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Part One of Two Parts
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Contents

Part One

xvii Conference Committee
xix Introduction
xxi In Memoriam: Sam Dwyer (1932-2008)

SESSION 1 KEYNOTE AND METHODOLOGY

6915 02 Clinical relevance of model based computer-assisted diagnosis and therapy (Keynote Paper) [6915-12]
A. Schenk, S. Zidowitz, H. Bourquain, M. Hindennach, C. Hansen, H. K. Hahn, H.-O. Peitgen, MeVis Research GmbH (Germany)

6915 03 Feature selection for computer-aided detection: comparing different selection criteria [6915-13]
R. Hupse, N. Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)

6915 04 Hybrid linear classifier for jointly normal data: theory [6915-14]
W. Chen, Ctr. for Devices and Radiological Health, U.S. Food and Drug Administration (USA); C. E. Metz, M. L. Giger, The Univ. of Chicago (USA)

SESSION 2 BREAST TOMOSYNTHESIS

6915 05 Computer-aided detection of breast masses in tomosynthesis reconstructed volumes using information-theoretic similarity measures [6915-06]

6915 06 Digital tomosynthesis mammography: comparison of mass classification using 3D slices and 2D projection views [6915-07]
H.-P. Chan, Y.-T. Wu, B. Sahiner, Y. Zhang, J. Wei, Univ. of Michigan (USA); R. H. Moore, D. B. Kopans, Massachusetts General Hospital (USA); M. A. Helvie, L. Hadjiiski, T. Way, Univ. of Michigan (USA)

6915 07 Applying a 2D based CAD scheme for detecting micro-calcification clusters using digital breast tomosynthesis images: an assessment [6915-08]
S. C. Park, B. Zheng, X.-H. Wang, D. Gur, Univ. of Pittsburgh (USA)

6915 08 Classification of breast masses and normal tissues in digital tomosynthesis mammography [6915-09]
J. Wei, H.-P. Chan, Y. Zhang, B. Sahiner, C. Zhou, J. Ge, Y.-T. Wu, L. M. Hadjiiski, The Univ. of Michigan (USA)
Masses classification using fuzzy active contours and fuzzy decision trees [6915-10]
G. J. Palma, GE Healthcare Europe (France) and Ecole Nationale Supérieure des Télécommunications (France); G. Peters, Fenics (France); S. Muller, GE Healthcare Europe (France); I. Bloch, Ecole Nationale Supérieure des Télécommunications (France)

Texture in digital breast tomosynthesis: a comparison between mammographic and tomographic characterization of parenchymal properties [6915-11]
D. Kontos, P. R. Bakic, A. D. A. Maidment, Univ. of Pennsylvania (USA)

SESSION 3 COLON CAD

Automated matching of supine and prone colonic polyps based on PCA and SVMs [6915-01]
S. Wang, R. L. Van Uitert, R. M. Summers, National Institutes of Health (USA)

DMLE: a large-scale dimensionality reduction method for detection of polyps in CT colonography [6915-02]
S. Wang, J. Yao, R. M. Summers, National Institutes of Health (USA)

Mosaic decomposition method for detection and removal of inhomogeneously tagged regions in electronic cleansing for CT colonography [6915-03]
W. Cai, M. Zalis, H. Yoshida, Massachusetts General Hospital and Harvard Medical School (USA)

Simultaneous feature selection and classification based on genetic algorithms: an application to colonic polyp detection [6915-04]
Y. Zheng, X. Yang, M. Siddique, G. Beddoe, Medicsight PLC (United Kingdom)

An MTANN CAD for detection of polyps in false-negative CT colonography cases in a large multicenter clinical trial: preliminary results [6915-05]
K. Suzuki, I. Sheu, M. Epstein, R. Kohlbrenner, A. Lostumbo, The Univ. of Chicago (USA); D. C. Rockey, Univ. of Texas Southwestern Medical Ctr. (USA); A. H. Dachman, The Univ. of Chicago (USA)

SESSION 4 BREAST IMAGING CAD

Computerized self-assessment of automated lesion segmentation in breast ultrasound: implication for CADx applied to findings in the axilla [6915-15]
K. Drukker, M. L. Giger, Univ. of Chicago (USA)

Design and evaluation of a new automated method for the segmentation and characterization of masses on ultrasound images [6915-16]
J. Cui, B. Sahiner, H.-P. Chan, A. Nees, C. Paramagul, L. M. Hadjiiski, C. Zhou, J. Shi, Univ. of Michigan (USA)

Computer-aided diagnosis of breast color elastography [6915-17]
R.-F. Chang, National Taiwan Univ. (Taiwan); W.-C. Shen, Asia Univ. (Taiwan); M.-C. Yang, National Taiwan Univ. (Taiwan); W. K. Moon, College of Medicine, Seoul National Univ. Hospital (South Korea); E. Takada, Dokkyo Medical Univ. (Japan); Y.-C. Ho, National Chung Cheng Univ. (Taiwan); M. Nakajima, M. Kobayashi, Saitama Medical Univ. (Japan)
Computer-aided classification of lesions by means of their kinetic signatures in dynamic contrast-enhanced MR images [6915-18]
T. Twellmann, B. ter Haar Romeny, Eindhoven Univ. of Technology (Netherlands)

Expanded pharmacokinetic model for population studies in breast MRI [6915-19]
V. Mohan, Georgia Institute of Technology (USA) and Siemens Medical Solutions USA (USA); Y. Shinagawa, B. Jian, G. Hermosillo, Siemens Medical Solutions USA (USA)

A knowledge-based approach to CADx of mammographic masses [6915-20]
M. Elter, E. Haßlmeyer, Fraunhofer Institute for Integrated Circuits (Germany)

SESSION 5 CARDIAC, NEURO, AND RETINAL CAD

Computerized assessment of coronary calcified plaques in CT images of a dynamic cardiac phantom [6915-21]
Z. B. Rodgers, M. King, M. L. Giger, M. Vannier, D. M. E. Bardo, K. Suzuki, L. Lan, The Univ. of Chicago (USA)

Hotspot quantification of myocardial focal tracer uptake from molecular targeted SPECT/CT images: experimental validation [6915-22]

Automated segmentation and tracking of coronary arteries in ECG-gated cardiac CT scans [6915-23]
C. Zhou, H.-P. Chan, A. Chughtai, S. Patel, P. Agarwal, L. M. Hadjiiski, B. Sahiner, J. Wei, J. Ge, E. A. Kazerooni, The Univ. of Michigan (USA)

Computer-aided prognosis of neuroblastoma: classification of stromal development on whole-slide images [6915-24]
O. Sertel, J. Kong, The Ohio State Univ. (USA); H. Shimada, Children's Hospital Los Angeles (USA) and Univ. of Southern California Keck School of Medicine (USA); U. Catalyurek, J. H. Saltz, M. Gurcan, The Ohio State Univ. (USA)

Automatic classification and detection of clinically relevant images for diabetic retinopathy [6915-25]
X. Xu, B. Li, Arizona State Univ. (USA)

SESSION 6 COLON AND PROSTATE CAD

Learning from imbalanced data: a comparative study for colon CAD [6915-26]
X. Yang, Y. Zheng, M. Siddique, G. Beddoe, Medicsight PLC (United Kingdom)

Reduction of false positives by extracting fuzzy rules from data for polyp detection in CTC scans [6915-27]
M. M. Siddique, Y. Zheng, X. Yang, G. Beddoe, Medicsight PLC (United Kingdom)
SESSION 7  LUNG NODULE AND ANALYSIS

6915 0T  **Computer aided detection of polyps in virtual colonoscopy with sameday faecal tagging** [6915-28]
S. Delsanto, L. Morra, S. Agliozzo, R. Baggio, i-m3D (Italy); D. Campanella, V. Tartaglia, Institute for Cancer Research and Treatment (Italy); F. Cerri, Univ. of Pisa (Italy); F. Iafrate, Sapienza Univ. of Rome (Italy); E. Neri, Univ. of Pisa (Italy); A. Laghi, Sapienza Univ. of Rome (Italy); D. Regge, Institute for Cancer Research and Treatment (Italy)

6915 0U  **A consensus embedding approach for segmentation of high resolution in vivo prostate magnetic resonance imagery** [6915-29]
S. Viswanath, Rutgers Univ. (USA); M. Rosen, Univ. of Pennsylvania (USA); A. Madabhushi, Rutgers Univ. (USA)

6915 0V  **Improving supervised classification accuracy using non-rigid multimodal image registration: detecting prostate cancer** [6915-30]
J. Chappelow, S. Viswanath, J. Monaco, Rutgers Univ. (USA); M. Rosen, J. Tomaszewski, M. Feldman, Univ. of Pennsylvania (USA); A. Madabhushi, Rutgers Univ. (USA)

6915 0W  **Combining T2-weighted with dynamic MR images for computerized classification of prostate lesions** [6915-31]
P. C. Vos, T. Hambrock, J. O. Barentsz, H. J. Huisman, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)

**SESSION 7  LUNG NODULE AND ANALYSIS**

6915 0X  **Automated detection of nodules attached to the pleural and mediastinal surface in low-dose CT scans** [6915-32]
B. van Ginneken, A. Tan, K. Murphy, B.-J. de Hoop, M. Prokop, Univ. Medical Ctr. Utrecht (Netherlands)

6915 0Y  **Performance levels for computerized detection of nodules in different size and pattern groups on thin-slice CT** [6915-33]
Q. Li, Duke Univ. (USA); F. Li, K. Doi, The Univ. of Chicago (USA)

6915 0Z  **A novel method of partitioning regions in lungs and their usage in feature extraction for reducing false positives** [6915-34]
M. Acharyya, D. M. Siddu, Siemens Information Systems (India); A. Manevitch, J. Stoeckel, Siemens Computer Aided Diagnosis (Israel)

6915 10  **Comparison of computer versus manual determination of pulmonary nodule volumes in CT scans** [6915-35]
A. M. Biancardi, A. P. Reeves, A. C. Jirapatnakul, T. Apanasovitch, Cornell Univ. (USA); D. Yankelevitz, C. I. Henschke, Weill Medical College of Cornell Univ. (USA)

6915 11  **Repeatability and noise robustness of spicularty features for computer aided characterization of pulmonary nodules in CT** [6915-36]
R. Wiemker, R. Opfer, T. Bülow, S. Kabus, Philips Research Europe - Hamburg (Germany); E. Dharaiya, Philips Medical Systems CT (USA)
SESSION 8 NEW PROSPECTS

6915 12 Volume analysis of treatment response of head and neck lesions using 3D level set segmentation [6915-37]
L. Hadjiiski, E. Street, B. Sahiner, S. Gujar, M. Ibrahim, H.-P. Chan, S. K. Mukherji, Univ. of Michigan (USA)

6915 13 Automatic lesion tracking for a PET/CT based computer aided cancer therapy monitoring system [6915-38]
R. Opfer, Philips Research Labs. (Germany); W. Brenner, Univ. Medical Ctr. Hamburg (Germany); I. Carlsten, S. Renisch, J. Sabczynski, R. Wiemker, Philips Research Labs. (Germany)

6915 14 Unsupervised classification of cirrhotic livers using MRI data [6915-39]
G. Lee, Gifu Univ. (Japan); M. Kanematsu, H. Kato, H. Kondo, Gifu Univ. School of Medicine (Japan); X. Zhou, T. Hara, H. Fujita, Gifu Univ. (Japan); H. Hoshi, Gifu Univ. School of Medicine (Japan)

6915 15 An information theoretic view of the scheduling problem in whole-body CAD [6915-40]
Y. Zhan, X. S. Zhou, A. Krishnan, Siemens Medical Solutions (USA)

SESSION 9 LUNG ANALYSIS

6915 18 Human airway measurement from CT images [6915-43]
J. Lee, A. P. Reeves, S. Fotin, T. Apanasovich, Cornell Univ. (USA); D. Yankelevitz, Weill Cornell Medical College (USA)

6915 19 Computer aided detection of endobronchial valves [6915-44]

6915 1A Computerized scheme for detection of diffuse lung diseases on CR chest images [6915-45]
R. R. Pereira, Jr., J. Shiraishi, F. Li, Q. Li, K. Doi, Univ. of Chicago (USA)

6915 1B Extraction and visualization of the central chest lymph-node stations [6915-46]
K. Lu, S. A. Meritt, W. E. Higgins, Penn State Univ. (USA)

6915 1C Reduction of lymph tissue false positives in pulmonary embolism detection [6915-47]
B. Ghanem, Siemens Medical Solutions USA, Inc. (USA) and Univ. of Illinois at Urbana-Champaign (USA); J. Liang, J. Bi, M. Salganicoff, A. Krishnan, Siemens Medical Solutions USA, Inc. (USA)
SESSION 10  LUNG NODULES

6915 1E  Characterization of pulmonary nodules: effects of size and feature type on reported performance [6915-49]
A. C. Jirapatnakul, A. P. Reeves, T. V. Apanasovich, A. M. Biancardi, Cornell Univ. (USA); D. F. Yankelevitz, C. I. Henschke, Weill Medical College of Cornell Univ. (USA)

6915 1F  Use of random process-based fractal measure for characterization nodules and suspicious regions in lung [6915-50]
M. Acharyya, Siemens Information Systems (India); S. Chakravarty, Univ. of Maryland, Baltimore County (USA); J. Stoeckel, Siemens Computer Aided Diagnosis (Israel)

6915 1G  The impact of pulmonary nodule size estimation accuracy on the measured performance of automated nodule detection systems [6915-51]
S. V. Fotin, A. P. Reeves, Cornell Univ. (USA); D. F. Yankelevitz, C. I. Henschke, New York Presbyterian Hospital-Weill Cornell Medical Ctr. (USA)

6915 1H  Computer-aided diagnosis: a 3D segmentation method for lung nodules in CT images by use of a spiral-scanning technique [6915-52]
J. Wang, Duke Univ. (USA); R. Engelmann, The Univ. of Chicago (USA); Q. Li, Duke Univ. (USA)

6915 1I  Comparison of computer-aided diagnosis performance and radiologist readings on the LIDC pulmonary nodule dataset [6915-53]
L. Zhao, M. C. Lee, L. Boroczky, V. Vloemans, Philips Research North America (USA); R. Opfer, Philips Research Europe (Germany)

6915 1J  Characteristics of suspicious features in CT lung-cancer screening images [6915-54]
P. F. Judy, Brigham and Women’s Hospital and Harvard Medical School (USA); Y. Kanasaki, Tottori Univ. (Japan); F. L. Jacobson, Brigham and Women’s Hospital and Harvard Medical School (USA); C. Del Frate, Univ. degli Studi di Udine (Italy)

SESSION 11  MAMMOGRAM ANALYSIS

6915 1K  Database decomposition of a knowledge-based CAD system in mammography: an ensemble approach to improve detection [6915-55]
M. A. Mazurowski, J. M. Zurada, Univ. of Louisville (USA); G. D. Tourassi, Duke Univ. Medical Ctr. (USA)

6915 1L  Correlative feature analysis of FFDM images [6915-56]
Y. Yuan, M. L. Giger, H. Li, C. Sennett, The Univ. of Chicago (USA)

6915 1M  Matching mammographic regions in mediolateral oblique and cranio caudal views: a probabilistic approach [6915-57]
M. Samulski, N. Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)

6915 1N  Concordance of computer-extracted image features with BI-RADS descriptors for mammographic mass margin [6915-58]
B. Sahiner, L. M. Hadjiiski, H.-P. Chan, C. Paramagul, A. Nees, M. Helvie, J. Shi, Univ. of Michigan (USA)
The effect of training with SFM images in a FFDM CAD system [6915-59]
M. Kallenberg, N. Karssemeijer, Radboud Univ. Nijmegen Medical Ctr. (Netherlands)

Part Two

POSTER SESSION: BRAIN

Computer-aided diagnostic method for classification of Alzheimer’s disease with atrophic image features on MR images [6915-60]
H. Arimura, T. Yoshiura, S. Kumazawa, K. Tanaka, Kyushu Univ. (Japan); H. Koga, Okumura Hospital (Japan); F. Mihara, National Fukuoka-Higashi Medical Ctr. (Japan); H. Honda, S. Sakai, F. Toyofuku, Y. Higashida, Kyushu Univ. (Japan)

Computerized detection of unruptured aneurysms in MRA images: reduction of false positives using anatomical location features [6915-61]
Y. Uchiyama, X. Gao, T. Harai, H. Fujita, Gifu Univ. (Japan); H. Ando, Gifu Municipal Hospital (Japan); H. Yamakawa, Matsunami General Hospital (Japan); T. Asano, H. Kato, T. Iwama, M. Kanematsu, H. Hoshi, Gifu Univ. (Japan)

Coil compaction and aneurysm growth: image-based quantification using non-rigid registration [6915-62]
M. De Craene, Networking Ctr. on Biomedical Research (Spain) and Univ. Pompeu Fabra (Spain); J. M. Pozo, M. C. Villa, Univ. Pompeu Fabra (Spain) and Networking Ctr. on Biomedical Research (Spain); E. Vivas, T. Sola, L. Guimaraens, Hospital General de Catalunya (Spain); J. Blasco, J. Macho, Hospital Clinic i Provincial de Barcelona (Spain); A. Frangi, Univ. Pompeu Fabra (Spain) and Networking Ctr. on Biomedical Research (Spain)

Automatic segmentation of different-sized leukoaraiosis regions in brain MR images [6915-63]
Y. Uchiyama, T. Kunieda, T. Harai, H. Fujita, Gifu Univ. (Japan); H. Ando, Gifu Municipal Hospital (Japan); H. Yamakawa, Matsunami General Hospital (Japan); T. Asano, H. Kato, T. Iwama, M. Kanematsu, H. Hoshi, Gifu Univ. (Japan)

A multi-resolution image analysis system for computer-assisted grading of neuroblastoma differentiation [6915-64]
J. Kong, O. Sertel, The Ohio State Univ. (USA); H. Shimada, Childrens Hospital Los Angeles (USA) and Univ. of Southern California, Keck School of Medicine (USA); K. L. Boyer, J. H. Saltz, M. N. Gurcan, The Ohio State Univ. (USA)

Quantitative assessment of multiple sclerosis lesion load using CAD and expert input [6915-65]
A. Gertych, Cedar-Sinai Medical Ctr. (USA) and Univ. of Southern California (USA); A. Wong, Glendale Memorial, and Glendale Adventist Hospital (USA); A. Sangnil, B. J. Liu, Univ. of Southern California (USA)
K. H. Fritzschke, F. L. Giesel, T. Heimann, German Cancer Research Ctr. (Germany); P. A. Thomann, Univ. of Heidelberg (Germany); H. K. Hahn, MeVis Research (Germany); J. Pantel, Univ. of Frankfurt (Germany); J. Schröder, Univ. of Heidelberg (Germany); M. Essig, H.-P. Meinzer, German Cancer Research Ctr. (Germany)

Computer aided detection of tumor and edema in brain FLAIR magnetic resonance image using ANN [6915-67]
N. Pradhan, Galgotias College of Engineering and Technology (India); A. K. Sinha, Bharati Vidyapeeth College of Engineering (India)

POSTER SESSION: BREAST

Influence of signal-to-noise ratio and temporal stability on computer-aided detection of mammographic microcalcifications in digitized screen-film and full-field digital mammography [6915-68]
L. M. Yarusso, R. M. Nishikawa, The Univ. of Chicago (USA)

Toward a standard reference database for computer-aided mammography [6915-69]
J. E. E. Oliveira, Aachen Univ. of Technology (Germany) and Federal Univ. of Minas Gerais (Brazil); M. O. Gueld, Aachen Univ. of Technology (Germany); A. de A. Araújo, Federal Univ. of Minas Gerais (Brazil); B. Olt, T. M. Deserno, Aachen Univ. of Technology (Germany)

A graph matching based automatic regional registration method for sequential mammogram analysis [6915-70]
F. Ma, M. Bajger, M. J. Bottema, Flinders Univ. (Australia)

Comparison of mammographic parenchymal patterns of normal subjects and breast cancer patients (Honorable Mention Poster Award) [6915-71]

Characterization of posterior acoustic features of breast masses on ultrasound images using artificial neural network [6915-72]
J. Cui, B. Sahiner, H.-P. Chan, C. Paramagul, A. Nees, L. M. Hadjiiski, Y.-T. Wu, Univ. of Michigan (USA)

Application of the Minkowski-functionals for automated pattern classification of breast parenchyma depicted by digital mammography [6915-73]
H. F. Boehm, T. Fischer, D. Riosk, S. Britsch, M. Reiser, Univ. of Munich (Germany)

Improving mass detection performance by use of 3D difference filter in a whole breast ultrasonography screening system [6915-74]
Y. Ikedo, D. Fukuoka, T. Hara, H. Fujita, Gifu Univ. (Japan); E. Takada, Dokkyo Medical Univ. School of Medicine (Japan); T. Endo, Nagoya Medical Ctr. (Japan); T. Morita, Chunichi Hospital (Japan)

Semiautomatic segmentation for the computer aided diagnosis of clustered microcalcifications [6915-75]
M. Elter, C. Held, Fraunhofer Institute for Integrated Circuits (Germany)
Rib detection for whole breast ultrasound image [6915-76]
R.-F. Chang, Y.-W. Shen, National Taiwan Univ. (Taiwan); J. Chen, U-Systems, Inc. (USA); Y.-H. Chou, National Yang Ming Univ. School of Medicine (Taiwan); C.-S. Huang, National Taiwan Univ. and College of Medicine, National Taiwan Univ. (Taiwan)

Automatic categorization of mammographic masses using BI-RADS as a guidance [6915-77]
Y. Tao, Virginia Polytechnic Institute and State Univ. (USA) and Georgetown Univ. Medical Ctr. (USA); S.-C. B. Lo, M. T. Freedman, E. Makariou, Georgetown Univ. Medical Ctr. (USA); J. Xuan, Virginia Polytechnic Institute and State Univ. (USA)

Effect of ROI size on the performance of an information-theoretic CAD system in mammography: multi-size fusion analysis [6915-78]
R. C. Ike III, S. Singh, B. Harrawood, G. D. Tourassi, Duke Univ. Medical Ctr. (USA)

Optimized acquisition scheme for multi-projection correlation imaging of breast cancer [6915-79]
A. S. Chawla, E. Samei, R. S. Saunders, J. Y. Lo, S. Singh, Duke Univ. (USA)

Detection of architectural distortion in mammograms acquired prior to the detection of breast cancer using texture and fractal analysis [6915-80]
S. Prajna, R. M. Rangayyan, F. J. Ayres, J. E. L. Desautels, Univ. of Calgary (Canada)

Breast mass segmentation on dynamic contrast-enhanced magnetic resonance scans using the level set method [6915-81]
J. Shi, B. Sahiner, H.-P. Chan, C. Paramagul, L. M. Hadjiiski, M. Helvie, Y.-T. Wu, J. Ge, Y. Zhang, C. Zhou, J. Wei, Univ. of Michigan (USA)

A study of mammographic mass retrieval based on shape and texture descriptors [6915-82]
Z. Zhou, Alcorn State Univ. (USA) and Nanjing Univ. of Aeronautics and Astronautics (China); F. Zou, Alcorn State Univ. (USA) and Xiamen Univ. (China); K. Agyepong, Alcorn State Univ. (USA)

Novel kinetic texture features for breast lesion classification on dynamic contrast enhanced (DCE) MRI [6915-83]
S. C. Agner, Rutgers Univ. (USA); S. Soman, E. Libfeld, M. McDonald, Robert Wood Johnson Medical School (USA); M. A. Rosen, M. D. Schnall, Univ. of Pennsylvania (USA); D. Chin, J. Nosner, Robert Wood Johnson Medical School (USA); A. Madabhushi, Rutgers Univ. (USA)

Tumor classification using perfusion volume fractions in breast DCE-MRI [6915-84]

Cell-based image partition and edge grouping: a nearly automatic ultrasound image segmentation algorithm for breast cancer computer aided diagnosis [6915-85]
J.-Z. Cheng, Siemens Corporate Research (USA) and National Taiwan Univ. (Taiwan); K.-W. Chen, National Taiwan Univ. (Taiwan); Y.-H. Chou, Taipei Veterans General Hospital (Taiwan); C.-M. Chen, National Taiwan Univ. (Taiwan)
POSTER SESSION: COLON

6915 2G  Spatio-temporal registration in multiplane MRI acquisitions for 3D colon motility analysis [6915-87]
O. Kutter, Technische Univ. München (Germany); S. Kirchhoff, Univ. of Munich (Germany); M. Berkovich, Technische Univ. München (Germany); M. Reiser, Univ. of Munich (Germany); N. Navab, Technische Univ. München (Germany)

6915 2H  Digital bowel cleansing-free detection method of colonic polyp from fecal tagging CT images [6915-89]
M. Oda, Nagoya Univ. (Japan); T. Kitasaka, K. Mori, Y. Suenaga, Nagoya Univ. (Japan) and Mext Innovative Research Ctr. for Preventive Medical Engineering (Japan); T. Takayama, Univ. of Tokushima (Japan); H. Takabatake, Sapporo-Minami-sanjo Hospital (Japan); M. Mori, Sapporo-Kosei General Hospital (Japan); H. Natori, Keiwakai Nishioka Hospital (Japan); S. Nawano, International Univ. of Health and Welfare, Mita Hospital (Japan)

POSTER SESSION: LUNG

6915 2I  Variation of quantitative emphysema measurements from CT scans [6915-90]
B. M. Keller, A. P. Reeves, C. I. Henschke, Cornell Univ. (USA); R. G. Barr, College of Physicians and Surgeons, Columbia Univ. (USA); D. F. Yankelevitz, Weill Medical College of Cornell Univ. (USA)

6915 2J  Computer-aided interpretation of ICU portable chest images: automated detection of endotracheal tubes [6915-91]
Z. Huo, S. Li, M. Chen, Carestream Health, Inc. (USA); J. Wandtke, Univ. of Rochester (USA)

6915 2K  Automatic segmentation of lung parenchyma based on curvature of ribs using HRCT images in scleroderma studies [6915-92]
M. N. Prasad, M. S. Brown, S. Ahmad, F. Abtin, J. Allen, I. da Costa, H. J. Kim, M. F. McNitt-Gray, J. G. Goldin, David Geffen School of Medicine, Univ. of California, Los Angeles (USA)

6915 2L  Algorithm of pulmonary emphysema extraction using thoracic 3-D CT images [6915-93]
S. Saita, M. Kubo, Y. Kawata, N. Niki, The Univ. of Tokushima (Japan); Y. Nakano, Shiga Univ. of Medical Science (Japan); H. Ohmatsu, National Cancer Ctr. Hospital East (Japan); K. Tominaga, Tochigi Public Health Service Association (Japan); K. Eguchi, Univ. of Teikyo (Japan); N. Moriyama, National Cancer Ctr. (Japan)

6915 2M  An evaluation of automated broncho-arterial ratios for reliable assessment of bronchiectasis [6915-94]
B. L. Odry, A. P. Kiraly, C. L. Novak, Siemens Corporate Research, Inc. (USA); D. P. Naidich, New York Univ. Medical Ctr. (USA); J.-F. Lerallut, Univ. de Technologie de Compiègne (France)

6915 2N  CT-guided automated detection of lung tumors on PET images [6915-95]
Y. Cui, B. Zhao, T. J. Akhurst, J. Yan, L. H. Schwartz, Memorial Sloan-Kettering Cancer Ctr. (USA)
Classifying pulmonary nodules using dynamic enhanced CT images based on CT number histogram (Cum Laude Poster Award) [6915-97]
K. Minami, Y. Kawata, N. Niki, Univ. of Tokushima (Japan); H. Ohmatsu, National Cancer Ctr. Hospital East (Japan); K. Mori, Tochigi Cancer Ctr. Hospital (Japan); K. Yamada, Kanagawa Cancer Ctr. Hospital (Japan); K. Eguchi, Teikyo Univ. (Japan); M. Kaneko, National Cancer Ctr. Hospital (Japan); N. Moriyama, National Cancer Ctr. (Japan)

Volume error analysis for lung nodules attached to pulmonary vessels in an anthropomorphic thoracic phantom [6915-98]

A novel software assistant for the clinical analysis of MR spectroscopy with MeVisLab [6915-99]
B. Merkel, M. T. Harz, O. Konrad, H. K. Hahn, H.-O. Peitgen, MeVis Research (Germany)

Bruise chromophore concentrations over time [6915-100]
M. G. Duckworth, J. J. Caspall, R. L. Mappus IV, L. Kong, Georgia Institute of Technology (USA); D. Yi, Sunnybrook Health Sciences Ctr., Univ. of Toronto (Canada); S. H. Sprigle, Georgia Institute of Technology (USA)

Efficient SVM classifier based on color and texture region features for wound tissue images [6915-101]
H. Wannous, PRISME Institute, ENSI of Bourges (France); Y. Lucas, PRISME Institute IUT of Bourges, Orléans Univ. (France); S. Treuillet, PRISME Institute Polytech ‘Orleans, Orléans Univ. (France)

Automated detection of ureteral wall thickening on multi-detector row CT urography [6915-102]
L. Hadjiiski, B. Sahiner, E. M. Caoili, R. H. Cohan, C. Zhou, H.-P. Chan, Univ. of Michigan (USA)

True-false lumen segmentation of aortic dissection using multi-scale wavelet analysis and generative-discriminative model matching [6915-103]
N. Lee, Columbia Univ. (USA); H. Tek, Siemens Corporate Research (USA); A. F. Laine, Columbia Univ. (USA)

A tool for computer-aided diagnosis of retinopathy of prematurity [6915-104]
Z. Zhao, D. K. Wallace, S. F. Freedman, Duke Univ. School of Medicine (USA); S. R. Aylward, Kitware Inc (USA)

Cancer treatment outcome prediction by assessing temporal change: application to cervical cancer [6915-105]
J. W. Prescott, The Ohio State Univ. (USA); D. Zhang, J. Z. Wang, N. A. Mayr, W. T. C. Yuh, The Ohio State Univ. Medical Ctr. (USA); J. Saltz, M. Gurcan, The Ohio State Univ. (USA)

A new method to efficiently reduce histogram dimensionality [6915-106]
P. H. Bugatti, A. J. M. Traina, Univ. of Sao Paulo at Sao Carlos (Brazil); J. C. Felipe, Univ. of Sao Paulo at Ribeirao Preto (Brazil); C. Traina, Jr., Univ. of Sao Paulo at Sao Carlos (Brazil)
A simple and robust method to screen cataracts using specular reflection appearance
(Honorable Mention Poster Award) [6915-107]
R. Supriyanti, H. Habe, M. Kidode, Nara Institute of Science and Technology (Japan);
S. Nagata, Shiga Medical Univ. (Japan)

Assessment of the relationship between lesion segmentation accuracy and computer-aided diagnosis scheme performance [6915-108]
B. Zheng, J. Pu, S. C. Park, M. Zuley, D. Gur, Univ. of Pittsburgh (USA)

Automated discovery of meniscal tears on MR imaging: a novel high-performance computer-aided detection application for radiologists [6915-109]
B. Ramakrishna, Univ. of Maryland, Baltimore County (USA); N. Safdar, Univ. of Maryland School of Medicine (USA); K. Siddiqui, VA Maryland Health Care System (USA); W. Kim, VA Maryland Health Care System (USA) and Univ. of Pennsylvania Hospital (USA); W. Liu, G. Saiprasad, C. Chang, Univ. of Maryland, Baltimore County (USA); E. Siegel, Univ. of Maryland School of Medicine (USA) and VA Maryland Health Care System (USA)

Computer-aided diagnosis for classification of focal liver lesions on contrast-enhanced ultrasonography: feature extraction and characterization of vascularity patterns [6915-110]
J. Shiraishi, Univ. of Chicago (USA); K. Sugimoto, Tokyo Medical Univ. (Japan); N. Kamiyama, Toshiba Medical Systems Corp. (Japan); F. Moriyasu, Tokyo Medical Univ. (Japan); K. Doi, Univ. of Chicago (USA)

The edge-driven dual-bootstrap iterative closest point algorithm for multimodal retinal image registration [6915-111]
C.-L. Tsai, C.-Y. Li, National Chung-Cheng Univ. (Taiwan); G. Yang, Rensselaer Polytechnic Institute (USA)

Automated scoring system of standard uptake value for torso FDG-PET images [6915-112]
T. Hara, T. Kobayashi, K. Kawai, X. Zhou, Gifu Univ. (Japan); S. Itoh, Daiyuai General Hospital (Japan); T. Katafuchi, Gifu Univ. of Medical Sciences (Japan); H. Fujita, Gifu Univ. (Japan)

Computerized microscopic image analysis of follicular lymphoma [6915-113]

Image based grading of nuclear cataract by SVM regression [6915-114]
H. Li, J. H. Lim, J. Liu, Agency for Science, Technology and Research (Singapore); T. Y. Wong, National Univ. of Singapore (Singapore); A. Tan, J. J. Wang, P. Mitchell, The Univ. of Sydney (Australia)

Design of a benchmark dataset, similarity metrics, and tools for liver segmentation [6915-115]
S. Kompalli, Univ. at Buffalo (USA); M. Alam, Wayne State Univ. (USA); R. S. Alomari, Univ. at Buffalo (USA); S. T. Lau, Women and Children's Hospital of Buffalo (USA); V. Chaudhary, Univ. at Buffalo (USA)

Joint detection and localization of multiple anatomical landmarks through learning [6915-116]
M. Dikmen, Univ. of Illinois (USA); Y. Zhan, X. S. Zhou, Siemens Medical Solutions (USA)
6915 39  **Robust vessel segmentation** [6915-117]
S. Bock, C. Kühnel, T. Boskamp, H.-O. Peitgen, MeVis Research (Germany)

6915 3A  **Border preserving skin lesion segmentation** [6915-118]
M. Kamali, G. Samei, Institute for Studies in Theoretical Physics and Mathematics (Iran)

6915 3B  **AutoEDES: a model-based Bayesian framework for automatic end-diastolic and end-systolic frame selection in angiographic image sequence** [6915-119]
W. Qu, S. Singh, M. Keller, Siemens Medical Solutions USA, Inc. (USA)

6915 3C  **Multifractal modeling, segmentation, prediction, and statistical validation of posterior fossa tumors** [6915-120]
A. Islam, K. M. Iftekharuddin, Univ. of Memphis (USA); R. J. Ogg, F. H. Laningham, St. Jude Children's Research Hospital (USA); B. Sivakumar, Univ. of Memphis (USA)

6915 3D  **A meta-classifier for detecting prostate cancer by quantitative integration of in vivo magnetic resonance spectroscopy and magnetic resonance imaging (Honorable Mention Poster Award)** [6915-121]
S. Viswanath, P. Tiwari, Rutgers Univ. (USA); M. Rosen, Univ. of Pennsylvania (USA); A. Madabhushi, Rutgers Univ. (USA)

6915 3E  **Improvement of automatic hemorrhage detection methods using brightness correction on fundus images** [6915-122]
Y. Hatanaka, Gifu National College of Technology (Japan); T. Nakagawa, Gifu Univ. (Japan); Y. Hayashi, M. Kakogawa, Tak Co., Ltd. (Japan); A. Sawada, K. Kawase, Gifu Univ. School of Medicine (Japan); T. Haru, H. Fujita, Gifu Univ. (Japan)

6915 3F  **Quantitative evaluation of humeral head defects by comparing left and right feature** [6915-123]
S. Kawasaki, T. Nakaguchi, Chiba Univ. (Japan); N. Ochiai, Univ. of California, San Diego (USA); N. Tsumura, Y. Miyake, Chiba Univ. (Japan)

6915 3G  **A concurrent computer aided detection (CAD) tool for articular cartilage disease of the knee on MR imaging using active shape models** [6915-124]
B. Ramakrishna, G. Saiprasad, Univ. of Maryland, Baltimore County (USA); N. Safdar, Univ. of Maryland School of Medicine (USA); K. Siddiqui, VA Maryland Health Care System (USA); C. Chang, Univ. of Maryland, Baltimore County (USA); E. Siegel, Univ. of Maryland School of Medicine (USA) and VA Maryland Health Care System (USA)

6915 3H  **Comparison of two algorithms in the automatic segmentation of blood vessels in fundus images** [6915-125]
R. LeAnder, M. S. Chowdary, S. Mokkapati, S. E. Umbaugh, Southern Illinois Univ. Edwardsville (USA)

6915 3I  **A new registration method with voxel-matching technique for temporal subtraction images** [6915-126]
Y. Itai, H. Kim, S. Ishikawa, Kyushu Institute of Technology (Japan); S. Katsuragawa, Kumamoto Univ. (Japan); K. Doi, The Univ. of Chicago (USA)
Image-based retrieval system and computer-aided diagnosis system for renal cortical scintigraphy images [6915-127]
E. Mumcuoğlu, F. Nar, Middle East Technical Univ. (Turkey); Ö. Uğur, M. F. Bozkurt, M. Aslan, Hacettepe Univ. Medical School (Turkey)

Handheld erythema and bruise detector [6915-128]
L. Kong, S. Sprigle, M. G. Duckworth, D. Yi, J. J. Caspall, Georgia Institute of Technology (USA); J. Wang, F. Zhao, Beijing Bodian Optical Technology Co., Ltd. (China)

Glaucoma diagnosis by mapping macula with Fourier domain optical coherence tomography [6915-129]
O. Tan, A. Lu, V. Chopra, R. Varma, Keck Medical School, Univ. of Southern California (USA); I. Hiroshi, J. Schuman, School of Medicine, Univ. of Pittsburgh (USA); D. Huang, Keck Medical School, Univ. of Southern California (USA)

Linear structure verification for medical imaging applications [6915-130]
S. Chen, Y. Chu, Carestream Health, Inc. (USA); Y. Zheng, Philips Medical Systems (USA)

Author Index
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Session Chairs

1  Keynote and Methodology
   Maryellen L. Giger, The University of Chicago (USA)
   Nico Karssemeijer, Radboud University Nijmegen Medical Center (Netherlands)

2  Breast Tomosynthesis
   Heang-Ping Chan, University of Michigan (USA)
3 Colon CAD  
**Ronald M. Summers**, National Institutes of Health (USA)

4 Breast Imaging CAD  
**Lubomir M. Hadjiiski**, University of Michigan (USA)

5 Cardiac, Neuro, and Retinal CAD  
**Kyongtae Ty Bae**, University of Pittsburgh (USA)

6 Colon and Prostate CAD  
**Kensaku Mori**, Nagoya University (Japan)

7 Lung Nodule and Analysis  
**Bram van Ginneken**, University Medical Center Utrecht (Netherlands)

8 New Prospects  
**Carol L. Novak**, Siemens Corporate Research (USA)

9 Lung Analysis  
**Rafael Wiemker**, Philips Research Laboratories (Germany)

10 Lung Nodules  
**David G. Brown**, Center for Devices and Radiological Health, U.S. Food and Drug Administration (USA)

11 Mammogram Analysis  
**Maryellen L. Giger**, The University of Chicago (USA)  
**Nico Karssemeijer**, Radboud University Nijmegen Medical Center (Netherlands)

12 Critical Issues in Adapting CAD into Clinical Practice  
**Robert M. Nishikawa**, The University of Chicago (USA)

Workshop: Real-time Demonstrations and Live Performance Assessments  
**Michael F. McNitt-Gray**, University of California, Los Angeles (USA)  
**Bram van Ginneken**, University Medical Center Utrecht (Netherlands)  
**Nico Karssemeijer**, Radboud University Nijmegen Medical Center (Netherlands)  
**Maryellen L. Giger**, The University of Chicago (USA)
Introduction

Recognizing the tremendous growth and breadth of computer-aided detection/computer-aided diagnosis at the SPIE Medical Imaging meetings, leadership decided to create a separate conference for CAD presentations. After an exciting and quite successful first year at SPIE Medical Imaging 2007, SPIE Medical Imaging 2008 welcomed again the CAD Conference. For the conference, original papers are invited on all aspects related to CAD, including theory, overall system development, database construction, feature extraction, classifier design, workstation design, and evaluation.

In 2008, the CAD Conference received 165 abstracts and offered acceptance to approximately 79%. Abstract submissions came from various countries including the USA, Japan, Germany, the Netherlands, South Korea, Brazil, India, Taiwan, United Kingdom, Australia, Canada, France, Ireland, Italy, Singapore, Spain, Tunisia, and Turkey. The presentations spanned three full days, and included oral presentations, posters, a keynote address, and two workshops.

Prof. Dr. Heinz-Otto Peitgen from MeVis Research GmbH, from the University of Bremen in Germany, and from Florida Atlantic University gave the conference keynote “Clinical relevance of computer-aided diagnosis and visualization.” Professor Peitgen presented mathematical approaches to gain better understanding of liver structure, and demonstrated the successful translation of computer-aided surgery tools from the laboratory into the clinical arena, noting the importance of interactions of imaging specialists with the surgeons.

In our Tuesday evening CAD workshop, an expanded version of our 2007 workshop, twenty-five research groups interactively presented their real-time demonstrations of CAD workstations. The year’s workshop was organized by Micheal McNitt-Gray, Bram van Ginneken, Maryellen Giger, and Nico Karssemeijer. CAD applications ranged from detection and characterization aids in breast, lung, and colon imaging to analysis in retinopathy. In addition, discussions and results from the first online assessment “competition,” that of mammographic mass characterization, were given by Professor McNitt-Gray, illustrating the importance of database clarification and source, scoring methods, database size limitations, and reporting criteria. Bram van Ginneken, whose assessment website enabled this workshop, will lead the assessment “competitions” for 2009 on topics of lung nodule detection on thoracic CT and computer-aided diagnosis of retinopathy.

Our Thursday afternoon workshop given by Robert Nishikawa (University of Chicago) and Susan Astley (University of Manchester, UK), focused on “Critical Issues in Adapting CAD into Clinical Practice.” Professor Nishikawa presented a thorough critical review of published clinical studies on CADe for mammography.
noting their similarities and limitations. Professor Astley discussed the advantages and disadvantages of CADe implementation in the UK. A clear message was that CAD is a very promising but still emerging field for medical image interpretation.

The high level of participation in all the venues of the CAD Conference gives a clear indication of the need for such a conference as well as acknowledgment of the growing field.

Maryellen L. Giger
Nico Karssemeijer
In Memoriam

Sam Dwyer
1932–2008

Inspirational planner for SPIE Medical Imaging symposia and chair of 15 conferences from 1983 to 1996

Sam Dwyer was a leading light in the swift growth of the field of medical imaging. At this 2008 Medical Imaging symposium, several colleagues expressed their appreciation of his professional achievements and the legacy of his contributions.

Andre Duerinckx recalls Sam's first big step into the limelight. "Sam chaired the Second International PACS meeting sponsored by SPIE in 1983. He stepped in when my professional direction shifted and I could not continue. Over the following years Sam became a leading force in the development of this new science and technology as the conferences developed and grew."

"He had an ability to predict important technology trends in medical imaging," says Steven Horii, a long-time SPIE Medical Imaging contributor and past conference chair.

Another past Medical Imaging conference chair with years of experience, Roger Schneider elaborates, "The growth of the initial conferences was phenomenal. They quickly expanded and outgrew several facilities. Topic areas increased. For example, we had been dealing with perception in sessions on image statistics. Sam first suggested that the field of perception theory and experiment was expanding so rapidly that it deserved its own conference. We also added conferences on image processing hardware, display, functional imaging, and special topics in ultrasound transducers."

"Sam was a true pioneer in our field," continues Schneider. "He was one of the first to envision the impact of digital technology on the storage, retrieval, communication, and
display of medical images, and one of the most active early explorers of the possibilities. He led the PACS conference into the merger with SPIE’s image science conference to form the current Medical Imaging Symposium which many consider to be the premiere technical program on medical imaging in the world."

Murray Loew, another past conference chair, adds his observation, "Sam's academic, industrial, and clinical experience provided the perspective that enabled him to set priorities and give advice that helped many of us to make our own contributions. We all benefited greatly from his insights and his practical approach."

Schneider agrees. "Through all, Sam was an excellent partner and leader, calm, gentle yet persuasive, always congenially nudging everyone toward a better future. His ambitions were not for himself, but for the mutual enterprise. He was a very enthusiastic mentor and supporter of students and researchers new to the field without any concern for the possibility that their work might compete with his and was himself a superbly competent contributor."

An example of this is illustrated by John Strauss. "Already well accomplished at the time of our first meeting, Sam made the time to take an eager but inexperienced student under his wing. I was not an 'assigned' grad student or research assistant from the University to which he had an obligation. I was a product manager from a vendor-partner. Over the years, from answering technical questions in an understandable way, to providing unassuming career guidance, as well as a sympathetic ear to the challenges of fatherhood or life’s many challenges and struggles, Sam was always there for me."

"There are many things about Sam Dwyer that I recall with great fondness, like his always friendly and enthusiastic manner. His advice led me to my years of satisfying work on the ACR-NEMA Committee," adds Horii.

All agree that Sam had many other admirable traits. His wit and sense of humor were legendary, as one of Schneider's favorite memories illustrates. "At the opening of one conference Sam announced, from the podium, that it was the birthday of an important attendee. He said SPIE had requested that the Blue Angels do a flyover—but they already had something scheduled. As a substitute birthday recognition, Sam suggested we take our morning coffee break out on the terrace and watch the landscaping crew circle the flagpole on their riding lawnmowers."

Strauss describes the footprint left by Sam, "While Sam left a legacy through his professional accomplishments, perhaps more lasting is the heritage of leadership he has left behind. He felt it his obligation to pass on his knowledge and wisdom to the next generation, and I was blessed as a recipient. I have and will continue to honor Sam by sharing with those that come after me."

Sam Dwyer was a person of rare quality who will be sorely missed. His name has a permanent place in the annals of medical imaging, and his contributions continue in the flourishing growth of knowledge presented and discussed in the annual Medical Imaging conferences.