IS&T International Symposium on Electronic Imaging Science and Technology 2016

Computational Imaging XIV

San Francisco, California, USA
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Editors:

Charles A. Bouman
Ken D. Sauer

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Computational Imaging XIV

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Nitin Sampat, Rochester Institute of Technology (USA)

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Computational Imaging XIV
Conference Chairs
Charles Bouman, Purdue University (USA)
Ken Sauer, University of Notre Dame (USA)

Tuesday, February 16, 2016

Keynote: Indoor and Outdoor Image Based Localization for Mobile Devices
Session Chair: Charles Bouman, Purdue University (USA)
8:50 – 9:50 am
Golden Gate 1
8:50
COIMG-147
Indoor and outdoor image based localization for mobile devices,
Avideh Zakhor, University of California, Berkeley (USA)

Optimization and Learning
Session Chair: Peyman Milanfar, Google, Inc. (USA)
9:50 – 10:30 am
Golden Gate 1
9:50
COIMG-148
An alternating direction method of multiplier algorithm for single-photon imaging sensors,
Stanley Chan, Purdue University (USA)
10:10
COIMG-149
Adaptive activation functions for deep networks,
Michael Dushkoff and Raymond Ptucha, Rochester Institute of Technology (USA)
10:30 – 10:50 am
Coffee Break

Optimization and Learning (continued)
Session Chair: Peyman Milanfar, Google, Inc. (USA)
10:50 – 12:30 pm
Golden Gate 1
10:50
COIMG-150
Filtering without normalization,
Peyman Milanfar, Google, Inc. (USA)
11:10
COIMG-151
Sparse non-local interpolation for nano-scale imaging,
Sreehari1, Singanallur Venkatakrishnan2, Jeffrey Simmons3, Lawrence Drummy4, and Charles Bouman2; 1Purdue University, 2Lawrence Berkeley National Laboratory, and 3Air Force Research Laboratory (USA)
11:30
COIMG-152
Hierarchical decomposition of large deep networks,
Sumanth Chennupati, Shagan Sah, Sai Nooka, and Raymond Ptucha, Rochester Institute of Technology (USA)
11:50
COIMG-153
A supervised learning approach for dynamic image sampling,
G.M. Dilshan Godaliyadda1, Dong Hye Ye2, Michael D. Uchic2, Michael A. Groeber2, Gregory T. Buzzard3, and Charles A. Bouman1; 1Purdue University and 2Air Force Research Laboratory (USA)
12:10
COIMG-154
Stochastic first-order minimization techniques using Jensen’s surrogates for x-ray transmission tomography,
Soysal Degirmenci1, Joseph O’Sullivan1, and David Politte2; 1Washington University and 2Washington University School of Medicine (USA)
12:30 – 2:00 pm
Lunch Break
EI 2016 Tuesday Plenary and Symposium Awards
Session Chair: Nitin Sampat (Rochester Institute of Technology)
2:00 – 3:00 PM
Continental Ballroom 5
Pushing computational photography deeper into imaging system design, Ren Ng, University of California, Berkeley (USA)

3:00 – 3:30 pm Coffee Break

Scientific Imaging
Session Chair: Dilworth Parkinson, University of California, Berkeley (USA)
3:30 – 5:10 pm Golden Gate 1
Making advanced scientific algorithms and big scientific data management more accessible, S. V. Venkatakrishnan1,2, K. Aditya Mohan1, Keith Beattie3, Joaquin Correa4, Eli Danté, Jack R. Deslippe6, Alexander Hexemer1,2, Harinarayan Krishnan4,5, Alastair A. MacDowell1, Stefano Marchesini2,4, Simon J. Paton1, Talita Perciano4,4, James A. Sethian4,6,7, Rune Stromness8, Brian L. Tierny1, Craig E. Tull1, Daniela Ushizima4, and Dilworth Y. Parkinson1,2; 1Center for Advanced Mathematics for Energy Research Applications, Lawrence Berkeley National Lab, 2Advanced Light Source, Lawrence Berkeley National Lab, 3Purdue University, 4Computational Research Division, Lawrence Berkeley National Lab, 5National Energy Research Scientific Computing Center, 6Energy Sciences Network, 7UC Berkeley (USA)

3:50 COIMG-156 Simulation of abnormal grain growth in polycrystalline materials, Shruthi S. Kubatur and Mary L. Comer, Purdue University (USA)

4:10 Reducing restoration artifacts in 3D computational microscopy using wavefront encoding, Nuromohammed Patwary and Chrysanthe Preza, University of Memphis (USA)

4:30 Single shot digital holography based on iterative reconstruction with alternating updates of amplitude and phase, Dennis J. Lee1,2, Charles A. Bouman1, and Andrew M. Weiner6; 1Sandia National Laboratories and 2Purdue University (USA)

4:50 Improving Video-Based heart rate estimation, Dahjung Chung, Jeeyun Choe, Marguente E. O’Haire, A.J. Schwichtenberg, and Edward J. Delp, Purdue University (USA)

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3:00 – 3:30 pm Coffee Break

Wednesday, February 17, 2016

Image and Signal Analysis
Session Chair: James Theiler, Los Alamos National Laboratory (USA)
8:50 – 10:10 am Golden Gate 1
8:50 COIMG-160 Right spectrum in the wrong place: A framework for local hyperspectral anomaly detection, James Theiler, Los Alamos National Laboratory (USA)

9:10 COIMG-161 Data adaptive affinity functions in unsupervised segmentation, Reid Porter, Diane Oyen, and James Theiler, Los Alamos National Laboratory (USA)

9:30 COIMG-162 A strip-based fast text detection for low cost embedded devices, John J. Mathew1, Yue Wang1, Eli Saberi2, David Larson3, Peter Bauer4, George Kerby5, and Jerry Vagner5; 1Rochester Institute of Technology and 2Hewlett Packard Company (USA)

10:10 – 10:30 am Coffee Break

Nondestructive Evaluation and Security Imaging
Session Chair: David Castañón, Boston University (USA)
10:30 am – 12:10 pm Golden Gate 1
10:30 COIMG-164 Simulation of an inverse schlieren image acquisition system for inspecting transparent objects, Johannes Neyen1, Robin Grund2, Thomas Lang1, and Jürgen Beyerer1; 1Karlsruhe Institute of Technology and 2Fraunhofer IOSB (Germany)

10:50 COIMG-165 Enhancing nuclear resonance fluorescence with coded aperture for security based imaging, Zachary Sun, W. Clem Karl, and David Castañón, Boston University (USA)

11:10 The unavoidable use of computational imaging on next generation biometric identification systems, Jens Gregor1 and Hector Santos-Villalobos2; 1University of Tennessee and 2Oak Ridge National Laboratory (USA)

11:30 COIMG-167 Sparse data 3-D X-ray reconstructions on GPU processors, Fernando Quirós1, Simon Bedford2, Richard Mooie3, John Buty4, and David Castañón1; 1Northeastern University, 2Astrophysics, Inc., 3Massachusetts General Hospital, and 4Boston University (USA)

11:50 COIMG-521 Non-destructive evaluation for destruction: x-ray imaging for hard drive magnet recovery, Jeffrey S. Kallman, Karina P. Bond, William D. Brown, and Harry E. Martz, Lawrence Livermore National Laboratory (USA)

12:10 – 2:00 pm Lunch Break
**Computational Imaging XIV Interactive Papers Session**

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**5:30 – 7:00 pm**

**Continental Ballroom 6**

The following works will be presented at the EI 2016 Symposium Interactive Papers Session.

COIMG-174

**Gradient enhanced image pyramid for improved nonlinear image registration,** Lin Gian and Gady Agam, Illinois Institute of Technology (USA)

COIMG-175

**Hidden watermark of 3D models by just noticeable color difference,** Tsung-Han Lin, National Taiwan University of Science and Technology (Taiwan)

COIMG-176

**Illumination normalization and skin color verification for robust face detection,** Sanghun Lee and Chulhee Lee, Yonsei University (South Korea)

COIMG-177

**Improved reconstruction for compressive hyperspectral imaging using spatial-spectral non-local means regularization,** Pablo Meza1, Esteban Vera2, and Javier Martínez1; 1Universidad de La Frontera (Chile) and 2Duke University (USA)

COIMG-178

**Protein chemical cross-linking/mass spectrometry: From raw data to fully immersive visualizations,** Islam Akef Ebeid1, Carolina Cruz-Neira1, Mihir Jaiswal2, and Boris Zybaylov2; 1University of Arkansas at Little Rock and 2University of Arkansas for Medical Sciences (USA)

COIMG-179

**Real-time depth estimation and view interpolation using Quasar,** Bart Goossens, Simon Donné, Jan Aelterman, Jonas De Vylder, Dirk Van Haerenboogh, and Willfried Philips, Universiteit Gent (Belgium)