Monday-Tuesday 18-19 January 2010 • Proceedings of SPIE Vol. 7533

Computational Imaging VIII

Conference Chairs: **Charles A. Bouman,** Purdue Univ.; **Ilya Pollak,** Purdue Univ.; **Patrick J. Wolfe,** Harvard Univ.

Program Committee: **Samit Basu,** GE Security; **Thomas S. Denney, Jr.,** Auburn Univ.; **Maya R. Gupta,** Univ. of Washington; **Eric L. Miller,** Tufts Univ.; **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 18 January

SESSION 1

Room: Conv. Ctr. Room C4 . . . . . Mon. 8:40 to 10:20 am

Image Analysis

8:40 am: **A regions of confidence based approach to enhance segmentation with shaper priors,** Vikram Appia, Balaji Ganapathy, Georgia Institute of Technology (United States); Amer Abufadel, Khoury Group LLP (United States); Anthony J. Yezzi, Georgia Institute of Technology (United States); Tracy L. Faber, Emory Univ. (United States) . . . . . .[7533-20]

9:00 am: **Human pose tracking from monocular video by traversing an image motion mapped body pose manifold**, Saurav Basu, Joshua Poulin, Scott T. Acton, Univ. of Virginia (United States) . . . . . .[7533-02]

9:20 am: **Semi-automatic object geometry estimation for image personalization**, Hengzhou Ding, Purdue Univ. (United States); Raja Bala, Zhigang Fan, Reiner Eschbach, Xerox Corp. (United States); Charles A. Bouman, Jan P. Allebach, Purdue Univ. (United States). . . . . .[7533-03]

9:40 am: **A method for recognizing the shape of a Gaussian mixture from a sparse sample set**, Hector J. Santos-Villalobos, Mireille Boutin, Purdue Univ. (United States) . . . . . .[7533-04]

10:00 am: **Extraction of arbitrarily shaped objects using stochastic multiple birth-and-death dynamics and active contours**, Maria Kulikova, Ian H. Jermyn, Xavier Descombes, INRIA Sophia Antipolis (France); Elena Zhizhina, Institute for Information Transmission Problems Moscow (Russian Federation); Josiane Zerubia, INRIA Sophia Antipolis (France) . . . . . .[7533-05]

Coffee Break . . . . . .10:20 to 10:50 am

SESSION 2

Room: Conv. Ctr. Room C4 . . . Mon. 10:50 am to 12:10 pm

Remote Sensing I

10:50 am: **Symmetrized local co-registration optimization for anomalous change detection**, Brendt E. Wohlberg, James Theiler, Los Alamos National Lab. (United States) . . . . . .[7533-06]

11:10 am: **High-resolution SAR-image classification by Markov random fields and finite mixtures**, Gabriele Moser, Univ. degli Studi di Genova (Italy); Vladimir Krylov, Lomonosov Moscow State Univ. (Russian Federation); Sebastiano B. Serpico, Univ. degli Studi di Genova (Italy); Josiane Zerubia, INRIA Sophia Antipolis (France). . . . . .[7533-07]

11:30 am: **Randomized group testing for acoustic source localization**, William E. Mantzel, Jr., Justin K. Romberg, Karim G. Sabra, Georgia Institue of Technology (United States) . . . . . .[7533-08]

11:50 am: **Bayesian data fusion in synthetic aperture radar imaging**, Ali Mohammad-Djafari, Sha Zhu, Lab. des signaux et systèmes (France); Franck Daout, SATIE, Ecole Normale Supérieure de Cachan, Univ. Paris X-Nanterre (France); Philippe Fargette, DEMR, ONERA (France) .[7533-38]

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

SESSION 3

Room: Conv. Ctr. Room C4 . . . . . Mon. 2:00 to 2:40 pm

Remote Sensing II

2:00 pm: **Blind deconvolution of depth-of-field limited full-field lidar data by determination of focal parameters**, John P. Godbaz, Michael J. Cree, Adrian A. Dorrington, The Univ. of Waikato (New Zealand).[7533-10]

2:20 pm: **Multi-static synthetic aperture image formation**, Venky Krishnan, Rensselaer Polytechnic Institute (United States); John Swoboda, MITRE Corp. (United States); Can-Evren Yarman, WesternGeco-Schlumberger (United States); Birsen Yazici, Rensselaer Polytechnic Institute (United States) . . . . . .[7533-11]

SESSION 4

Room: Conv. Ctr. Room C4 . . . . . Mon. 2:40 to 4:30 pm

Biomedical Imaging I

2:40 pm: **Compressive inverse scattering using ultrashort pulses**, Kyungwhan Jin, Jong Chul Ye, Korea Advanced Institute of Science and Technology (Korea, Republic of) . . . . . .[7533-13]

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

3:30 pm: **Implementation and evaluation of a penalized alternating minimization algorithm for computational DIC microscopy**, Chrysanthe Preza, The Univ. of Memphis (United States); Joseph A. O'Sullivan, Washington Univ. in St. Louis (United States). . . . . .[7533-14]

3:50 pm: **Virtual surgical modification for planning tetralogy of Fallot repair**, Jonathan Plasencia, Arizona State Univ. (United States); John Nigro, Randy Richardson, David Cleveland, St. Joseph's Hospital and Medical Ctr. (United States); David H. Frakes, Arizona State Univ. (United States) . . . . . .[7533-15]

4:10 pm: **Numerical observer for cardiac motion quality assessment**, Jovan G. Brankov, Thibault Marin, Yongyi Yang, Miles Wernick, Illinois Institute of Technology (United States) . . . . . .[7533-37]

SESSION 5

Room: Conv. Ctr. Room C4 . . . . . Mon. 4:30 to 5:30 pm

Inverse Problems

4:30 pm: **Imaging for wireless sensor networks in random media**, Ray Sun, George Papanicolaou, Stanford Univ. (United States); Miguel Moscoso, Univ. Carlos III de Madrid (Spain); Gregoire Derveaux, Institut National de Recherche en Informatique et en Automatique (France) . . . . . .[7533-16]

4:50 pm: **Fast matrix vector multiplication using the sparse matrix transform**, Jianing Wei, Leonardo Bachega, Charles A. Bouman, Purdue Univ. (United States) . . . . . .[7533-17]

5:10 pm: **Construction and exploitation of a 3D model from 2D image features**, Nadya T. Bliss, Karl Ni, Zachary Sun, MIT Lincoln Lab. (United States) . . . . . .[7533-18]

Tuesday 19 January

Room: Marriott Ballroom . . . . . Tues. 8:00 to 9:15 am

Plenary Session I

8:00 am: **Automatic 3D Modeling and Analysis of Large Scale Urban Environments**, Avideh Zakhor, Univ. of California, Berkeley (United States) . . . . . .[EI10SE-100]

SESSION 6

Room: Conv. Ctr. Room C4 . . . . . Tues. 9:40 to 11:50 am

Consumer Imaging

9:40 am: **An optimal algorithm for reconstructing images from binary measurements,** Feng Yang, Yue M. Lu, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Luciano Sbaiz, Google Zurich (Switzerland); Martin Vetterli, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7533-01]

10:00 am: **Digital neutral density filter for moving picture cameras**, Michael Schöberl, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Alexander Oberdörster, Siegfried Fößel, Fraunhofer-Institut für Integrierte Schaltungen (Germany); André Kaup, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . . . . . .[7533-21]

Coffee Break . . . . . .10:20 to 10:50 am

10:50 am: **Faithful quality representation of high-resolution images at low resolutions for user preview**, Noha A. El-Yamany, Southern Methodist Univ. (United States); Marius Tico, Natasha Gelfand, Nokia Research Ctr. (United States) . . . . . .[7533-22]

11:10 am: **An adaptive show-through artifact removal method with histogram analyzer**, Jinkyung Hong, Kimin Kang, Sangho Kim, SAMSUNG Electronics Co., Ltd. (Korea, Republic of) . . . . . .[7533-23]

11:30 am: **Automatic portion estimation and visual refinement in mobile dietary assessment**, Karl Otsmo, Insoo Woo, SungYe Kim, David S. Ebert, Edward J. Delp III, Carol J. Boushey, Purdue Univ. (United States) . . . . . .[7533-24]

Lunch/Exhibition Break . . . . . 11:50 am to 1:40 pm

SESSION 7

Room: Conv. Ctr. Room C4 . . . . . Tues. 1:40 to 3:00 pm

Denoising and Filtering

1:40 pm: **Motion blur removal in nonlinear sensors**, Tomer Faktor, Tomer Michaeli, Yonina C. Eldar, Technion-Israel Institute of Technology (Israel) . . . . . .[7533-25]

2:00 pm: **Rewiring filterbanks for interpolation and denoising: theory and applications**, Patrick J. Wolfe, Harvard Univ. (United States); Keigo Hirakawa, Univ. of Dayton (United States) . . . . . .[7533-26]

2:20 pm: **Sparse Poisson intensity reconstruction algorithms**, Zachary T. Harmany, Duke Univ. (United States); Roummel F. Marcia, Univ. of California, Merced (United States); Rebecca M. Willett, Duke Univ. (United States) . . . . . .[7533-27]

2:40 pm: **Novel integro-differential equations in image processing and its applications**, Eitan Tadmor, Univ. of Maryland, College Park (United States); Prashant Athavale, Univ. of California, Los Angeles (United States) . . . . . .[7533-28]

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

SESSION 8

Room: Conv. Ctr. Room C4 . . . . . Tues. 3:30 to 4:30 pm

Biomedical Imaging II

3:30 pm: **Fast automatic segmentation of MRI liver images using subspace learning**, Dan Wang, Ahmed H. Tewfik, Univ. of Minnesota (United States); Daniel J. Blezek, Bradley J. Erickson M.D., Mayo Clinic (United States) . . . . . .[7533-39]

3:50 pm: **Bayesian estimation with Gauss-Markov-Potts priors in optical diffraction tomography**, Hacheme Ayasso, Bernard Duchene, Ali Mohammad-Djafari, Lab. des signaux et systèmes (France) . . . .[7533-40]

4:10 pm: **Registration of patch optical and MRI or CT scan imagery for real time 3D organ tracking,** Dan Wang, Ahmed H. Tewfik, Univ. of Minnesota (United States) . . . . . .[7533-41]

Room: Exhibit Hall 1 . . . . . Tues. 5:30 to 8:00 pm

Interactive Paper and Symposium Demonstration Session

Session Chairs: **Neil A. Dodgson,** Univ. of Cambridge (United Kingdom); **Andrew J. Woods,** Curtin Univ. of Technology (Australia)

Demonstrations . . . . . 5:30 to 8:00 pm

A symposium-wide demonstration session will be open to attendees 5:30 to 8:00 pm Tuesday evening in Exhibit Hall 1. Demonstrators will provide interactive, hands-on demonstrations of a wide-range of products related to Electronic Imaging.

Interactive Papers . . . . . 5:30 to 7:00 pm

Posters will be placed on display after 9:00 am in Exhibit Hall 1. A poster session, with authors present at their posters, will be held Tuesday evening, 5:30 to 7:00 pm

Band reduction for hyperspectral imagery processing, Stefan A. Robila, Montclair State Univ. (United States) . . . . . .[7533-29]

Identifying a walking human by a tensor decomposition-based approach and tracking the human across discontinuous fields-of-view of multiple cameras, Takayuki Hori, Jun Ohya, Waseda Univ. (Japan); Jun Kurumisawa, Chiba Univ. of Commerce (Japan) . . . . . .[7533-30]

Restitution of multiple overlaid components on extremely long series of solar corona images, Antoine Llebaria, Jean Loirat, Philippe Lamy, Observatoire Astronomique de Marseille-Provence (France) . . . .[7533-31]

Several approaches to solve the rotation illusion with wheel effect, Cheng Zhang, Rick Parent, The Ohio State Univ. (United States) [7533-32]

Restoring the spatial resolution of refocus image on 4D light field data, Jaeguyn Lim, Jooyoung Kang, ByungKwan Park, Seong-Deok Lee, SAMSUNG Electronics Co., Ltd. (Korea, Republic of) . . . . . .[7533-33]

OASIS: a simulator to prepare and interpret remote imaging of solar system bodies, Laurent Jorda, Antoine Llebaria, Observatoire Astronomique de Marseille-Provence (France); Sofie Spjuth, Max-Planck-Institut fuer Sonnensystemforschung (Germany) . . . . . .[7533-34]

Robust joint photometric and geometric registration of images, Noha A. El-Yamany, Scott C. Douglas, Johannes Tausch, Southern Methodist Univ. (United States) . . . . . .[7533-35]

Courses of Related Interest

Register for Courses at the Cashier desk.

SC970 Computational Optical Imaging (Brady) Sunday, 8:30 am to 5:30 pm

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