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Nico Karssemeijer
Maryellen L. Giger
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S. Gross, RWTH Aachen (Germany) and Univ. Hospital Aachen (Germany); T. Stehle, A. Behrens, R. Auer, T. Aach, RWTH Aachen (Germany); R. Winograd, C. Trautwein, J. Tischendorf, Univ. Hospital Aachen (Germany)

Combining heterogeneous features for colonic polyp detection in CTC based on semi-definite programming [7260-98]
S. Wang, J. Yao, National Institutes of Health (United States); N. A. Petrick, U.S. Food and Drug Administration (United States); R. M. Summers, National Institutes of Health (United States)

Classification of colon polyps in NBI endoscopy using vascularization features [7260-99]
T. Stehle, R. Auer, RWTH Aachen Univ. (Germany); S. Gross, RWTH Aachen Univ. (Germany) and Univ. Hospital Aachen (Germany); A. Behrens, J. Wulff, T. Aach, RWTH Aachen Univ. (Germany); R. Winograd, C. Trautwein, J. Tischendorf, Univ. Hospital Aachen (Germany)

Computer-aided detection of initial polyp candidates with level set-based adaptive convolution [7260-100]
H. Zhu, Stony Brook Univ. (United States); C. Duan, Stony Brook Univ. (United States) and Peking Univ. (China); Z. Liang, Stony Brook Univ. (United States)

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A. S. Chowdhury, S. Tan, J. Yao, M. G. Linguraru, R. M. Summers, National Institutes of Health Clinical Ctr. (United States)

Acoustical markers for CAD-detected pulmonary nodules in chest CT: A way to avoid suggestion and distraction of radiologist's attention? [7260-102]
F. Beyer, W. Heindel, Univ. Hospital of Muenster (Germany); D. Wormanns, ELK Berlin Chest Hospital (Germany)
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A. C. Jirapatnakul, A. P. Reeves, A. M. Biancardi, Cornell Univ. (United States);
D. F. Yankelevitz, C. I. Henschke, Weill Medical College, Cornell Univ. (United States)

Evaluation of scoring accuracy for airway wall thickness [7260-104]
B. L. Odry, A. P. Kiraly, C. L. Novak, Siemens Corporate Research (United States);
D. P. Naidich, J. P. Ko, M. C. B. Godoy, New York Univ. Medical Ctr. (United States)

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W. H. Horstemke, D. S. Raicu, J. D. Furst, DePaul Univ. (United States)

Dissimilarity representations in lung parenchyma classification [7260-106]
L. Sørensen, Univ. of Copenhagen (Denmark); M. de Bruijne, Univ. of Copenhagen [Denmark] and Biomedical Imaging Group Rotterdam (Netherlands)

Computer-assisted detection (CAD) methodology for early detection of response to pharmaceutical therapy in tuberculosis patients [7260-107]
R. Lieberman, Univ. of Southern California (United States); H. Kwong, Dept. of Health, Hong Kong Special Administrative Government (Hong Kong, China); B. Liu, H. K. Huang, Univ. of Southern California (United States)

Detection and classification of interstitial lung diseases and emphysema using a joint morphological-fuzzy approach [7260-108]
K.-C. Chang Chien, Institut TELECOM (France) and National Chung Cheng Univ. [Taiwan];
C. Fetita, Institut TELECOM (France); P.-Y. Brillet, Avicenne Hospital (France); F. Prêteux, Institut TELECOM (France); R.-F. Chang, National Taiwan Univ. (Taiwan)

Emphysema quantification from CT scans using novel application of diaphragm curvature estimation: comparison with standard quantification methods and pulmonary function data [7260-109]
B. M. Keller, A. P. Reeves, Cornell Univ. (United States); D. F. Yankelevitz, C. I. Henschke, Weill Medical College, Cornell Univ. (United States); R. G. Barr, Columbia Univ. (United States)

A hybrid lung and vessel segmentation algorithm for computer aided detection of pulmonary embolism [7260-110]
L. Raghupathi, Siemens Information Systems Ltd. (India); S. Lakare, Siemens Medical Solutions USA, Inc. (United States)

Algorithm for lung cancer detection based on PET/CT images [7260-111]
S. Saita, K. Ishimatsu, M. Kubo, Y. Kawata, N. Niki, Univ. of Tokushima (Japan); H. Ohtsuka, H. Nishitani, Univ. of Tokushima Graduate School (Japan); H. Ohmatsu, National Cancer Ctr. Hospital East (Japan); K. Eguchi, Univ. of Teikyo (Japan); M. Kaneko, National Cancer Ctr. Hospital (Japan); N. Moriyama, National Cancer Research Ctr. for Cancer Prevention and Screening (Japan)

Volume change determination of metastatic lung tumors in CT images using 3D template matching [7260-112]
R. D. Ambrosini, Univ. of Rochester (United States); P. Wang, Univ. of Michigan (United States); W. G. O'Dell, Univ. of Rochester (United States)
Knowledge-based optimum feature selection for lung nodule diagnosis on thin section thoracic CT [7260-113]
R. K. Samala, W. A. Moreno, D. Song, Y. You, Univ. of South Florida (United States); W. Qian, Florida Institute of Technology (United States)

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M. Kuwahara, S. Kido, Yamaguchi Univ. Graduate School of Medicine (Japan); H. Shouno, Univ. of Electro-Communications (Japan)

A novel scheme for detection of diffuse lung disease in MDCT by use of statistical texture features [7260-116]
J. Wang, Duke Univ. (United States); F. Li, K. Doi, The Univ. of Chicago (United States); Q. Li, Duke Univ. (United States)

Improvement of computational efficiency using a cascade classification scheme for the classification of diffuse infiltrative lung disease on HRCT [7260-117]
Y. Lee, Seoul National Univ. (Korea, Republic of); N. Kim, Univ. of Utah (United States); J. B. Seo, S. O. Park, Y. K. Lee, Asan Medical Ctr. (Korea, Republic of); S. H. Kang, Seoul National Univ. (Korea, Republic of)

Automated detection of presence of mucus foci in airway diseases: preliminary results [7260-118]
B. L. Odry, A. P. Kiraly, C. L. Novak, Siemens Corporate Research (United States); D. P. Naidich, J. Ko, M. C. B. Godoy, New York Univ. Medical Ctr. (United States)

POSTER SESSION: MICROSCOPY

Toward translational incremental similarity-based reasoning in breast cancer grading [7260-119]
A. E. Tutac, Image Perception, Access and Language IPAL (Singapore) and Politehnica Univ. Timisoara (Romania); D. Racoceanu, Image Perception, Access and Language IPAL (Singapore) and Univ. of Besancon (France); W.-K. Leow, Image Perception, Access and Language IPAL (Singapore) and National Univ. of Singapore (Singapore); H. Müller, Univ. Hospital of Geneva (Switzerland) and Univ. of Applied Sciences, Western Switzerland (Switzerland); T. Putti, National Univ. Hospital (Singapore); V. Cretu, Politehnica Univ. Timisoara (Romania)

Segmentation based microscope autofocusing for blood smears [7260-120]
V. V. Makkapati, Philips Electronics India Ltd. (India)

Segmentation of histological structures for fractal analysis [7260-121]
V. Dixon, Tom Baker Cancer Ctr. (Canada); A. Kouznetsov, M. Tambasco, Univ. of Calgary (Canada) and Tom Baker Cancer Ctr. (Canada)

A boosted distance metric: application to content based image retrieval and classification of digitized histopathology (Honorable Mention Poster Award) [7260-122]
J. Naik, S. Doyle, A. Basavanahally, Rutgers Univ. (United States); S. Ganesan, Cancer Institute of New Jersey (United States); M. D. Feldman, J. E. Tomaszewski, Univ. of Pennsylvania (United States); A. Madabhushi, Rutgers Univ. (United States)
Finding regions of interest in pathological images: an attentional model approach
F. Gómez, J. Villalón, R. Gutierrez, E. Romero, Univ. Nacional de Colombia (Colombia)

POSTER SESSION: PROSTATE

Automatic diagnosis for prostate cancer using run-length matrix method
X. Sun, S.-H. Chuang, J. Li, F. McKenzie, Old Dominion Univ. (United States)

Integrating structural and functional imaging for computer assisted detection of prostate cancer on multi-protocol in vivo 3 Tesla MRI
S. Viswanath, Rutgers Univ. (United States); B. N. Bloch, Beth Israel Deaconess Medical Ctr. (United States); M. Rosen, Univ. of Pennsylvania (United States); J. Chappelow, R. Toth, Rutgers Univ. (United States); N. Rofsky, R. Lenkinski, E. Genega, Beth Israel Deaconess Medical Ctr. (United States); A. Kalyanpur, Teleradiology Solutions Pvt. Ltd. (India); A. Madabhushi, Rutgers Univ. (United States)

Automated detection of prostate cancer using wavelet transform features of ultrasound RF time series
M. Aboofazeli, P. Abolmaesumi, M. Moradi, E. Sauerbrei, R. Siemens, A. Boag, P. Mousavi, Queen's Univ. (Canada)

ARGALI: an automatic cup-to-disc ratio measurement system for glaucoma detection and Analysis framework
J. Liu, D. W. K. Wong, J. H. Lim, H. Li, N. M. Tan, Institute for Infocomm Research (Singapore); T. Y. Wong, Singapore Eye Research Institute (Singapore) and National Univ. of Singapore (Singapore)

Determination of cup-to-disc ratio of optical nerve head for diagnosis of glaucoma on stereo retinal fundus image pairs
C. Muramatsu, Gifu Univ. (Japan); T. Nakagawa, Kowa Co., Ltd. (Japan); A. Sawada, Gifu Univ. (Japan); Y. Hatanaka, Univ. of Shiga Prefecture (Japan); T. Hara, T. Yamamoto, H. Fujita, Gifu Univ. (Japan)

Automated quantification of lumbar vertebral kinematics from dynamic fluoroscopic sequences
J. Camp, K. Zhao, E. Morel, D. White, D. Magnuson, R. Gay, K.-N. An, R. Robb, Mayo Clinic (United States)

Quantitative measurement and analysis for detection and treatment planning of developmental dysplasia of the hip
X. Liu, Fourth Military Medical Univ. (China) and Tsinghua Univ. (China); H. Lu, H. Chen, Fourth Military Medical Univ. (China); L. Zhao, Xinhua Hospital, Shanghai Jiatong Univ. (China); Z. Shi, Fourth Military Medical Univ. (China); Z. Liang, SUNY, Stony Brook (United States)
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P. Tolay, Indian Institute of Technology, Kharagpur (India); P. Vajinepalli, P. Bhattacharya, C. Firtion, R. S. Sisodia, Philips Electronics India Ltd. (India)

Context sensitive labeling of spinal structure in MR images [7260-133]
C. Bhole, Univ. of Rochester (United States); S. Kompalli, V. Chaudhary, Univ. at Buffalo (United States)

Assessment of scoliosis by direct measurement of the curvature of the spine [7260-134]
G. Dougherty, California State Univ. Channel Islands (United States); M. J. Johnson, Kuwait Univ. (Kuwait)

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L. Hadjiiski, B. Sahiner, H.-P. Chan, E. M. Caoili, R. H. Cohan, C. Zhou, Univ. of Michigan (United States)

Narrow-band imaging for the computer assisted diagnosis in patients with Barrett’s esophagus [7260-136]
A. Kage, Fraunhofer-Institut für Integrierte Schaltungen (Germany); M. Raithel, S. Zopf, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); T. Wittenberg, C. Münzenmayer, Fraunhofer-Institut für Integrierte Schaltungen (Germany)

Automatic patient-adaptive bleeding detection in a capsule endoscopy [7260-137]
Y. S. Jung, Seoul National Univ. (Korea, Republic of); Y. H. Kim, D. H. Lee, IntroMedic Co., Ltd. (Korea, Republic of); S. H. Lee, J. J. Song, J. H. Kim, Seoul National Univ. (Korea, Republic of)

An approach to automatic detection of body parts and their size estimation from computed tomography image [7260-138]
M. Acharyya, Siemens Information Systems Ltd. (India); J. Stoeckel, Siemens Computer Aided Diagnosis, Ltd. (Israel); D. M. S., Siemens Information Systems Ltd. (India)

TESD: a novel ground truth estimation method [7260-139]
A. M. Biancardi, A. P. Reeves, Cornell Univ. (United States)

Incremental classification learning for anomaly detection in medical images [7260-140]
B. Girtharan, X. Yuan, J. Liu, Univ. of North Texas (United States)

Robust anatomy detection from CT topograms [7260-141]
Z. Peng, Y. Zhan, X. S. Zhou, A. Krishnan, Siemens Medical Solutions USA, Inc. (United States)

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In Memoriam

Robert F. Wagner
1938–2008

A founding scientist and prolific contributor
to modern medical imaging science and SPIE

Robert F. “Bob” Wagner was a tremendous innovator in the field of medical imaging and image assessment methodologies. He was a key figure in the creation of the SPIE Medical Imaging symposium. A SPIE Fellow since 1988, Bob was active on the program committee of the Physics of Medical Imaging conference at the Medical Imaging symposium, and author of numerous technical papers published by SPIE.

"The medical imaging community has lost one of its founding fathers and most highly regarded members," said Kyle Myers, director of the Division of Imaging and Applied Mathematics at the Center for Devices and Radiological Health (CDRH), U.S. Food and Drug Administration (FDA). “Bob’s career was dedicated to the development of consensus measurement methods for the assessment of medical imaging systems, quantitative medical imaging and tissue characterization, and computer-aided diagnosis. He earned an international reputation in these areas and applied his expertise to a wide range of regulatory issues central to the FDA's mission. He enlightened the scientific community within the agency as well as the international scientific community through the many invited presentations and tutorials he gave in and outside of the FDA, his numerous publications, his many professional society activities, and his assistance in regulatory decision making."

At this 2009 Medical Imaging symposium, a joint keynote session hosted by the CAD and Image Perception conferences honored Bob’s many contributions from the early 1970s to the present through a series of presentations by some of his closest collaborators.
David Brown (CDRH/FDA) recalled Bob’s early years in the field, relating that after graduate and post-graduate work on the physics of nuclear interactions with radiation, Bob was hired by the Bureau of Radiological Health [a precursor to CDRH] to assess the dose reduction potential of radiographic intensifying screens made with phosphors developed in the color TV industry. Within three months he published a review of the relevant imaging literature from the medical, defense, consumer, and scientific communities, together with a charter for a laboratory program. Soon after, Bob introduced digital noise analysis to radiography, and showed that the new technology offered a 1.6- to 2.5-fold exposure reduction without compromising imaging performance. He then launched a program of inter-laboratory comparison of measurements on radiographic film samples that were circulated among fifteen commercial, government, and academic laboratories worldwide. In the process, he became the prime mover for work toward consensus methodology for quantitative imaging performance measurements.

Mike Insana (Univ. of Illinois at Urbana-Champaign) shared memories of his years as Bob’s post-doctoral student, working with Bob on the statistical characterization of ultrasound images. He described Bob as an exemplary mentor who shared his passion and joy for science.

Myers agreed, "Bob’s greatest legacy may be the many young scientists he nurtured, who either worked directly under his tutelage at the FDA or otherwise benefitted from his unfailing patience and unselfish ease of availability."

Harry Barrett (Univ. of Arizona) began his presentation by relating noise-equivalent quanta (NEQ)—a concept central to Bob’s unified approach to objective image performance assessment—to historical information-theoretic methods for evaluation of imaging systems. Barrett went on to describe the many ways in which NEQ was extended to address problems beyond the simple signal-known-exactly, background-known-exactly (SEK/BKE) task.

Ken Hanson (Los Alamos National Lab.) described his years of collaboration with Bob. He said they worked together, first in the area of noise characterization of radiographic and CT images and later on the evaluation of images confounded by artifacts. In this latter work, Bob and Ken pioneered the application of a decision theoretic approach to the assessment of image reconstruction algorithms, demonstrating that the common mean-square-error metric did not predict visual task performance as measured by detectability.

Bob’s contemporary work, as described by Myers, “involved the consideration of the random effects associated with multiple readers of medical images and the logical extension of this work to the problem of the evaluation of multiple competing classifiers in statistical pattern recognition. Bob tackled problems of increasing complexity over the course of his career, relying throughout on the application of a unified, decision theoretic framework. In the process he brought about consensus on the importance of a task-based approach to the objective assessment of imaging systems."

During more than forty years of professional life, Bob Wagner made numerous contributions to the field of medical imaging that significantly impacted academia, industry, and the FDA. His brilliant mind, incredible intuition, passion for science, sense of humor, charm, and warm friendship will be greatly missed.