Front Matter: Volume 9400
Real-Time Image and Video Processing 2015

Nasser Kehtarnavaz
Matthias F. Carlsohn
Editors

10 February 2015
San Francisco, California, United States

Sponsored by
IS&T—The Society for Imaging Science and Technology
SPIE

Published by
SPIE

Volume 9400
## Contents

<table>
<thead>
<tr>
<th>SESSION 1</th>
<th>REAL-TIME HARDWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9400 02</td>
<td>Customized Nios II multi-cycle instructions to accelerate block-matching techniques [9400-1]</td>
</tr>
<tr>
<td>9400 03</td>
<td>Hardware design to accelerate PNG encoder for binary mask compression on FPGA [9400-2]</td>
</tr>
<tr>
<td>9400 04</td>
<td>Real-time algorithm enabling high dynamic range imaging and high frame rate exploitation for custom CMOS image sensor system implemented by FPGA with co-processor [9400-3]</td>
</tr>
<tr>
<td>9400 05</td>
<td>Fast semivariogram computation using FPGA architectures [9400-4]</td>
</tr>
<tr>
<td>9400 06</td>
<td>2D to 3D conversion implemented in different hardware [9400-5]</td>
</tr>
<tr>
<td>9400 07</td>
<td>A real-time GPU implementation of the SIFT algorithm for large-scale video analysis tasks [9400-6]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 2</th>
<th>REAL-TIME ALGORITHMS I</th>
</tr>
</thead>
<tbody>
<tr>
<td>9400 08</td>
<td>Real-time deblurring of handshake blurred images on smartphones [9400-7]</td>
</tr>
<tr>
<td>9400 09</td>
<td>Real-time object tracking for moving target auto-focus in digital camera [9400-8]</td>
</tr>
<tr>
<td>9400 0A</td>
<td>Embedded wavelet-based face recognition under variable position [9400-9]</td>
</tr>
<tr>
<td>9400 0B</td>
<td>Subjective evaluation of H.265/HEVC based dynamic adaptive video streaming over HTTP (HEVC-DASH) [9400-24]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION 3</th>
<th>REAL-TIME ALGORITHMS II</th>
</tr>
</thead>
<tbody>
<tr>
<td>9400 0D</td>
<td>FIR filters for hardware-based real-time multi-band image blending [9400-11]</td>
</tr>
<tr>
<td>9400 0E</td>
<td>Iris unwrapping using the Bresenham circle algorithm for real-time iris recognition [9400-12]</td>
</tr>
<tr>
<td>Session</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>94000H</td>
<td>Efficient fast thumbnail extraction algorithm for HEVC [9400-15]</td>
</tr>
<tr>
<td>94000I</td>
<td>Parallel hybrid algorithm for solution in electrical impedance equation [9400-17]</td>
</tr>
<tr>
<td>94000J</td>
<td>Fast-coding robust motion estimation model in a GPU [9400-18]</td>
</tr>
<tr>
<td>94000K</td>
<td>Real-time single-exposure ROI-driven HDR adaptation based on focal-plane reconfiguration [9400-19]</td>
</tr>
<tr>
<td>94000M</td>
<td>Task-oriented quality assessment and adaptation in real-time mission critical video streaming applications [9400-21]</td>
</tr>
<tr>
<td>94000N</td>
<td>A simulator tool set for evaluating HEVC/SHVC streaming [9400-22]</td>
</tr>
<tr>
<td>94000O</td>
<td>Dynamic resource allocation engine for cloud-based real-time video transcoding in mobile cloud computing environments [9400-23]</td>
</tr>
<tr>
<td>94000P</td>
<td>Impact of different cloud deployments on real-time video applications for mobile video cloud users [9400-25]</td>
</tr>
<tr>
<td>94000Q</td>
<td>Improving wavelet denoising based on an in-depth analysis of the camera color processing [9400-26]</td>
</tr>
<tr>
<td>94000R</td>
<td>Impulsive noise suppression in color images based on the geodesic digital paths [9400-27]</td>
</tr>
<tr>
<td>94000S</td>
<td>Optimal camera exposure for video surveillance systems by predictive control of shutter speed, aperture, and gain [9400-28]</td>
</tr>
<tr>
<td>94000T</td>
<td>Real-time object recognition in multidimensional images based on joined extended structural tensor and higher-order tensor decomposition methods [9400-29]</td>
</tr>
<tr>
<td>94000V</td>
<td>Near real-time operation of public image database for ground vehicle navigation [9400-31]</td>
</tr>
</tbody>
</table>
Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Adedayo, Bada, 0O
Akil, Mohamed, 03
Al Hadhrami, Tawfiq, 0N
Alcaraz Calero, Jose M., 0O
Ali, E., 0V
Botella, Guillermo, 02, 0J
Broussard, Randy P., 0E
Bucio-Ramirez, Ariana, 0I
Carmona-Galán, R., 0K
Carothers, Matthew T., 0E
Chang, Chih-Hsiang, 0B
Chavanon, Stéphane, 0A
CGanek, Boguslaw, 0R, 0T
Darouich, Mehd, 0A
de Sande, Francisco, 0J
del Rio, R., 0K
Dong, Xuanliang, 05
Fassold, Hannes, 07
Fernández-Berni, J., 0K
García, Carlos, 02, 0J
González, Diego, 02
Gonzalez-Huitron, Victor, 06
Grecos, Christos, 0B, 0M, 0N, 0O, 0P
Guan, Haike, 09
Hernandez-Fragoso, Araceli, 06
Iordi, Itheanyi, 0B
Jacquet, Blake C., 04
Jeon, Gwanggil, 0H
Jeong, Jechang, 0H
Johnson-Williams, Nathan, 04
Kachouri, Rostom, 03
Kehtarnavaz, Nasser, 0B, 0N
Khan, Kashif A., 0P
Kleihorst, R., 0K
Kozaitis, S. P., 0V
Lagadapati, Yamuna, 05
Leblebici, Yusuf, 0D
Lee, Wonjin, 0H
Liu, Tang, 09
Luo, Chunbo, 0P
Menendez, Jose Manuel, 0S
Meyer Bäse, Anke, 02
Meyer Bäse, Uwe, 02
Ngo, Hau T., 0E
Nightingale, James, 0M, 0N
Niinami, Norikatsu, 09
Philips, W., 0K
Plichta, Mathias, 0Q
Ponomaryov, Volodymyr I., 06, 0l
Popovic, Vladan, 0D
Pourreza-Shahi, Reza, 08
Prieto-Matías, Manuel, 02, 0J
Rakvić, Ryan N., 0E
Ramírez-Tachiquin, Marco, 0I
Ramos-Díaz, Eduardo, 06, 0I
Robles-Gonzales, Marco, 0I
Rodríguez-Vázquez, Á., 0K
Rosner, Jakub, 07
Seybold, Tamara, 0Q
Shirvaikar, Mukul, 0S
Smotka, Bogdan, 0R, 0T
Stechele, Walter, 0Q
Torres, Juan, 0S
Wang, Qi, 0B, 0M, 0N, 0O, 0P
Wang, Xinheng, 0P

Proc. of SPIE-IS&T Vol. 9400  940001-5
Conference Committee

Symposium Chair

Sheila S. Hemami, Northeastern University (United States)

Symposium Co-chair

Choon-Woo Kim, Inha University (Korea, Republic of)

Conference Chairs

Nasser Kehtarnavaz, The University of Texas at Dallas (United States)
Matthias F. Carlsohn, Computer Vision and Image Communication at Bremen (Germany)

Conference Program Committee

Mohamed Akil, École Supérieure d’Ingénieurs en Electronique et Electrotechnique (France)
Guillermo Botella, Universidad Completense de Madrid (Spain)
Roy Davies, University of London (United Kingdom)
Philip P. Dang, Intel Corporation (United States)
Barak Fishbain, Technion-Israel Institute of Technology (Israel)
M. Emre Celebi, Louisiana State University Shreveport (United States)
Sergio R. Goma, Qualcomm Inc. (United States)
Christos Grecos, University of the West of Scotland (United Kingdom)
Mehrube Mehrübeoglu, Texas A&M University Corpus Christi (United States)
Antonio J. Plaza, Universidad de Extremadura (Spain)
Volodymyr Ponomaryov, Instituto Politécnico Nacional (Mexico)
Luis Salgado, Universidad Politécnica de Madrid (Spain)
Sergio Saponara, Università di Pisa (Italy)
Vinay Sharma, Apple Inc. (United States)
Mukul V. Shirvalkar, The University of Texas at Tyler (United States)
Athanassios N. Skodras, University of Patras (Greece)
Juan P. Wachs, Purdue University (United States)
Session Chairs

1  Real-Time Hardware  
   Nasser Kehtarnavaz, The University of Texas at Dallas (United States)

2  Real-Time Algorithms I  
   Mukul V. Shirvaikar, The University of Texas at Tyler (United States)

3  Real-Time Algorithms II  
   Guillermo Botella, Universidad Computense de Madrid (Spain)