proc. Information Processing in Medical Imaging '93, Flagstaff AZ (H. Barrett, ed.), (Berlin), pp. 77-93, Springer-Verlag, 1993.

[680] B. M. ter Haar Romeny, L. M. J. Florack, M. de Swart, J. Wilting, and M. A. Viergever, "Deblurring Gaussian blur", in Proceedings Mathematical Methods in Medical Imaging II, vol.~2299, (San Diego, CA), pp. 139--148, SPIE, July 25-26, 1994.

[681] B. M. ter Haar Romeny, W. J. Niessen, J. Wilting, and L. M. J. Florack, "Differential structure of images: Accuracy of representation", in Proc. First IEEE Internat. Conf. on Image Processing, (Austin, TX), pp. 21-25, IEEE, November, 13-16 1994.

[682] B. M. ter Haar Romeny (ed.), "Geometry-driven diffusion in computer vision". Dordrecht: Kluwer Academic Publishers, 1994.

[683] B. M. ter Haar Romeny, "Scale-space research at Utrecht University", in Proc. 12th Intern. Conf. on Analysis and Optimization of Systems: Images, Wavelets and PDE's (M.-O. Berger, R. Deriche, I. Herlin, J. Jaffré, and J.-M. Morel, eds.), Lecture Notes in Control and Information Sciences, vol. 219, pp. 15-30, Springer, London, June 26-28 1996.

[684] B. M. ter Haar Romeny, W. J. Niessen, J. Weickert, P. van Roermund, W. van Enk, A. Lopez, and R. Maas, "Orientation detection of trabecular bone", in Progress in Biophysics and Molecular Biology, vol. 65, pp. P-H5-43, August 11-16 1996. Proc. 12th Intern. Biophysics Congress.

[685] B. M. ter Haar Romeny, "Applications of scale-space theory", in Gaussian Scale-Space Theory (J. Sporring, M. Nielsen, L. Florack, and P. Johansen, eds.), Computational Imaging and Vision, pp. 3-19, Dordrecht: Kluwer Academic Publishers, 1997.

[686] B. M. ter Haar Romeny, L. M. J. Florack, J. J. Koenderink, and M. A. Viergever, eds., "Scale-Space '97: Proc. First Internat. Conf. on Scale-Space Theory in Computer Vision", vol. 1252 of Lecture Notes in Computer Science. Berlin: Springer Verlag, 1997.

[687] B. M. ter Haar Romeny, B. Titulaer, S. Kalitzin, G. Scheffer, F. Broekmans and E. te Velde, "Computer assisted human follicle analysis for fertility prospects with 3D ultrasound", Proceedings Intern. Conf. on Information processing in Medical Imaging (IPMI99), vol. 1613, Lecture Notes in Computer Science, Springer-Verlag, Heidelberg, 1999.

[688] B. M. ter Haar Romeny, L.M. J. Florack, "Front-End Vision, a Multiscale Geometry Engine". Proc. First IEEE Intern. Workshop on Biologically Motivated Computer Vision (BMCV2000), May 15-17, 2000, Seoul, Korea. Lecture Notes in Computer Science, 2000.

[689] B. M. ter Haar Romeny, "Computer Vision and Mathematica", J. of Computing and Visualization in Science, 2002.

[690] E. ter Haar Romeny, "Edlef ter Haar Romeny, painter", Van Gruting Publishers, Westervoort, the Netherlands, 2002.

[691] D. Terzopoulos, "Regularization of inverse visual problems involving discontinuities", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 8, pp. 413-424, 1981.

[692] J. Thirio, S. Benayoun: "Image surface extremal points, new feature points for image registration". INRIA Technical Report RR-2003, 1993

[693] J.-P. Thirion and A. Gourdon, "Computing the differential characteristics of isodensity surfaces", Computer Vision, Graphics, and Image Processing: Image Understanding, vol. 61, pp. 190-202, March 1995.

[694] J.-P. Thirion: "The extremal mesh and the understanding of 3D surfaces". Intern. J. of Computer Vision, vol. 19, no. 2, pp. 115-128, 1996.

- [695] R. Thom, "Structural stability and Morphogenesis" (transl. D. H. Fowler). New York: Benjamin-Addison Wesley, 1975.
- [696] D. W. Thompson, "On Growth and Form". Cambridge University Press, 1942.
- [697] P. Thompson, "Margaret Thatcher: a new illusion". Perception, vol. 9, pp. 483-484, 1980.
- [698] A. N. Tikhonov and V. Y. Arsenin, "Solution of Ill-Posed Problems". Washington DC: Winston and Wiley, 1977.
- [699] M. Tistarelli and G. Sandini, "On the advantages of polar and log-polar mapping for direct estimation of time-to-impact from optical flow", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 15, pp. 401-416, April 1993.
- [700] A. Toet, J. Blom and J. J. Koenderink, "The construction of a simultaneous functional order in nervous systems", Biol. Cybern., vol. 57, pp. 115-125, 127-136, 331-340, 1987.
- [701] V. Torre and T. A. Poggio, "On edge detection", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 8, no. 2, pp. 147-163, 1986.
- [702] D. Y. Ts'o, R. D. Frostig, E. E. Lieke, and A. Grinvald, "Functional organization of primate visual cortex revealed by high resolution optical imaging". Science 249: 417-20, 1990.
- [703] W.A. van de Grind, J. J. Koenderink and A. J. van Doorn, "Motion detection from photopic to low scotopic luminance levels". Vision Research, vol. 40, no. 2, pp. 187-199, 1999.
- [704] R. van den Boomgaard, "The morphological equivalent of the Gauss convolution", Nieuw Archief voor Wiskunde (in English), vol. 10, pp. 219-236, November 1992.
- [705] R. van den Boomgaard and A. W. M. Smeulders, "Morphological multi-scale image analysis", in Mathematical Morphology and its Applications to Signal Processing (J. Serra and P. Salembier, eds.), (Barcelona, Spain), pp. 180-185, Universitat Politecnica de Catalunya,, May 1993.
- [706] R. van den Boomgaard and A. W. M. Smeulders, "The morphological structure of images, the differential equations of morphological scale-space", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 16, pp. 1101-1113, November 1994.
- [707] R. van den Boomgaard and L. Dorst, "The morphological equivalent of Gaussian scale-space", Gaussian Scale-Space Theory, J. Sporring and M. Nielsen and L. Florack and P. Johansen (eds), Series: Computational Imaging and Vision, Kluwer Academic Publishers, pp 203-220, 1997.
- [708] P. van den Elsen, E. J. D. Pol, J. B. A. Maintz, and M. A. Viergever, "Image fusion using geometrical features", in SPIE Vol. 1808 Visualization in Biomedical Computing (R. A. Robb, ed.), (Bellingham, WA), SPIE Press, 1992.
- [709] P. van den Elsen and M. A. Viergever, "Fully automated CT and MR brain image registration by correlation of geometrical features", in Proc. Information Processing in Medical Imaging '93, Flagstaff AZ (H. Barrett, ed.), Berlin, Springer Verlag, 1993.
- [710] A. van den Elsen, J. B. A. Maintz, E. J. D. Pol, and M. A. Viergever, "Automatic registration of CT and MR brain images using correlation of geometrical features", IEEE Tr. on Medical Images, vol. 14, no. 2, pp. 384-398, 1995.
- [711] B. van Ginneken and B. M. ter Haar Romeny, "Applications of locally orderless images", In: Scale-space theories in computer vision, Lecture Notes in Computer Science, vol. 1682, pp. 10-21, Springer, Berlin, 1999.
- [712] B. van Ginneken and B. M. ter Haar Romeny, "Applications of locally orderless images", Journal of Visual Communication and Image Representation, vol. 11, no. 2, pp. 196-208, June 2000.
- [713] K. L. Vincken, C. N. de Graaf, A. S. E. Koster, M. A. Viergever, F. J. R. Appelman, and G. R. Timmens, "Multiresolution segmentation of 3D images by the hyperstack", in Proc. First Conf. on Visualization in Biomedical Computing, pp. 115-122, Los Alamitos, CA: IEEE Computer Society Press, 1990.
- [714] K. L. Vincken, W. J. Niessen, and M. A. Viergever, "Blurring strategies for image segmentation using a multiscale linking model", in Proc. Computer Vision and Pattern Recognition, (San Francisco, CA), pp. 21-26, IEEE Computer Society Press, 1996.
- [715] K. L. Vincken, A. S. E. Koster, and M. A. Viergever, "Probabilistic multiscale image segmentation", IEEE Tr. on Pattern Analysis and Machine Intelligence, vol. 2, no. 19, pp. 109-120, 1997.
- [716] R. von der Heydt and E. Peterhans, "Mechanisms of contour perception in monkey visual cortex I. Lines of pattern discontinuity", Journal of Neuroscience, vol. 9, no. 5, pp. 1731-1748, 1989.

- [717] G. Wallis, "Neural Mechanisms Underlying Processing in the Visual Areas of the Occipital and Temporal Lobes", PhD thesis Max Planck Institute for Biological Cybernetics, Tübingen, Germany, 1994. URL: [www.kyb.tuebingen.mpg.de/bu/people/guy/alln/alln.html](http://www.kyb.tuebingen.mpg.de/bu/people/guy/alln/alln.html).
- [718] B. A. Wandell, *Foundations of Vision*. Sunderland MA: Sinauer Associates, Inc., 1995.
- [719] H. Wässle, *Visual neuroscience*, ch. Sampling of visual space by retinal ganglion cells, pp. 19-32. Cambridge University Press, 1986. J. D. Pettigrew, K. J. Sanderson and W. R. Levick, Eds.
- [720] H. Wässle, U. Gruenert, J. Roehrenbeck, and B. Boycott, "Retinal ganglion cell density and cortical magnification factor in the primate", *Vision Research*, vol. 30, pp. 1897-1911, 1990.
- [721] H. Wässle and B. B. Boycott. "Functional architecture of the mammalian retina". *Physiological Review*, 71:447-480, 1991.
- [722] A. B. Watson, "Summation of grating patches indicate many types of detector at one retinal location", *Vision Research*, vol. 22, 17-25, 1982.
- [723] A. B. Watson, "The cortex transform: Rapid computation of simulated neural images", *Computer Vision, Graphics, and Image Processing*, 39 (3), 311-327, 1987.
- [724] D. J. Watts, P. Sheridan Dodds, M. E. J. Newman: "Identity and search in social networks", *Science* vol. 296, no. 5571, pp. 1302-1305, 17 May 2002.
- [725] J. Weber and J. Malik, "Robust computation of optical-flow in a multiscale differential framework", *Intern. Journal of Computer Vision*, vol. 14, no. 1, pp. 67-81, 1995.
- [726] J. Weickert, "Anisotropic diffusion filters for image processing based quality control", in *Proc. Seventh European Conf. on Mathematics in Industry (A. Fasano and M. Primicerio, eds.)*, pp. 355-362, Teubner, Stuttgart, 1994.
- [727] J. Weickert, "Scale-space properties of nonlinear diffusion filtering with a diffusion tensor", *Tech. Rep. 110*, Laboratory of Technomathematics, Univ. of Kaiserslautern, Germany, October 1994.
- [728] J. Weickert, "Multiscale texture enhancement", in *Computer Analysis of Images and Patterns (V. Hlavac and R. Sara, eds.)*, vol. 970 of *Lecture Notes in Computer Science*, pp. 230-237, Springer, Berlin, 1995.
- [729] J. Weickert, "Foundations and applications of nonlinear anisotropic diffusion filtering", *Z. Angew. Math. Mech., Suppl. 1*, vol. 76, pp. 283-286, 1996.
- [730] J. Weickert, "Theoretical foundations of anisotropic diffusion in image processing", *Computing Suppl.*, vol. 11, pp. 221-236, 1996.
- [731] J. Weickert, "Nonlinear diffusion scale-spaces: From the continuous to the discrete setting", in *ICAOS '96: Images, Wavelets and PDEs (M.-O. Berger, R. Deriche, I. Herlin, J. Jaffré, and J.-M. Morel, eds.)*, vol. 219 of *Lecture Notes in Control and Information Sciences*, pp. 111-118, Springer, London, 1996.
- [732] J. Weickert, "A model for the cloudiness of fabrics", in *Progress in Industrial Mathematics at ECMI 94 (H. Neunzert, ed.)*, pp. 258-265, Wiley-Teubner, Chichester, 1996.
- [733] J. A. Weickert, B. M. ter Haar Romeny, and M. A. Viergever, "Conservative image transformations with restoration and scale-space properties", in *Proc. 1996 IEEE Int. Conf. Image Processing*, vol. I, (ICIP-96, Lausanne, Sept. 16-19, 1996), pp. 465-468, 1996.
- [734] J. Weickert, S. Ishikawa, A. Imiya, "On the history of Gaussian scale-space axiomatics", in *J. Sporring, M. Nielsen, L. Florack, P. Johansen (Eds.)*, *Gaussian scale-space theory*, Kluwer, Dordrecht, 45-59, 1997.
- [735] J. Weickert, "Recursive separable schemes for nonlinear diffusion filters", in *Scale-Space Theory in Computer Vision (B. ter Haar Romeny, L. Florack, J. Koenderink, and M. Viergever, eds.)*, vol. 1252 of *Lecture Notes in Computer Science*, pp. 260-271, Springer, Berlin, 1997.
- [736] J. Weickert and B. Benhamouda, "A semidiscrete nonlinear scale-space theory and its relation to the Perona-Malik paradox", in *Advances in Computer Vision (F. Solina, W. G. Kropatsch, R. Klette, and R. Bajcsy, eds.)*, pp. 1-10, Springer, Wien, 1997.
- [737] J. Weickert, "Nonlinear diffusion scale-spaces", in *Gaussian Scale-Space Theory (J. Sporring, M. Nielsen, L. Florack, and P. Johansen, eds.)*, pp. 221-234, Dordrecht: Kluwer, 1997.
- [738] J. Weickert, K. J. Zuiderveld, B. M. ter Haar Romeny, and W. J. Niessen, "Parallel implementations of AOS schemes: A fast way of nonlinear diffusion filtering", in *Proc. 1997 IEEE Int. Conf. Image Processing*, vol. 3, (ICIP-97, Santa Barbara, Oct. 26-29, 1997), pp. 396-399, 1997.
- [739] J. Weickert, "A review of nonlinear diffusion filtering", in *Scale-Space Theory in Computer Vision*

- (B. ter Haar Romeny, L. Florack, J. Koenderink, and M. Viergever, eds.), vol. 1252 of Lecture Notes in Computer Science, pp. 3-28, Springer, Berlin, 1997.
- [740] J. Weickert, "Coherence-enhancing diffusion of colour images", A. Sanfeliu, J.J. Villanueva, J. Vitrià (Eds.), Proc. VII National Symposium on Pattern Recognition and Image Analysis (VII NSPRIA, Barcelona, April 21-25, 1997), Vol. 1, 239-244, 1997.
- [741] J. Weickert, B. M. ter Haar Romeny, A. Lopez, and W. J. van Enk, "Orientation analysis by coherence-enhancing diffusion", in Proc. Symposium on Real World Computing, (RWC '97, Tokyo, Jan. 29-31, 1997), pp. 96-103, 1997.
- [742] J. Weickert, "Anisotropic diffusion in image processing", ECMI Series, Teubner Verlag, Stuttgart, 1998. ISBN 3-519-02606-6.
- [743] J. Weickert, B. M. ter Haar Romeny, and M. A. Viergever, "Efficient and reliable schemes for nonlinear diffusion filtering", IEEE Tr. on Image Processing, Vol. 7, 398-410, 1998.
- [744] J. Weickert, "Fast segmentation methods based on partial differential equations and the watershed transformation", P. Levi, R.-J. Ahlers, F. May, M. Schanz (Eds.), Mustererkennung 1998, Springer, Berlin, 93-100, 1998.
- [745] J. Weickert, "On discontinuity-preserving optic flow", S. Orphanoudakis, P. Trahanias, J. Crowley, N. Katevas (Eds.), Proc. Computer Vision and Mobile Robotics Workshop (CVMR '98, Santorini, Sept. 17-18, 1998), 115-122, 1998.
- [746] J. Weickert, S. Ishikawa, A. Imiya, "Linear scale-space has first been proposed in Japan", J. Mathematical Imaging and Vision, Vol. 10, 237-252, 1999.
- [747] J. Weickert, "Nonlinear diffusion filtering", B. Jähne, H. Haußecker, P. Geißler (Eds.), Handbook on Computer Vision and Applications, Vol. 2: Signal Processing and Pattern Recognition, Academic Press, San Diego, 423-450, 1999.
- [748] J. Weickert, J. Heers, C. Schnörr, K.J. Zuiderveld, O. Scherzer, H.S. Stiehl, "Fast parallel algorithms for a broad class of nonlinear variational diffusion approaches", Real-Time Imaging, 2001. Revised version of Technical Report 5/1999, Computer Science Series, University of Mannheim, 68131 Mannheim, Germany, 1999.
- [749] J. Weickert, "Coherence-enhancing diffusion filtering", Intern. Journal of Computer Vision, Vol. 31, 111-127, 1999.
- [750] J. Weickert, "Coherence-enhancing diffusion of colour images", Image and Vision Computing, Vol. 17, 201-212, 1999.
- [751] J. Weickert, "Design of nonlinear diffusion filters", B. Jähne, H. Haußecker (Eds.), Computer Vision and Applications, Academic Press, San Diego, 439-458, 2000.
- [752] J. Weickert, C. Schnörr, "PDE-based preprocessing of medical images", Künstliche Intelligenz, No. 3, 5-10, 2000. Revised version of Technical Report 8/2000, Computer Science Series, University of Mannheim, 68131 Mannheim, Germany, February 2000.
- [753] J. Weickert, C. Schnörr, "Variational optic flow computation with a spatio-temporal smoothness constraint", Journal of Mathematical Imaging and Vision, 2001. Revised version of Technical Report 15/2000, Computer Science Series, University of Mannheim, 68131 Mannheim, Germany, July 2000.
- [754] J. Weickert, "Efficient image segmentation using partial differential equations and morphology", Pattern Recognition, 2001. Also available as Technical Report 3/2000, Computer Science Series, University of Mannheim, 68131 Mannheim, Germany, February 2000.
- [755] J. Weickert, H. Scharr, "A scheme for coherence-enhancing diffusion filtering with optimized rotation invariance", Journal of Visual Communication and Image Representation, 2001. Revised and shortened version of Technical Report 4/2000, Computer Science Series, University of Mannheim, 68131 Mannheim, Germany, February 2000.
- [756] R. Weitzenböck, "Invariantentheorie". Groningen: P. Noordhoff, 1923.
- [757] G. B. West. "Scale and Dimension - From animals to quarks". In: Particle Physics, a Los Alamos Primer. N.C. Cooper and G. B. West, Eds. Cambridge University Press, Cambridge 1988.
- [758] H. Weyl, "The Classical Groups, their Invariants and Representations". Princeton, NJ: Princeton University Press, 1946.
- [759] H. Weyl, "Symmetry". Princeton, NJ: Princeton University Press, 1983 (reprint of 1952).
- [760] R. T. Whitaker and S. M. Pizer, "A multi-scale approach to nonuniform diffusion", Tech. Rep.

- TR91-040, Medical Image Display Group, Department of Radiation Oncology, The University of North Carolina, Chapel Hill, NC 27599-3175, September 1991.
- [761] R. T. Whitaker and S. M. Pizer, "A multi-scale approach to nonuniform diffusion", *Computer Vision, Graphics, and Image Processing: Image Understanding*, vol. 57, pp. 99-110, January 1993.
- [762] R. T. Whitaker, "Geometry-limited diffusion in the characterization of geometric patches in images", *Computer Vision, Graphics, and Image Processing: Image Understanding*, vol. 57, pp. 111-120, January 1993.
- [763] R. T. Whitaker and S. M. Pizer, "Geometry-based image segmentation using anisotropic diffusion", in *Proc. of the NATO Advanced Research Workshop Shape in Picture -- Mathematical Description of Shape in Greylevel Images* (Y.-L. O, A. Toet, H. J. A. M. Heijmans, D. H. Foster, and P. Meer, eds.), vol. 126 of NATO ASI Series F, pp. 641-650, Springer Verlag, Berlin, 1994.
- [764] R. Whitaker and G. Gerig, "Vector-valued diffusion", in *Geometry-Driven Diffusion in Computer Vision* (B. M. ter Haar Romeny, ed.), *Computational Imaging and Vision*, pp. 93-134, Kluwer Academic Publishers, 1994.
- [765] D. J. Williams and M. Shah, "Edge contours using multiple scales", *Computer Vision, Graphics, and Image Processing*, vol. 51, pp. 256-274, 1990.
- [766] R. W. Williams, "The human retina has a cone-enriched rim", *Visual Neuroscience*, vol. 6, pp. 403-406, 1991.
- [767] R. Wilson and A. H. Bhalerao, "Kernel design for efficient multiresolution edge detection and orientation estimation", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 14, no. 3, pp. 384-390, 1992.
- [768] A. G. Wilson and V. E. Johnson, "Priors on scale-space templates", in *Proc. Mathematical Methods in Medical Imaging II*, vol. 2299, (San Diego, CA), pp. 161-168, SPIE, July, 25-26 1994.
- [769] R. A. Wilson and F. Keil, "The MIT Encyclopedia of the Cognitive Sciences", the MIT Press, 1999.
- [770] A. Witkin, "Scale-space filtering", in *Proc. Intern. Joint Conf. on Artificial Intelligence*, (Karlsruhe, Germany), pp. 1019-1023, 1983.
- [771] A. Witkin, "Scale-space filtering: A new approach to multi-scale description", in *Image Understanding 1984* (S. Ullman and W. Richards, eds.), NJ: Norwood Ablex, 1984.
- [772] A. Witkin, D. Terzopoulos, and M. Kass, "Signal matching through scale-space", *Intern. Journal of Computer Vision*, vol. 1, no. 2, pp. 134-144, 1988.
- [773] S. Wolfram, "*Mathematica*: A System for doing Mathematics by Computer", Addison-Wesley, 1999. Version 4.
- [774] S. Wolfram, "A new kind of science", Addison-Wesley, 2002.
- [775] G. Wyszecki and W. S. Stiles, "Color science: concepts and methods, quantitative data and formulae", *Wiley Series in Pure and Applied Optics*, 2000.
- [776] R. A. Young, "Oh say can you see? the physiology of vision", publication GMR-7364, General Motors Research Labs, Computer Science Dept., 30500 Mound Road, Box 9055, Warren, Michigan 48090-9055, May 31 1991.
- [777] R. A. Young, "The Gaussian derivative theory of spatial vision: Analysis of cortical cell receptive field line-weighting profiles", publication GMR-4920, General Motors Research Labs, Computer Science Dept., 30500 Mound Road, Box 9055, Warren, Michigan 48090-9055, May 28 1985.
- [778] R. A. Young, "The Gaussian derivative model for machine vision: Visual cortex simulation", publication GMR-5323, General Motors Research Labs, Computer Science Dept., 30500 Mound Road, Box 9055, Warren, Michigan 48090-9055, July 7 1986.
- [779] R. A. Young, "Simulation of human retinal function with the Gaussian derivative model", in *Proc. IEEE CVPR CH2290-5*, (Miami, Fla.), pp. 564-569, 1986.
- [780] R. A. Young, "The Gaussian derivative model for machine vision: I. retinal mechanisms", *Spatial Vision*, vol. 2, no. 4, pp. 273-293, 1987.
- [781] A. L. Yuille and T. Poggio, "Fingerprint theorems for zero crossings", *JOSA, "A"*, vol. 2, pp. 683-692, May 1985.
- [[782] A. L. Yuille and T. A. Poggio, "Scaling theorems for zero-crossings", *IEEE Tr. on Pattern Analysis and Machine Intelligence*, vol. 8, pp. 15-25, January 1986.

- [783] A. L. Yuille and T. A. Poggio, "Scaling and fingerprint theorems for zero-crossings", in *Advances in Computer Vision* (C. Brown, ed.), pp. 47-78, Lawrence Erlbaum, 1988.
- [784] J. C. Zagal, E. Björkman, T. Lindeberg, P. E. Roland, "Significance determination for the scale-space primal sketch by comparison of statistics of scale-space blob volumes computed from PET signals versus residual noise", *HBM'2000, Intern. Conf. on Functional Mapping of the Human Brain*, San Antonio, Texas, in press, 2000.
- [785] S. Zeki, "A vision of the brain". Oxford: Blackwell Scientific Publications, 1993.
- [786] J. Zhang and J. P. Miller, "A mathematical model for resolution enhancement in layered sensory systems", *Biological Cybernetics*, vol. 64, pp. 357-364, 1991.
- [787] S. W. Zucker and R. A. Hummel, "Receptive fields and the representation of visual information", in *Seventh Intern. Conf. on Pattern Recognition* (Montreal, Canada, July 30-August 2, 1984), IEEE Publ. 84CH2046-1, pp. 515-517, IEEE, IEEE, 1984.
- [788] S. W. Zucker, "Early orientation selection: Tangent fields and the dimensionality of their support", *Computer Vision, Graphics, and Image Processing*, vol. 32, pp. 74-103, 1985.
- [789] S. W. Zucker and R. A. Hummel, "Receptive fields and the representation of visual information", *Human Neurobiology*, vol. 5, pp. 121-128, 1986.
- [790] S. W. Zucker, "Which computation runs in visual cortical columns?", in J. Leo van Hemmen and T. J. Sejnowski (eds.), *Problems in Systems Neuroscience*, Oxford University Press, 2001.