Conference 7246

Monday-Tuesday 19-20 January 2009 • Proceedings of SPIE Vol. 7246

Computational Imaging VII

Conference Chairs: **Charles A. Bouman,** Purdue Univ.; **Eric L. Miller,** Tufts Univ.; **Ilya Pollak,** Purdue Univ.

Program Committee: **Samit Basu,** GE Global Research; **Thomas S. Denney, Jr.,** Auburn Univ.; **Peter C. Doerschuk,** Cornell Univ.; **Peyman Milanfar,** Univ. of California/Santa Cruz; **Joseph A. O'Sullivan,** Washington Univ. in St. Louis; **Zygmunt Pizlo,** Purdue Univ.; **Stanley J. Reeves,** Auburn Univ.; **Yongyi Yang,** Illinois Institute of Technology

Monday 19 January

Conv. Ctr. Room K: . . . .**Mon. 8:30 to 9:00 am**

Keynote Presentation
Session Chair: **Eric L. Miller,** Tufts Univ.

8:30 am: **To Be Announced** *(Invited Paper)*, Badrinath Roysam, Rensselaer Polytechnic Institute (United States) . . . .[7246-51]

SESSION 1
Conv. Ctr. Room K: . . . .**Mon. 9:00 to 10:00 am**

Microscopy
Session Chair: **Eric L. Miller,** Tufts Univ.

9:00 am: **Inferring calcium dynamics from video microscopy**, Benjamin P. Olding, Patrick J. Wolfe, Harvard Univ. (United States) . . . .[7246-42]

9:20 am: **To Be Announced**, Chrysanthe Preza, The Univ. of Memphis (United States) . . . .[7246-53]

9:40 am: **Robust Point Spread Functions Estimation for 3D Wide-field Fluorescent Microscopes using PCA**, Muthuvel Arigovindan, Lin Shao, Peter Carlton, John W. Sedat, David A. Agard, Univ. of California, San Francisco (United States). . . . .[7246-24]

Coffee Break . . . . 10:00 to 10:30 am

SESSION 2
Conv. Ctr. Room K: . . . .**Mon. 10:30 am to 12:10 pm**

Medical Imaging
Session Chair: **Jinyi Qi,** Univ. of California, Davis

10:30 am: **Direct reconstruction of dynamic PET parametric images with simplified reference tissue model**, Guobao Wang, Jinyi Qi, Univ. of California, Davis (United States). . . . .[7246-32]

10:50 am: **Maximizing Conjugate Norms of frames in DTI images**, Laurent Younes, Johns Hopkins Univ. (United States); Hsiao-Fang Chou, Johns Hopkins University (United States) . . . .[7246-41]

11:10 am: **a new method for fMRI activation detection**, Jianing Wei, Thomas M. Talavage, Ilya Pollak, Purdue Univ. (United States) . . . .[7246-47]

11:30 am: **Divergence free interpolation of phase contrast MRI**, Kartik S. Sundareswaran, Georgia Institute of Technology (United States); David H. Frakes, Arizona State Univ. (United States); Oskar Skrinjar, Ajit P. Yoganathan, Georgia Institute of Technology (United States) . . . .[7246-46]

11:50 am: **Bayesian multiresolution method for local X-ray tomography**, Ville P. Kolehmainen, Univ. of Kuopio (Finland); Samuli Siltanen, Tampere Univ. of Technology (Finland); Kati Niinimäki, Univ. of Kuopio (Finland) . . . .[7246-40]

Lunch Break . . . . 12:10 to 1:40 pm

SESSION 3
Conv. Ctr. Room K: . . . .**Mon. 1:40 to 2:20 pm**

Inverse methods
Session Chair: **Ilya Pollak,** Purdue Univ.

1:40 pm: **Fast space-varying convolution and its application in stray light reduction**, Jianing Wei, Guangzhi Cao, Charles A. Bouman, Jan P. Allebach, Purdue Univ. (United States) . . . .[7246-31]

2:00 pm: **Joint Deconvolution and Imaging**, Hyrum Anderson, Maya R. Gupta, Univ. of Washington (United States) . . . .[7246-45]

SESSION 4
Conv. Ctr. Room K: . . . .**Mon. 2:20 to 4:30 pm**

Sparse and Adaptive Signal Processing
Session Chair: **Luminita A. Vese,** Univ. of California, Los Angeles

2:20 pm: **Dictionaries for sparse representation and recovery of reflectances**, Steven Lansel, Manu Parmar, Brian A. Wandell, Stanford Univ. (United States). . . . .[7246-35]

2:40 pm: **l1 filtering**, Justin K. Romberg, Georgia Institute of Technology (United States) . . . .[7246-30]

Coffee Break . . . . .3:00 to 3:30 pm

3:30 pm: **Sparsity regularization for image reconstruction with Poisson data**, Daniel J. Lingenfelter, Jeffrey A. Fessler, Zhong He, Univ. of Michigan Ann Arbor (United States). . . . .[7246-50]

3:50 pm: **Compressive Coded Aperture Imaging**, Roummel Marcia, Duke Univ. (United States); Zachary Harmany, Duke University (United States); Rebecca M. Willett, Duke Univ. (United States) . . . .[7246-01]

4:10 pm: **Multi-Object Segmentation using Coupled Nonparametric Shape and Relative Pose Priors**, Gokhan M. Uzunbas, Octavian Soldea, Mujdat Cetin, Gozde Unal, Aytul Erçil, Sabanci Univ. (Turkey); Ahmet Ekin, Devrim Unay, Philips Research (Netherlands); Zeynep Firat, Yeditepe Univ. Hospital (Turkey) [7246-39]

SESSION 5
Conv. Ctr. Room K: . . . .**Mon. 4:30 to 5:10 pm**

Segmentation
Session Chair: **Mujdat Cetin,** Sabanci Univ. (Turkey)

4:30 pm: **Sobolev gradients and joint variational image segmentation, denoising, and deblurring**, Mi-Youn Jung, Univ. of California, Los Angeles (United States); Ginmo Chung, Hokkaido Univ. (Japan); Ganesh Sundaramoorthi, Luminita A. Vese, Alan L. Yuille, Univ. of California, Los Angeles (United States) . . . .[7246-16]

4:50 pm: **Resolving occlusion and segmentation errors in multiple video object tracking**, Hsu-Yung Cheng, National Central Univ. (Taiwan); Jenq-Neng Hwang, Univ. of Washington (United States) . . . .[7246-37]

Conference 7246

Tuesday 20 January

Plenary Presentation

Marriott Ballroom: . . . . **Tues. 8:00 to 8:50 am**

Neptune's Garden: Exploring the Secrets of the Deep Undersea

D. Gallo, Woods Hole Oceanographic Institution (United States);
William Lange, Woods Hole Oceanographic Institution

See page 5 for information.

Coffee Break . . . . 10:00 to 10:30 am

Conv. Ctr. Room K: . . . .**Tues. 10:30 to 11:00 am**

Keynote Presentation

Session Chair: **Charles A. Bouman,** Purdue Univ.

10:30 am: **To Be Announced** (*Invited Paper*), Malcom Slaney, Interval Research, Inc. (United States) . . . . [7246-52]

SESSION 6

Conv. Ctr. Room K: . . . . **Tues. 11:00 am to 12:00 pm**

Interpolation and Inpainting

Session Chair: **Keigo Hirakawa,** Harvard Univ.

11:00 am: **Iterative Demosaicking Accelerated: Theory and Fast Noniterative Implementations**, Yue M. Lu, Mina Karzand, Martin Vetterli, Swiss Federal Institute of Technology Lausanne (EPFL) (Switzerland) . . . . [7246-03]

11:20 am: **Resolution and Interpolation Of Multichannel Long Wave Infrared Camera Data**, Andrew D. Portnoy, David J. Brady, Duke Univ. (United States) . . . . [7246-22]

11:40 am: **Video Inpainting Algorithm Using Spatio-Temporal Consistency**, Sangheon Lee, Soon-Young Lee, Jun-Hee Heu, Seoul National Univ. (South Korea); Chang-Su Kim, Korea Univ. (South Korea); Sang Uk Lee, Seoul National Univ. (South Korea) . . . . [7246-11]

Lunch/Exhibition Break . . . . 12:00 to 1:30 pm

SESSION 7

Conv. Ctr. Room K: . . . . **Tues. 1:30 to 2:30 pm**

Mathematical Imaging

Session Chair: **Josiane B. Zerubia,** INRIA Sophia Antipolis (France)

1:30 pm: **An application of a new quasi-linear polynomial solution method to image analysis**, Ji Zhang, Mireille Boutin, Purdue Univ. (United States)[7246-49]

1:50 pm: **Image zooming with contour stencils**, Pascal T. Getreuer, Univ. of California, Los Angeles (United States) . . . . [7246-12]

2:10 pm: **Aspects of 3D Shape Reconstruction**, Peter F. Stiller, Texas A&M Univ. (United States); Gregory Arnold, Matthew A. Ferrara, Air Force Research Lab. (United States) . . . . [7246-21]

SESSION 8

Conv. Ctr. Room K: . . . . **Tues. 2:30 to 4:10 pm**

Statistical Imaging

Session Chair: **James Theiler,** Los Alamos National Lab.

2:30 pm: **Wavelet-based Poisson rate estimation using the Skellam distribution**, Keigo Hirakawa, Harvard Univ. (United States); Farhan A. Baqai, Sony Electronics, Inc. (United States); Patrick J. Wolfe, Harvard Univ. (United States) . . . . [7246-43]

2:50 pm: **Dictionary-based probability density function estimation for high-resolution SAR data**, Vladimir A. Krylov, Lomonosov Moscow State Univ. (Russian Federation); Gabriele Moser, Sebastiano B. Serpico, Univ. of Genoa (Italy); Josiane Zerubia, INRIA Sophia Antipolis (France) . . . . [7246-44]

3:10 pm: **Uncorrelated versus independent elliptically-contoured distributions for anomalous change detection in hyperspectral imagery**, James Theiler, Los Alamos National Lab. (United States) . . . . [7246-36]

Coffee Break . . . . 3:30 to 4:00 pm

4:00 pm: **Photometry in UV astronomical images of extended sources in crowded field using deblended images in optical visible bands as bayesian priors**, Didier Vibert, Observatoire Astronomique de Marseille-Provence (France); Michel Zamojski, California Institute of Technology (United States); Antoine Llebaria, Observatoire Astronomique de Marseille-Provence (France); Stephane Arnouts, Canada France Hawaii Telescope (United States); Bruno Millard, Observatoire Astronomique de Marseille-Provence (France) . . . . [7246-25]

4:20 pm: **Image denoising using locally learned dictionaries**, Priyam Chatterjee, Peyman Milanfar, Univ. of California, Santa Cruz (United States) . . . . [7246-27]

Coffee Break . . . . 3:40 to 4:10 pm

SESSION 9

Conv. Ctr. Room K: . . . . **Tues. 4:40 to 5:20 pm**

Registration

Session Chair: **Peyman Milanfar,** Univ. of California, Santa Cruz

4:40 pm: **Image registration for multi-exposed HDRI and motion deblurring**, Seok Lee, Ho-Cheon Wey, Seong-Deok Lee, Samsung Advanced Institute of Technology (South Korea) . . . . [7246-09]

5:00 pm: **Comparison of subpixel image registration algorithms**, Robert Boye, Cynthia Nelson, Sandia National Labs. (United States) . . . . [7246-26]

SESSION 10

Conv. Ctr. Room K: . . . . **Tues. 5:20 to 6:00 pm**

Image Processing Applications

Session Chair: **Mireille Boutin,** Purdue Univ.

5:20 pm: **Three-Dimensional Electronic Unpacking of Packed Bags Using 3-D CT Images**, Samuel M. Song, Carl R. Crawford, Douglas P. Boyd, TeleSecurity Sciences, Inc. (United States) . . . . [7246-19]

5:40 pm: **Personal dietary assessment using mobile devices,** Anand Mariappan, Marc Bosch Ruiz, Fengqing Zhu, Carol J. Boushey, David S. Ebert, Edward J. Delp III, Purdue Univ. (United States). . . . . [7246-33]

Conv. Ctr. Exhibition Hall 1: . . . . **Tues. 6:00 to 8:30 pm**

Interactive Paper and Symposium Demonstration Session

The highly-successful, interactive, hands-on demonstration of hardware, software, display, and research products related to all the topics covered by the Electronic Imaging Symposium will again take place in conjunction with the Interactive Paper Session.

Interactive Paper Sesison Authors are asked to set up their poster papers between 8:00 am and 10:00 pm on Monday. Pushpins are provided; other supplies can be obtained by checking with Donna Smith at the Conference Registration Desk.

Authors must remove poster papers at the conclusion of the Interactive Session; posters not removed are considered unwanted and will be removed by staff and discarded. Neither sponsoring Society assumes responsibility for posters left up before or after the Interactive Paper Session.

Separation of limb and terminator on asteroids apparent contours, Antoine Llebaria, Laurent Jorda, Olivier Groussin, Lab. d'Astrophysique de Marseille (France) . . . . [7246-02]

Iris tracking and recognition using visible images for accurate non-invasive human recognition, Richard C. Tompkins, Old Dominion Univ. (United States) . . . . [7246-14]

Automated image processing and fusion for remote sensing applications, Sakina Zabuawala, Nilanjan Ray, Hai Wei, Chaitanya Raju, Jacob Yadegar, UtopiaCompression Corp. (United States) . . . . [7246-17]

Support vector machine for automatic pain recognition from video sequences, Md Maruf Monwar, Univ. of Calgary (Canada); Siamak Rezaei, Univ. of Northern British Columbia (Canada) . . . . [7246-20]

Courses of Related Interest

Register for courses on-site!

SC468 Image Enhancement and Deblurring (Rabbani) Sunday, 8:30 am to 5:30 pm

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