

7 Publications

7.1 Books and monographs. (Limit to textbooks, research monographs, conference/symposium/congress proceedings, handbooks, etc., of which you are an author or an editor. Do not include articles or chapters in such media.)

1. Mařík, V., Hlaváč, V., Kalačová, M., Sonka, M.: Theory of Automatic Control, Problems – Teorie automatického řízení II, příklady. Skriptum ČVUT, Praha, 1987, 224 p. (in Czech).
2. Sonka, M., Hlaváč, V. eds.: Image Processing Methods and Devices I – Metody a prostředky zpracování vizuální informace '86. Sborník ČSVTS FEL ČVUT, Praha, 1986, 210 p. (in Czech).
3. Sonka, M., Hlaváč, V. eds.: Image Processing Methods and Devices II – Metody a prostředky zpracování vizuální informace '88 - II. Sborník ČSVTS FEL ČVUT, Praha, 1988, 220 p. (in Czech).
4. Hlaváč, V., Sonka, M.: Digital Image Processing – Digitální zpracování obrazové informace. Skriptum pro PGS, ČVUT, Praha, 1991, 68 p. (in Czech).
5. Hlavac, V., Sonka, M.: Computer Vision, Grada, Prague, 1993, 220 p. (in Czech).
6. Sonka, M., Hlavac, V. Boyle, R.: Image Processing, Analysis, and Machine Vision. Chapman and Hall Publishers, London – New York, 555 p., 1993.
7. Sonka, M., Hlavac, V. Boyle, R.: Image Processing, Analysis, and Machine Vision - 2nd Ed., PWS, Pacific Grove, CA, 800 p., 1998.
8. Sonka, M., Fitzpatrick, J.M. – editors: Handbook of Medical Imaging Volume 2 – Medical Image Processing and Analysis, SPIE, 1250 p., 2000.
9. Sonka, M., Hanson, K.M. – editors: Medical Imaging 2001 – Image Processing. Proceedings of SPIE, Vol. 4322 - parts 1,2,3; SPIE, Bellingham WA, 1968 p., 2001.
10. Sonka, M., Hlavac, V. Boyle, R.: Image Processing, Analysis, and Machine Vision - 2nd Ed., Posts & Telecom Press, Beijing, 2001, in English with Chinese preface.
11. Sonka, M., Fitzpatrick, J.M. – editors: Medical Imaging 2002 – Image Processing. Proceedings of SPIE, Vol. 4864 - parts 1,2,3; SPIE, Bellingham WA, 2002.
12. Sonka, M., Fitzpatrick, J.M. – editors: Medical Imaging 2003 – Image Processing. Proceedings of SPIE, Vol. 5032 - parts 1,2,3; SPIE, Bellingham WA, 2003.
13. Sonka, M., Hlavac, V. Boyle, R.: Image Processing, Analysis, and Machine Vision - 2nd Ed., Posts & Telecom Press, Beijing, 2003, in Chinese.
14. Fitzpatrick, J.M., Sonka, M. – editors: Medical Imaging 2004 – Image Processing. Proceedings of SPIE, Vol. 5370 - parts 1,2,3; SPIE, Bellingham WA, 2004.
15. Sonka, M., Kakadiaris, I.A., Kybic, J.: Computer Vision and Mathematical Methods in Medical and Biomedical Image Analysis, Lecture Notes in Computer Science Vol. 3117, Springer, Berlin, 2004.
16. Christensen, G.E., Sonka, M.: Information Processing in Medical Imaging, Lecture Notes in Computer Science Vol. 3565, Springer, Berlin, 2005.
17. Beichel R, Sonka M: Computer Vision Approaches to Medical Image Analysis (CVAMIA06). Second International Workshop at the 9th European Conference on Computer Vision, Graz, Lecture Notes in Computer Science, Springer, Volume 4241, 2006.
18. Sonka, M., Hlavac, V. Boyle, R.: Image Processing, Analysis, and Machine Vision - 3rd Ed., Thomson Engineering, Toronto, Canada, 850 p., 2007.

7.2 Articles in technical journals with rigorous review procedures. (Include notes, discussions, letters to editor, etc., which are published in such journals and those articles or chapters in a meeting's printed record if that record utilizes review procedures equivalent to those for archive journals.)

7.2.1 Journal Papers

1. Sonka, M.: Texture Primitive Extraction Methods – Metody extrakce primitiv z texturních obrazů. *Lékař a technika*, roč. 16, č.1, 1985 (in Czech).
2. Chalupa, V., Sonka, M.: Texture Recognition – Metody rozpoznávání textur a jejich využití. *Automatizace*, roč. 29, č. 7, 1985 (in Czech).
3. Chalupa, V., Sonka, M.: A Hybrid Texture Recognition Method – Hybridní metoda rozpoznávání textur. *Automatizace*, roč. 29, č. 12, 1985 (in Czech).
4. Hlaváč, V., Mařík, R., Sonka, M., Woska, J.: Digital Image Analysis system IMG – Programový systém IMG pro zpracování a vyhodnocení obrazové informace. *Automatizace*, č. 12, 1987 (in Czech).
5. Mařík, V., Jirků, P., Psutka, J., Sonka, M., Zdráhal, Z.: Artificial Intelligence – Umělá inteligence. Příloha *Automatizace* - vložka, 1988 (in Czech).
6. Sonka, M., Havel, J.jr.: Relaxation Edge Segmentation – Relaxační hranové segmentace *Automatizace*, roč. 32, č. 7, 1989, ss. 173-176 (in Czech).
7. Sonka, M.: A New Texture Recognition Method. *Computers and Artificial Intelligence*, Vol. 5, 1986, No.4, pp. 357–364.
8. Sonka, M., Wilbricht, C.J., Fleagle, S.R., Tadikonda, S.K., Winniford, M.D., Collins, S.M.: Simultaneous Detection of Both Coronary Borders. *IEEE Transactions on Medical Imaging*, Vol. 12, pp. 588–599, 1993.
9. Sonka, M., Winniford, M.D., Zhang, X., Collins, S.M.: Coronary Lumen Centerline Detection: Automated Analysis of Complex Coronary Angiograms. *IEEE Transactions on Biomedical Engineering*, Vol. 41, p. 520–528, June 1994.
10. Sonka, M.: Knowledge and Context in Image Understanding: Automatic Segmentation of MR Images of Human Brain in the Right and Left Hemispheres. *Lekar a Technika*, Vol. 25, pp. 123–128, December 1994.
11. Sonka, M., Winniford, M.D., Collins, S.M.: Robust Simultaneous Detection of Coronary Borders in Complex Images. *IEEE Transactions on Medical Imaging*, Vol. 14, pp. 151–161, March 1995.
12. Sonka, M., Zhang, X., Siebes, M., Bissing, M.S., DeJong, S.C., Collins, S.M., McKay, C.R.: Segmentation of Intravascular Ultrasound Images: A Knowledge-Based Approach. *IEEE Trans. Medical Imaging*, Vol. 14, No. 4, 1995.
13. Sonka, M., Park, W., Hoffman, E.A.: Rule-Based Detection of Intrathoracic Airway Trees, *IEEE Trans. Medical Imaging*, Vol. 15, 1996, pp. 314 – 326.
14. Sonka, M.: Intrathoracic Airway Tree Detection via Electron Beam Computed Tomography. *Lekar a Technika*, Vol. 27, pp. 125–130, 1996.
15. Sonka, M.: Quantitative Coronary Image Analysis: Angiography and Intravascular Ultrasound. *Lekar a Technika*, Vol. 27, pp. 75–82, 1996.

16. Sonka, M., Tadikonda, S.K., Collins, S.M.: Knowledge-Based Interpretation of MR Brain Images. *IEEE Trans. Medical Imaging*, Vol. 15, 1996, pp. 443 – 452.
17. Min Ma, C., Sonka, M.: A Fully Parallel 3D Thinning Algorithm and Its Applications. *Computer Vision and Image Understanding*. Vol. 64 (3), pp. 420–433., 1996.
18. Sonka, M., Reddy, G., Collins, S.M.: Adaptive Approach to Accurate Analysis of Small Diameter Vessels in Cineangiograms. *IEEE Transactions on Medical Images*. Vol. 16, February 1997.
19. Prause, G., DeJong, S., McKay, C.R., Sonka, M.: Towards a Geometrically Correct 3-D Reconstruction of Tortuous Coronary Arteries Based on Biplane Angiography and Intravascular Ultrasound. *International Journal of Cardiac Imaging*, pp. 451–462, 13(6), 1997.
20. Uppaluri, R., Mitsa, T., Sonka, M., Hoffman, E.A., McLennan, G.: Quantification of Pulmonary Emphysema from Lung Computed Tomography Images. *Amer. J. Resp. Critic. Care Med.*, 156(1), pp. 248-254, 1997
21. Sarty, G. E., Liang, W., Sonka, M., Pierson, R. A.: Semi-Automated Segmentation of Ovarian Follicular Ultrasound Images using a Knowledge-Based Algorithm, *Ultrasound in Medicine and Biology*, Vol. 24, pp. 27–42, 1998.
22. M. Sonka, W. Liang, R. M. Lauer: Flow-Mediated Dilatation in Brachial Arteries: Computer Analysis of Ultrasound Image Sequences, *CVD Prevention*, Vol. 1, pp. 147–155, 1998.
23. Zeng, C., Sonka, M.: Volume-Preserving Smoothing of Three-Dimensional Surfaces: Application to Intravascular Ultrasound. *Computers in Biomedical Research*, pp. 385–392, 1998.
24. Park, W., Hoffman, E.A., Sonka, M.: Segmentation of Intrathoracic Airway Trees: A Fuzzy Logic Approach. *IEEE Transactions on Medical Imaging*, Vol. 17, pp. 489–497, 1998.
25. Sonka, M., Dove, E.L., Collins, S.M.: Image Systems Engineering Education in an Electronic Classroom, *IEEE Transactions on Education*, Vol. 41, pp. 263-272, November 1998.
26. Duta, N., Sonka, M.: Segmentation and Interpretation of MR Brain Images: An Improved Active Shape Model. *IEEE Transactions on Medical Imaging*, Vol. 17, pp. 1049–1062, 1998.
27. Krivanek, A., Sonka, M.: Ovarian Ultrasound Image Analysis: Follicle Segmentation. *IEEE Transactions on Medical Imaging*, Vol. 17, pp. 935–944, 1998.
28. Zhang, X., McKay, C.R., Sonka, M.: Image Segmentation and Tissue Characterization in Intravascular Ultrasound. *IEEE Transactions on Medical Imaging*, Vol. 17, pp. 880–899, 1998.
29. Sonka, M.: Liang, W., Kanani, P., Allan, J., DeJong, S.C., Kerber. R.E., McKay. C.R.: Intracardiac Echocardiography: Automated Ventricular Border Detection, *Int. J. Cardiac Imag.*, Vol. 14, pp. 397–411, 1998.
30. M. Brejl, M. Sonka: Medical Image Segmentation: Automated Design of Border Detection Criteria from Examples, *J. of Electron. Imag.*, Vol. 8, pp. 54–64, 1999.
31. R. Uppaluri, E. A. Hoffman, M. Sonka, G. W. Hunninghake, and G. McLennan, Interstitial lung disease : A quantitative study using the adaptive multiple feature method. *Am. J. Respiratory and Critical Care Medicine*, pp. 519–525, Vol. 159, 1999.
32. A. Wahle, G. P. M. Prause, C. von Birgelen, R. Erbel, M. Sonka: Fusion of Angiography and Intravascular Ultrasound In Vivo: Establishing the Absolute 3D Frame Orientation, *IEEE Transactions on Biomedical Engineering*, special issue on Biomedical Data Fusion, pp. 1176–1180, Vol. 46, 1999.

33. R. Uppaluri, E. A. Hoffman, M. Sonka, P. G. Hartley, G. W. Hunninghake, and G. McLennan, Computer recognition of regional lung disease patterns. *Am. J. Respiratory and Critical Care Medicine*, pp. 648–664, Vol. 160, 1999.
34. A. Wahle, G. P. M. Prause, S. C. DeJong, M. Sonka, Geometrically Correct 3-D Reconstruction of Intravascular Ultrasound Images by Fusion with Biplane Angiography – Methods and Validation. *IEEE Transactions on Medical Imaging*, pp. 686–699, Vol. 18, 1999.
35. M. Brejl and M. Sonka: Directional 3D Edge Detection in Anisotropic Data: Detector Design and Performance Assessment. *Computer Vision and Image Understanding*, special issue on Analysis of Volumetric Images, pp. 84–110, February 2000.
36. K. R. Hoffman, A. Wahle, C. Barakat, J. Sklansky, M. Sonka: Biplane X-ray Angiograms, Intravascular Ultrasound, and 3-D Visualization of Coronary Vessels, *Int. J. Cardiovasc. Imag.*, pp. 495–512, December 1999.
37. A. Goshtasby, M. Sonka, J.K. Udupa: Analysis of Volumetric Images: Introduction (editorial). *Computer Vision and Image Understanding*, special issue on Analysis of Volumetric Images, pp. 79–83, February 2000.
38. B. Lelieveldt, M. Sonka, L. Bolinger, T. Scholz, H. Kayser, R. van der Geest, J.H.C. Reiber: Anatomical Modeling with Fuzzy Implicit Surface Templates: Application to Automated Localization of the Heart and Lungs in Thoracic MR Volumes. *Computer Vision – Image Understanding*, pp. 1–20, Vol. 80, 2000.
39. Park, W., Hoffman, E.A., Sonka, M.: Segmentation of Intrathoracic Airway Trees: A Fuzzy Logic Approach. (Reprint of *IEEE Transactions on Medical Imaging*, Vol. 17, pp. 489–497, 1998.) *IMIA 2000 Yearbook of Medical Informatics*, 311–319, 2000.
40. M. Brejl and M. Sonka: Object Localization and Border Detection Criteria Design in Edge-Based Image Segmentation: Automated Learning from Examples, *IEEE Transactions on Medical Imaging*, Vol. 19, pp. 973–985, 2000.
41. R M Stefancik and M Sonka: Highly Automated Segmentation of Arterial and Venous Trees from Three-Dimensional MR Angiography, *International Journal of Cardiovascular Imaging*, Vol. 17, pp. 37–47, 2001.
42. S. C. Mitchell, B. P. F. Lelieveldt, R. J. van der Geest, J. G. Bosch, J. H. C. Reiber, M. Sonka: Multistage Hybrid Active Appearance Model Matching: Segmentation of Left and Right Ventricles in Cardiac MR Images, *IEEE Transactions on Medical Imaging*, Vol. 20, pp. 415–423, 2001.
43. J. Tschirren, R.M. Lauer, M. Sonka: Automated Analysis of Doppler Ultrasound Velocity Flow Diagrams, *IEEE Transactions on Medical Imaging*, Vol. 20, pp. 1422–1425, 2001.
44. J. G. Bosch, S. C. Mitchell, B. P. F. Lelieveldt, F. Nijland, O. Kamp, M. Sonka, J. H. C. Reiber: Automatic segmentation of echocardiographic sequences by active appearance models, *IEEE Transactions on Medical Imaging*, Vol. 21. pp. 1374–1383, 2002.
45. S. C. Mitchell, J. G. Bosch, B. P. F. Lelieveldt, R. J. van der Geest, J. H. C. Reiber, M. Sonka: 3-D Active Appearance Models: Segmentation of Cardiac MR and Ultrasound Images, *IEEE Transactions on Medical Imaging*, Vol. 21, pp. 1167–1178, 2002.
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49. M. Sonka: Rapid and Accurate LV Surface Generation from 3D Echocardiography by a Catalog-based Method – Editorial, *International Journal of Cardiovascular Imaging*, Vol. 19, pp. 19–21, 2003.
50. F. Yang, G. A. Holzapfel, C. Schulze-Bauer, R. Stollberger, D. Thedens, L. Bolinger, A. Stolpen, M. Sonka, Segmentation of Wall and Plaque in In-Vitro Vascular MR Images, *Int J. Cardiovasc Imag*, Vol. 19, p. 419-428, 2003.
51. R. Medina, A. Wahle, M. E. Olszewski, M. Sonka, Accurate Quantification of Plaque Volume in Coronary Arteries, *Int J. Cardiovasc Imag*, Vol. 19, pp. 301-311, 2003.
52. A. Wahle, J. J. Lopez, E. C. Pennington, S. L. Meeks, K. C. Braddy, J. M. Fox, T. M. H. Brennan, J. M. Buatti, J. D. Rossen, M. Sonka. Effects of vessel geometry and catheter position on dose delivery in intracoronary brachytherapy. *IEEE Transactions on Biomedical Engineering*, Vol. 50, pp. 1286-1295, 2003.
53. Coskun A U, Yeghiazarians Y, Kinlay S, Clark M E, Ilegbusi O J, Wahle A, Sonka M, Popma J J, Kuntz R E, Feldman C L, Stone P H: Reproducibility of Coronary Lumen, Plaque, and Vessel Wall Reconstruction and of Endothelial Shear Stress Measurements In-Vivo in Humans. *Catheterization and Cardiovascular Interventions*, Vol. 60, Number 1, Page 67-78, 2003.
54. Stone P H, Coskun A U, Kinlay S, Clark M E, Sonka M, Wahle A, Ilegbusi O J, Yeghiazarians Y, Popma J J, Orav J, Kuntz R E, Feldman C L: Effect of Endothelial Shear Stress on the Progression of Coronary Artery Disease, Vascular Remodeling, and In-stent Restenosis in Man; In-Vivo 6-Month Follow-up Study. *Circulation* Volume 108, Number 4, Page 438-444, 2003.
55. J. Jan, M. Sonka, I. Provaznik: Modality-Oriented Medical Image Processing and Analysis (Editorial), *EURASIP Journal on Applied Signal Processing*, Vol. 5, p. 403-404, 2003.
56. E. A. Hoffman, J. M. Reinhardt, M. Sonka, B. A. Simon, J. Guo, O. Saba, D. Chon, S. Samrah, H. Shikata, J. Tschirren, K. Palagyi, K. C. Beck, G. McLennan: Characterization of the Interstitial Lung Diseases via Density-Based and Texture-Based Analysis of Computed Tomography Images of Lung Structure and Function, *Academic Radiology*; Vol. 10:p. 1104-1118, 2003.
57. M. A. Mackey, K. R. Anderson, L. E. Bresnahan, F. E. Domann, G. Gallardo, F. Ianzini, E. A. Kosmacek, Y. Li, M. Sonka, D. R. Spitz, Y. Sun, L. Wang, F. Yang. "The Large Scale Digital Cell Analysis System: A Unique Tool for the Study of Molecular and Cellular Phenomena in Living Cell Populations". *Molecular Imaging*, 2003, 2, 226.
58. M. A. Mackey, K. R. Anderson, L. E. Bresnahan, F. Ianzini, Y. Li, M. Sonka, L. Wang. Analysis of Cell Motility in Human Brain Tumor Cells using the Large Scale Digital Cell Analysis System. *Molecular Imaging*, 2, p. 269-270, 2003.
59. R.J. van der Geest, B.P.F. Lelieveldt, E. Angelie, M. Danilouchkine, M. Sonka, J.H.C. Reiber, Evaluation of a new method for automated detection of left ventricular contours in time series of Magnetic Resonance Images using an Active Appearance Motion Model, *Journal of Cardiovascular Magnetic Resonance*, vol 6(3), p. 609-617, 2004.
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61. S. D. Ramaswamy, S. C. Vigmostad, A. Wahle, Y. G. Lai, M. E. Olszewski, K. C. Braddy, T. M. H. Brennan, J. D. Rossen, M. Sonka, K. B. Chandran: Fluid Dynamic Analysis in a Human Left Anterior Descending Coronary Artery with Arterial Motion, *Annals of Biomedical Engineering*, 32(12), p. 1628–1641, 2004.
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67. Beichel, R.; Bischof, H.; Leberl, F.; Sonka, M.: Robust active appearance models and their application to medical image analysis, *IEEE Transactions on Medical Imaging*, Volume 24, Issue 9, Sept. 2005, Pages:1151 - 1169.
68. Bosch JG, Nijland F, Mitchell SC, Lelieveldt BPF, Kamp O, Reiber JHC, Sonka M: Computer-aided diagnosis via model-based shape analysis: Automated classification of wall motion abnormalities in echocardiograms. *Academic Radiology* - March 2005 (Vol. 12, Issue 3, Pages 358-367).
69. Uzumcu, M.; van der Geest, R, Sonka, M, Lamb, H, Reiber, J. H. C., Lelieveldt, B. P. F.: Multiview Active Appearance Models for Simultaneous Segmentation of Cardiac 2- and 4-Chamber Long-Axis Magnetic Resonance Images. *Investigative Radiology*. 40(4):195-203, April 2005.
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73. Ramaswamy SD, Vigmostad SC, Wahle A, Lai YG, Olszewski ME, Braddy KC, Brennan TMH, Rossen JD, Sonka M, Chandran KB: Comparison of Left Anterior Descending Coronary Artery Hemodynamics before and after Angioplasty. *Journal of Biomechanical Engineering*, American Society of Mechanical Engineers, Vol. 128, Feb. 2006, pages 40–48.

74. J. Reinhardt, B. van Ginneken, M. Sonka: Special Issue on Pulmonary Imaging – Editorial. *IEEE Transactions on Medical Imaging*, Volume 25, Issue 4, 2006, Pages: 381–384.
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76. K. Palagyi, J. Tschirren, E. A. Hoffman and M. Sonka: Quantitative analysis of pulmonary airway tree structures. *Comput Biol Med.* 36(9) p. 974-96, 2006.
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7.2.2 Conference papers with full review

1. Duta, N., Sonka, M.: Segmentation and Interpretation of MR Brain Images using an Improved Knowledge-Based Active Shape Model, (paper accepted after a full review), pp. 375–380, *Information Processing in Medical Imaging*, Springer, 1997.
2. Duta, N., Sonka, M.: An Improved Active Shape Model: Handling Occlusion and Outliers, (paper accepted after a full review), *International Conference on Image Analysis and Processing ICIAP'97*, A. del Bimbo editor, *Lecture Notes in Computer Science*, Vol. 1310, Springer Verlag, pp. 398–405, 1997.
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5. B. Lelieveldt, M. Sonka, L. Bolinger, T. Scholz, H. Kayser, R. van der Geest, J.H.C. Reiber: Anatomical Modeling with Fuzzy Implicit Surface Templates: Application to Automated Localization of the Heart and Lung Surfaces in Thoracic MR Images, (paper accepted after a full review), pp. 400–405, Information Processing in Medical Imaging, Springer, 1999.
6. N. Duta, M. Sonka, A. K Jain: Learning Shape Models from Examples using Automatic Shape Clustering and Procrustes Analysis, (paper accepted after a full review), pp. 370–375, Information Processing in Medical Imaging, Springer, 1999.
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7.2.3 Electronically published conference papers with full review

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7.3 Articles, chapters, abstracts, and summaries in research monographs, conference/symposium/congress proceedings, handbooks, etc. (Generally most articles published in the cited media. Also papers printed by a society as a preprint/reprint and not published in any other form.)

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