

Contents

xiii Conference Committee

Part One

SESSION 1 COMPUTER-AIDED DIAGNOSIS I

- 2 **Digital core biopsy tissue texture used to distinguish benign from malignant breast calcifications [2710-01]**
C. Kimme-Smith, UCLA School of Medicine; D. Thiele, Royal Brisbane Hospital (Australia); T. Johnson, W. Zhou, L. W. Bassett, UCLA School of Medicine
- 8 **Detection of clustered microcalcifications using fuzzy modeling and convolution neural network [2710-02]**
S.-C. B. Lo, H. Li, J.-S. Lin, A. Hasegawa, O. Tsujii, M. T. Freedman, S. K. Mun, Georgetown Univ. Medical Ctr.
- 16 **Application of neural-network-based multistage system for detection of microcalcification clusters in mammogram images [2710-03]**
F. Y. M. Lure, R. S. Gaborski, T. F. Pawlicki, Eastman Kodak Co.
- 24 **Reproducibility of an automated scheme for the detection of clustered microcalcifications on digital mammograms [2710-04]**
R. M. Nishikawa, J. Papaioannou, S. A. Collins, Univ. of Chicago
- 30 **Effects of pixel size on classification of microcalcifications on digitized mammograms [2710-05]**
H.-P. Chan, B. Sahiner, N. Petrick, K. L. Lam, M. A. Helvie, Univ. of Michigan

SESSION 2 COMPUTER-AIDED DIAGNOSIS II

- 44 **Classification of masses on mammograms using rubber-band straightening transform and feature analysis [2710-06]**
B. Sahiner, H.-P. Chan, N. Petrick, M. A. Helvie, D. D. Adler, M. M. Goodsitt, Univ. of Michigan
- 51 **Use of genetic algorithms for computer-aided diagnosis of breast cancers from image features [2710-07]**
C. E. Floyd, Jr., Duke Univ. Medical Ctr. and Duke Univ.; G. D. Tourassi, J. A. Baker, Duke Univ. Medical Ctr.
- 59 **Detecting circumscribed lesions with the Hough transform [2710-08]**
B. R. Groshong, W. P. Kegelmeyer, Jr., Sandia National Labs.
- 71 **Temporal analysis of regional wall motion from cine cardiac MRI [2710-09]**
O. M. Ratib, D. Didier, Univ. Hospital of Geneva (Switzerland); A. Chretien, CREATIS (France); A. Rosset, Univ. Hospital of Geneva (Switzerland); I. E. Magnin, CREATIS (France); Y. Ligier, Univ. Hospital of Geneva (Switzerland)
- 81 **Detection and quantification of MS lesions using fuzzy topological principles [2710-10]**
J. K. Udupa, L. Wei, S. Samarasekera, Y. Miki, M. A. van Buchem, R. I. Grossman, Univ. of Pennsylvania

SESSION 3 RECONSTRUCTION I

- 94 **Multiframe quantitative coronary arteriography [2710-12]**
C. A. Morioka, J. S. Whiting, M. P. Eckstein, K. Shah, Cedars-Sinai Medical Ctr.
- 103 **Three-dimensional reconstruction of coronary arterial tree based on biplane angiograms [2710-13]**
S.-Y. J. Chen, K. R. Hoffmann, J. D. Carroll, Univ. of Chicago

SESSION 4 RECONSTRUCTION II

- 116 **Three-dimensional reconstruction from limited biplane angiographic projections: a phantom study [2710-14]**
A. Sen, H.-H. Hsiung, B. A. Schueler, Univ. of Minnesota; R. E. Latchaw, Univ. of Miami School of Medicine; X. Hu, Univ. of Minnesota
- 124 **Image processing approaches for analysis of clinical duplex ultrasonography [2710-15]**
K. R. Hoffmann, Univ. of Chicago; C. J. Pellet-Barakat, INSERM (France); S.-Y. J. Chen, C. A. Pelizzari, F. Winsberg, D. Casalino, Univ. of Chicago
- 133 **Stopping criterion for the iterative EM-MLE image reconstruction for PET [2710-16]**
G. N. Kontaxakis, Rutgers Univ.; G. S. Tzanakos, Univ. of Athens (Greece) and Rutgers Univ.
- 145 **Improved convergence of gradient-based reconstructions using multiscale models [2710-17]**
G. S. Cunningham, Los Alamos National Lab.; I. Koyfman, Univ. of California/Los Angeles; K. M. Hanson, Los Alamos National Lab.
- 156 **Kinky tomographic reconstruction [2710-18]**
K. M. Hanson, Los Alamos National Lab.; R. L. Bilisoly, National Ctr. for Atmospheric Research; G. S. Cunningham, Los Alamos National Lab.

SESSION 5 SEGMENTATION I

- 168 **Segmentation of MR images using multiple-feature vectors [2710-19]**
O. I. B. Cole, M. F. Daemi, Univ. of Nottingham (UK)
- 178 **Methodology for evaluation of image segmentation algorithms on medical images [2710-20]**
V. Chalana, Y. Kim, Univ. of Washington
- 190 **Comparison of 3D split-and-merge segmentation with direct MRI determination of cerebral ventricle volume [2710-21]**
I. N. Manouskas, P. E. Undrill, T. W. Redpath, Univ. of Aberdeen and Aberdeen Royal Hospitals Trust (UK)
- 201 **Segmentation of radiologic images with self-organizing maps: the segmentation problem transformed into a classification task [2710-22]**
E. Pelikan, Freie Univ. Berlin (FRG); F. Vogelsang, Technical Univ. Aachen Medical School (FRG); T. Tolxdorff, Freie Univ. Berlin (FRG)
- 210 **Fuzzy logic approach to extraction of intrathoracic airway trees from three-dimensional CT images [2710-23]**
W. Park, E. A. Hoffman, M. Sonka, Univ. of Iowa

SESSION 6 SEGMENTATION II

- 222 **Novel approach to feature extraction for MRI segmentation [2710-24]**
R. P. Velthuizen, L. O. Hall, L. P. Clarke, Univ. of South Florida
- 232 **Shape-based segmentation and characterization of biomedical images [2710-93]**
K. O. Lepard, R. A. Robb, Mayo Clinic and Foundation
- 243 **Segmentation of volumetric medical imagery using multiple geodesic-based active surfaces [2710-26]**
D. J. Schlesinger, J. W. Snell, L. E. Mansfield, J. R. Brookeman, J. M. Ortega, N. F. Kassell, Univ. of Virginia
- 254 **Three-dimensional segmentation of cortical sulci using active models [2710-27]**
G. Le Goualher, C. Barillot, Y. J. Bizais, J.-M. Scarabin, Univ. de Rennes I (France)
- 264 **Integrated region/edge framework for multimodality target delineation [2710-28]**
R. M. Wasserman, R. S. Acharya, SUNY/Buffalo; C. Sibata, K. H. Shin, Roswell Park Cancer Institute

SESSION 7 DEFORMABLE GEOMETRY: SEGMENTATION

- 278 **User-steered image boundary segmentation [2710-29]**
A. X. Falcão, J. K. Udupa, S. Samarasekera, B. E. Hirsch, Univ. of Pennsylvania
- 289 **Multiscale approach to contour fitting for MR images [2710-30]**
D. Rueckert, P. Burger, Imperial College of Science, Technology and Medicine (UK)
- 301 **Use of texture analysis and boundary refinement to delineate suspicious masses in mammography [2710-31]**
P. E. Undrill, R. Gupta, S. Henry, M. J. Downing, Univ. of Aberdeen and Aberdeen Royal Hospitals Trust (UK)
- 311 **Segmentation and tracking of mitral valve leaflets in echocardiographic sequences: active contours guided by optical flow estimates [2710-32]**
I. Mikić, The Ohio State Univ.; S. Krucinski, J. D. Thomas, The Cleveland Clinic Foundation
- 321 **Segmentation of ovarian follicles using geometric properties, texture descriptions, and boundary information [2710-33]**
G. P. Robinson, A. Chakraborty, Yale Univ.; M. F. Johnston, Belmont Research Inc.; M. L. Reuss, Columbia Univ. Medical Ctr.; J. S. Duncan, Yale Univ.

SESSION 8 REGISTRATION

- 332 **Comparison and evaluation of retrospective intermodality image registration techniques [2710-34]**
J. West, J. M. Fitzpatrick, M. Y. Wang, B. M. Dawant, C. R. Maurer, Jr., Vanderbilt Univ.; R. M. Kessler, R. J. Maciunas, Vanderbilt Univ. Medical Ctr.; C. Barillot, D. Lemoine, Univ. de Rennes I (France); A. M. Collignon, F. Maes, P. Suetens, D. Vandermeulen, Katholieke Univ. Leuven (Belgium); P. A. van den Elsen, P. F. Hemler, S. Napel, T. S. Sumanaweera, Stanford Univ. School of Medicine; B. A. Harkness, Bowman Gray School of Medicine/Wake Forest Univ.; D. L. G. Hill, C. Studholme, Guy's Hospital (UK); G. Malandain, X. Pennec, INRIA (France); M. E. Noz, G. Q. Maguire, Jr., M. Pollack, New York Univ. Medical Ctr.; C. A. Pelizzari, Univ. of Chicago Hospital; R. A. Robb, D. P. Hanson, Mayo Clinic and Foundation; R. P. Woods, UCLA School of Medicine

- 348 **Quantified registration error versus the accuracy of registered surfaces for a multimodality surface-based registration system [2710-35]**
P. F. Hemler, Bowman Gray School of Medicine/ Wake Forest Univ.; T. S. Sumanaweera, P. A. van den Elsen, S. Napel, J. R. Adler, Stanford Univ. School of Medicine
- 358 **Surface-based 3D image registration using the iterative closest-point algorithm with a closest-point transform [2710-36]**
Y. Ge, Bowman Gray School of Medicine/Wake Forest Univ.; C. R. Maurer, Jr., J. M. Fitzpatrick, Vanderbilt Univ.
- 368 **Correlative techniques for cross-modality medical image registration [2710-37]**
D. B. Richardson, Univ. of Akron; E. A. Bury, Summa Health Systems
- 376 **Optimizing the choice of an image-interpolating function [2710-38]**
C. H. Yan, S. Napel, Stanford Univ.
- 390 **Rotation-extended cepstrum technique optimized by systematic analysis of various sets of x-ray images [2710-39]**
T. M. Lehmann, C. Goerke, W. Schmitt, A. Kaupp, R. Repges, Technical Univ. Aachen (FRG)

SESSION 9 DEFORMABLE GEOMETRY: REGISTRATION

- 404 **Volume morphing methods for landmark-based 3D image deformation [2710-41]**
S. Fang, R. Raghavan, National Univ. of Singapore; J. T. Richtsmeier, Johns Hopkins Univ. School of Medicine
- 416 **Rapid coarse-to-fine matching using scale-specific priors [2710-42]**
J. C. Gee, Univ. of Pennsylvania; D. R. Haynor, Univ. of Washington
- 428 **Warped matching for digital subtraction of CT-angiography studies [2710-43]**
A. R. Bani-Hashemi, A. Krishnan, S. Samaddar, Siemens Corporate Research, Inc.
- 438 **Automatic registration of 3D MR images with a computerized brain atlas [2710-44]**
O. Cuisenaire, J.-P. Thiran, B. M. Macq, C. Michel, A. De Volder, Univ. Catholique de Louvain (Belgium); F. Marquès, Univ. Politècnica de Cataluña (Spain)

SESSION 10 RESTORATION

- 450 **System analysis of x-ray-sensitive CCDs and adaptive restoration of intraoral radiographs [2710-45]**
B. Peters, D. Meyer-Ebrecht, T. M. Lehmann, W. Schmitt, Technical Univ. Aachen (FRG)
- 462 **Pincushion correction techniques and their effects on calculated 3D positions and imaging geometries [2710-46]**
K. R. Hoffmann, Y. Chen, J. Esthappan, S.-Y. J. Chen, J. D. Carroll, Univ. of Chicago
- 468 **Optimal restoration of compressed biomedical images: a discrete lattice theoretic approach [2710-47]**
V. Swarnakar, Roswell Park Cancer Research Institute; A. V. Mathew, E. R. Dougherty, Rochester Institute of Technology; C. Sibata, Roswell Park Cancer Institute
- 477 **CT artifact correction: an image processing approach [2710-48]**
H. Soltanian-Zadeh, Henry Ford Hospital and Univ. of Tehran (Iran); J. P. Windham, J. Soltanianzadeh, Henry Ford Hospital

- 486 **Linear versus nonlinear model-based restoration of medical images corrupted with signal-dependent noise [2710-49]**
S. Mitra, C. Wettasinghe, A. Kher, S. Pemmaraju, Texas Tech Univ.; Y.-Y. Shieh, G. H. Roberson, Health Sciences Ctr./Texas Tech Univ.

SESSION 11 MEASUREMENTS AND QUANTIFICATION

- 494 **Precision and accuracy of 3D lower extremity residua measurement systems [2710-50]**
P. K. Commean, K. E. Smith, M. W. Vannier, C. F. Hildebolt, T. K. Pilgram, Mallinckrodt Institute of Radiology/Washington Univ. School of Medicine
- 511 **Endoscopic exploration and measurement in 3D radiological images [2710-51]**
K. Ramaswamy, W. E. Higgins, The Pennsylvania State Univ.
- 524 **Evaluating the impact on operator performance of quantification algorithms [2710-52]**
J. R. Mitchell, S. J. Karlik, D. H. Lee, M. Eliasziw, G. P. Rice, A. Fenster, John P. Robarts Research Institute/Univ. of Western Ontario (Canada)
- 534 **Artificial neural networks for scatter and attenuation compensation in radioisotope imaging [2710-53]**
P. Maksud, B. Fertil, C. Rica, A. Aurengo, INSERM (France)
- 542 **Quantitative analysis of statistical methods of grayscale inhomogeneity correction in magnetic resonance images [2710-54]**
B. H. Brinkmann, A. Manduca, R. A. Robb, Mayo Clinic and Foundation
- 553 **Volume quantization of the mouse cerebellum by semiautomatic 3D segmentation of magnetic resonance images [2710-55]**
J. Sijbers, A. Van der Linden, P. Scheunders, J. Van Audekerke, D. Van Dyck, E. Raman, Univ. of Antwerp (Belgium)

Part Two

SESSION 12 SHAPE AND SCALE

- 562 **Fast 3D medial axis transformation to reduce computation and complexity in radiosurgery treatment planning [2710-56]**
Q. R. Wu, J. D. Bourland, R. A. Robb, Mayo Clinic and Foundation
- 572 **Multiscale shape analysis for computed radiographic images [2710-57]**
B. K. Jang, Eastman Kodak Co.
- 584 **IDEFIX: identification of dental fixtures in intraoral x rays [2710-58]**
T. M. Lehmann, W. Schmitt, H. Horn, Technical Univ. Aachen (FRG); W. Hillen, Technical College Aachen (FRG)
- 596 **Multiscale shape description of MR brain images using active contour models [2710-59]**
J. A. Schnabel, S. R. Arridge, Univ. College London (UK)
- 607 **Deformation of n-dimensional digital Jordan surfaces [2710-60]**
G. J. Grevera, J. K. Udupa, Univ. of Pennsylvania

SESSION 13 TRANSFORMS

- 616 **Image processing for magnetic-resonance elastography [2710-61]**
A. Manduca, R. Muthupillai, P. J. Rossman, J. F. Greenleaf, R. L. Ehman, Mayo Clinic and Foundation
- 624 **Comparison of spectral estimation methods in reconstruction of parametric ultrasound images [2710-62]**
P. Chaturvedi, M. F. Insana, T. J. Hall, Univ. of Kansas Medical Ctr.
- 635 **Genetic algorithms applied to Fourier-descriptor-based geometric models for anatomical object recognition in medical images [2710-63]**
K. Delibasis, P. E. Undrill, G. G. Cameron, Univ. of Aberdeen and Aberdeen Royal Hospitals Trust (UK)
- 646 **Application of 3D registration for detecting lesions in magnetic resonance breast scans [2710-64]**
R. Kumar, J. C. Asmuth, K. Hanna, J. R. Bergen, David Sarnoff Research Ctr.; C. Hulka, D. B. Kopans, R. Weisskoff, R. Moore, Massachusetts General Hospital

SESSION 14 TEXTURE AND WAVELETS

- 658 **Homomorphic wavelet shrinkage and feature emphasis for speckle reduction and enhancement of echocardiographic images [2710-65]**
X. Zong, E. A. Geiser, A. F. Laine, D. C. Wilson, Univ. of Florida
- 668 **Texture-based feature extraction using the wavelet transform on x rays [2710-66]**
I. Scholl, Technical Univ. Aachen (FRG); E. Pelikan, Freie Univ. Berlin (FRG); R. Repges, Technical Univ. Aachen (FRG); T. Tolxdorff, Freie Univ. Berlin (FRG)
- 679 **Hierarchical Markov random-field modeling for texture classification in chest radiographs [2710-68]**
R. Vargas-Voracek, C. E. Floyd, Jr., Duke Univ. Medical Ctr.; L. W. Nolte, Duke Univ.; P. McAdams, Duke Univ. Medical Ctr.

SESSION 15 POSTER SESSION

- 688 **Temporal interpolation of low-frame-rate digital subtraction angiograms [2710-69]**
H.-H. Hsiung, B. A. Schueler, A. Sen, X. Hu, Univ. of Minnesota; R. E. Latchaw, Univ. of Miami School of Medicine
- 698 **Decision-directed line detection with application to medical ultrasound [2710-70]**
R. N. Czerwinski, D. L. Jones, W. D. O'Brien, Jr., Univ. of Illinois/Urbana-Champaign
- 709 **Scatter reduction in mammography using statistical estimation techniques [2710-72]**
A. H. Baydush, J. K. Laading, C. E. Floyd, Jr., Duke Univ. Medical Ctr.
- 717 **Scanned bi-orthogonal radiographs as a source for 3D cephalometric data [2710-73]**
K. Subramanyan, D. Dean, Case Western Reserve Univ.
- 725 **Computer-aided diagnosis of mammography using an artificial neural network: predicting the invasiveness of breast cancers from image features [2710-74]**
J. Y. Lo, Duke Univ. Medical Ctr.; J. Kim, Duke Univ. Medical Ctr. and Duke Univ. J. A. Baker, Duke Univ. Medical Ctr.; C. E. Floyd, Jr., Duke Univ. Medical Ctr. and Duke Univ.

- 733 **Exploiting context in mammograms: a hierarchical neural network for detecting microcalcifications [2710-75]**
P. Sajda, C. D. Spence, J. C. Pearson, David Sarnoff Research Ctr.; R. M. Nishikawa, Univ. of Chicago
- 743 **Evolutionary algorithm for automatic detection of blood vessel shapes [2710-77]**
A. Kutics, Univ. of Veszprem (Hungary) and Japan Systems Inc. (Japan)
- 752 **Segmentation and analysis of breast cancer pathological images by an adaptive-sized hybrid neural network [2710-78]**
A. Hasegawa, K. J. Cullen, S. K. Mun, Georgetown Univ. Medical Ctr.
- 763 **MR imaging with a reduced number of encoding steps [2710-79]**
J. B. Weaver, Dartmouth-Hitchcock Medical Ctr.; D. M. Healy, Jr., D. W. Warner, S. Chawla, Dartmouth College; J. Lu, Lawrence Livermore National Lab.
- 774 **Region-based enhancement of chest and cervical spine radiographs [2710-80]**
J.-S. Lin, D. E. Steller Artz, H. Li, K. Legendre, M. T. Freedman, S. K. Mun, Georgetown Univ. Medical Ctr.
- 783 **Digital mammography in the radio-dense and complex pattern breast [2710-82]**
M. T. Freedman, D. E. Steller Artz, H. Jafroudi, J. Hogge, R. A. Zuurbier, J.-S. Lin, R. Katial, S. K. Mun, Georgetown Univ. Medical Ctr.
- 794 **Classification of microcalcifications in digital mammograms for the diagnosis of breast cancer [2710-83]**
O. Tsujii, A. Hasegawa, C. Y. Wu, S.-C. B. Lo, M. T. Freedman, S. K. Mun, Georgetown Univ. Medical Ctr.
- 805 **Segmentation technique of complex image scene for an automatic blood cell counting system [2710-84]**
V. A. Kovalev, Institute of Mathematics (Belarus); A. Y. Grigoriev, Metal-Polymer Research Institute (Belarus); H.-S. Ahn, Korea Institute of Science and Technology; N. K. Myshkin, Metal-Polymer Research Institute (Belarus)
- 811 **Primitive-based contrast enhancement method [2710-85]**
F. N. Labaere, Katholieke Univ. Leuven (Belgium); P. Vuylsteke, Agfa-Gevaert NV (Belgium); P. Wambacq, Katholieke Univ. Leuven (Belgium); E. P. Schoeters, Agfa-Gevaert NV (Belgium); C. M. Fivez, Univ. Ziekenhuis Gasthuisberg (Belgium)
- 821 **Registration of SPECT and MR brain images using a fuzzy surface [2710-86]**
J. B. A. Maintz, Univ. Hospital Utrecht Imaging Ctr. (Netherlands); P. A. van den Elsen, Stanford Univ. School of Medicine; M. A. Viergever, Univ. Hospital Utrecht Imaging Ctr. (Netherlands)
- 830 **Multiresolution unsharp masking technique for mammogram image enhancement [2710-87]**
F. Y. M. Lure, P. W. Jones, R. S. Gaborski, Eastman Kodak Co.
- 840 **Estimating fractal dimension of medical images [2710-88]**
A. I. Penn, Alan Penn & Associates and George Washington Univ.; M. H. Loew, George Washington Univ.
- 852 **Morphological image analysis of left-ventricular endocardial borders in 2D echocardiograms [2710-89]**
M. M. Choy, J. S. Jin, Univ. of New South Wales (Australia)

- 864 **XRA image segmentation using regression [2710-90]**
J. S. Jin, Univ. of New South Wales (Australia)
- 869 **Distributed system for processing multidimensional radiological images [2710-91]**
W. E. Higgins, R. D. Swift, The Pennsylvania State Univ.
- 880 **Performance evaluation of the filtered back projection reconstruction and the iterative ML reconstruction for PET images [2710-92]**
C. X. Wang, W. E. Snyder, Bowman Gray School of Medicine/Wake Forest Univ. and North Carolina State Univ.; G. L. Bilbro, North Carolina State Univ.; P. Santago II, Bowman Gray School of Medicine/Wake Forest Univ.
- 888 **Wavelet methods for combining CAD with enhancement of mammograms [2710-94]**
R. N. Strickland, H. I. Hahn, L. J. Baig, Univ. of Arizona
- 904 **Image analysis of neuropsychological test responses [2710-95]**
S. L. Smith, D. L. Hiller, Univ. of York (UK)
- 916 **Linear contour segmentation and its application to the computation of stereotactic radiosurgery dose distribution [2710-96]**
E. Andres, Roswell Park Cancer Institute; I. Debele-Renesson, Univ. Louis Pasteur Strasbourg/LSIIT (France); C. Sibata, Roswell Park Cancer Institute; R. S. Acharya, SUNY/Buffalo; K. H. Shin, Roswell Park Cancer Institute
- 922 **Reduction of movement artifacts in comparative 3D magnetic resonance (MR) breast imaging [2710-97]**
P. E. Undrill, T. W. Redpath, F. J. Gilbert, Univ. of Aberdeen and Aberdeen Royal Hospitals Trust (UK)
- 931 **Novel technique in the segmentation of magnetic resonance image [2710-98]**
K.-L. Chan, City Univ. of Hong Kong
- 940 **Earlier detection of interval breast cancers with adaptive neighborhood contrast enhancement of mammograms [2710-99]**
L. Shen, Y. Shen, R. M. Rangayyan, Univ. of Calgary (Canada); J. E. L. Desautels, H. Bryant, T. J. Terry, N. Horeczko, Alberta Program for the Early Detection of Breast Cancer (Canada)
- 950 **Statistical analysis of textures from compressed images [2710-100]**
S. Bonnevay, M. P. Lamure, N. Nicoloianis, Univ. Claude Bernard Lyon I (France)
- 960 **Automatic segmentation of MR brain images in multiple sclerosis patients [2710-101]**
R. T. V. Avula, B. J. Erickson, Mayo Clinic and Foundation
- 967 **Dynamic behavior analysis of in-vitro cancerous cells by means of an automatic image processing device [2710-102]**
P. Van Ham, C. De Hauwer, R. Kiss, Univ. Libre de Bruxelles (Belgium)
- 979 **Investigation into the computer assessment of image quality in mammography [2710-103]**
A. Kaplish, J. R. G. Pretlove, Univ. of Surrey (UK); K. C. Young, P. W. Horton, St. Luke's Hospital (UK)
- 988 **Analysis of mammograms aided by database of images of calcifications and textures [2710-104]**
E. Y. Tao, J. Sklansky, Univ. of California/Irvine

- 996 **Semiautomated computerized system for fracture assessment of spinal x-ray films [2710-105]**
J. C. Gardner, S. L. Heyano, L. G. Yaffe, G. von Ingersleben, C. H. Chestnut III, Univ.
of Washington
- 1009 **Interpretation of image sets containing convoluted tubular structures via transluminal sections
and steerable intraluminal perspective views [2710-106]**
J. E. Reed, A. K. Hara, C. D. Johnson, Mayo Clinic and Foundation
- 1020 **Automated extraction of pelvic features in portal and simulation images [2710-107]**
F.-F. Yin, K. Nie, L. Chen, C. W. Chen, Univ. of Rochester
- 1024 **Pattern classification approach to characterizing solitary pulmonary nodules imaged on
high-resolution computed tomography [2710-108]**
M. F. McNitt-Gray, E. M. Hart, J. Goldin, UCLA School of Medicine; C.-W. Yao, Univ. of
California/Los Angeles; D. R. Aberle, UCLA School of Medicine
- 1035 **Computer-aided diagnosis system for lung tumors [2710-109]**
H. Suzuki, N. Inaoka, IBM Japan, Ltd. (Japan); H. Takabatake, Minami-Ichijoh Hospital (Japan);
M. Mori, Sapporo Kousei Hospital (Japan); H. Natori, Sapporo Medical Univ. (Japan)
- 1039 **Addendum**
- 1040 **Author Index**