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

3D Image Processing, Measurement (3DIPM), and Applications 2016

San Francisco, California, USA
14-18 February 2016

Editors:

William Puech   **Robert Sitnik**

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3D Image Processing, Measurement (3DIPM), and Applications 2016

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3D Image Processing, Measurement (3DIPM), and Applications 2016

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Wednesday, February 17, 2016

3DIPM/SD&A: Stereoscopic Image Processing and Depth Mapping
Joint Session

Session Chairs: William Puech, University of Montpellier (France) and Michael Weissman, TrueVision Systems (USA)

10:50 am – 12:30 pm
Continental Ballroom 5

This session is jointly sponsored by: Stereoscopic Displays and Applications XXVII and 3D Image Processing, Measurement (3DIPM), and Applications 2016.

10:50   SDA-034
Geometrically constrained sub-pixel disparity estimation from stereo images of the retinal fundus, *Mohamad Kharboutly, Carlos Vazquez, Stéphane Coulombe, and Jacques De Guise, École de technologie supérieure (Canada)* N/A

11:10   3DIPM-035
3D autostereoscopic display image generation using direct light field rendering, *Young Ju Jeong, Yang Ho Cho, Hyoseok Hwang, Hyun Sung Chang, Dongkyung Nam, and C. -C Jay Kuo; Samsung Advanced Institute of Technology (South Korea)* 1

11:30   SDA-036
A new hole filling method based on 3D geometric transformation for synthesized image, *Hak Gu Kim and Yong Man Ro, Korea Advanced Institute of Science and Technology (South Korea)* N/A

11:50   3DIPM-037
Blue noise sampling of surfaces from stereoscopic images, *Frederic Payan, Jean-Luc Peyrot, and Marc Antonini, Laboratory I3S, University Nice - Sophia Antipolis and CNRS (France) - UMR 7271 (France)* 7

12:30 – 2:00 pm   Lunch Break

EI 2016 Wednesday Plenary and Symposium Awards
Session Chair: Choon-Woo Kim (Inha University)
2:00 – 3:00 PM
Continental Ballroom 5

Intel® RealSense Technology: Adding human-like sensing and interactions to computing devices, *Achin Bhowmik, Intel Corporation (USA)* N/A

3:00 – 3:30 pm   Coffee Break

3D Data Processing and Compression

Session Chair: Robert Sitnik, Warsaw University of Technology (Poland)
3:30 – 5:10 pm
Union Square 25

3:30   3DIPM-396
Secure high capacity data hiding for 3D meshes, *Vincent Itier[1,3], Adrian Bors[2], William Puech[1], and Jean-Pierre Pedeboy[3]; [1]LIRMM (France), [2]University of York (United Kingdom), and [3]STRATEGIES (France)* 15

3:50   3DIPM-397
Point cloud compression using depth maps, *Arnaud Bletterer[1], Frédéric Payan[1], Marc Antonini[1], and Anis Meftah[2]; [1]Laboratory I3S, University of Nice - Sophia Antipolis and CNRS (France) - UMR 7271 and [2]Cintoo3D (France)* 22

4:10   3DIPM-398
Truncated signed distance function volume integration based on voxel-level optimization for 3D reconstruction, *Fei Li, Yunfan Du, and Rujie Liu, Fujitsu Research & Development Center Co., Ltd. (China)* 28

4:30   3DIPM-399
Depth assisted composition of synthetic and real 3D scenes, *Santiago Cortes, Olli Suominen, and Atanas Gotchev, Tampere University of Technology (Finland)* 34

4:50   3DIPM-400
Parallax scan based image segmentation using lens supplied metadata, *Christopher Mayhew, Ji Gou, and Sanjay Oak, Vision III Imaging, Inc. (USA)*

N/A

3D Image Processing, Measurement (3DIPM), and Applications 2016 Interactive Papers Session

5:30 – 7:00 pm
Continental Ballroom 6

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

                                                           3DIPM-401
Efficient filling of disparity holes using resolution decoupling, *Alexey Supikov, Maha El Choubassi, and Oscar Nestares, Intel Corporation (USA)* 43

                                                           3DIPM-402
Temporal domain stereo matching based on feature points for restriction of error propagation, *Ji-Hun Mun and Yo-Sung Ho, GIST (South Korea)* 50

                                                           3DIPM-403
Cavern halos: Exploring spatial and nonspatial cosmological data in an immersive virtual enviroment, *Carlos Uribe; University of Illinois at Chicago and EVL (USA)* N/A

                                                           3DIPM-404
Non-uniform resampling in perspective compensated large scale 3D visualization, *Maria Shcherban, Olli Suominen, and Atanas Gotchev, Tampere University of Technology (Finland)* 57

                                                           3DIPM-405
Depth estimation algorithm for color coded aperture camera, *Ivan Panchenko, Vladimir Paramonov, and Victor Bucha, Samsung R&D Institute Russia (Russian Federation)* 64

EI 2016 Symposium Interactive Papers Session
5:30 – 7:00 PM
Continental Ballroom 6

Thursday February 18, 2016

3D Acquisition and Preprocessing

Session Chair: Robert Sitnik, Warsaw University of Technology (Poland)

9:10 – 10:10 am
Golden Gate 6/7

9:10   3DIPM-406
High-fidelity Time-of-Flight edge sampling using superpixels, *Thomas Hach[1], Sascha Knob[2], and Johannes Steurer[1]; [1]Arnold & Richter Cinetechnik and [2]Hochschule RheinMain (Germany)* 70

9:30   3DIPM-407
3D shape template generation from RGB-D images capturing a moving and deforming object, *Hikari Takehara, Yuta Nakashima, Tomokazu Sato, and Naokazu Yokoya, Nara Institute of Science and Technology (Japan)* 79

9:50   3DIPM-408
Implementation of 3D object reconstruction using multiple Kinect cameras, *Dong-won Shin and Yo-Sung Ho, Gwangju Institute of Science and Technology (South Korea)* 86

10:10 – 10:40 am   Coffee Break

3DIPM/IPAS: **3D Scene Sensing and Object Recording** Joint Session

Session Chair: Robert Sitnik, Warsaw University of Technology (Poland)

10:40 am – 12:10 pm
Golden Gate 6/7
This session is jointly sponsored by: 3D Image Processing, Measurement (3DIPM), and Applications 2016, and Image Processing: Algorithms and Systems XIV.

10:40
Joint Session Introduction

10:50   3DIPM-044
Shadow detection on 3D point cloud, *Shuyang Sheng and B. Keith Jenkins, University of Southern California (USA)* 93

11:10   3DIPM-045
Im2Fit: Fast 3D model fitting and anthropometrics using single consumer depth camera and synthetic data, *Qiaosong Wang[1], Vignesh Jagadeesh[3], Bryan Ressler[3], and Robinson Piramuthu[3]; [1]University of Delaware and [3]eBay Research Labs (USA)* 98

11:30   3DIPM-046
Human detection from still depth images, *Gulsum Can and Helin Dutagaci, Eskisehir Osmangazi University (Turkey)* 105

11:50   IPAS-047
Tracking the guitarist's fingers as well as recognizing pressed chords from a video sequence, *Zhao Wang and Jun Ohya, Waseda University (Japan)* N/A

12:10 – 2:00 pm   Lunch Break

3DIPM/IMSE: Image Sensors and Systems for 3D Imaging `Joint Session`

Session Chair: William Puech, University of Montpellier (France)

1:50 – 3:20 pm
Golden Gate 6/7

This session is jointly sponsored by: Image Sensors and Imaging Systems 2016, and 3D Image Processing, Measurement (3DIPM), and Applications 2016.

1:50
Joint conference introduction

2:00   IMSE-048
A time-of-flight CMOS range image sensor using 4-tap output pixels with lateral-electric-field control, *Taichi Kasugai[1], Sang-Man Han[1], Hanh Trang[1], Taishi Takasawa[1], Satoshi Aoyama[2], Keita Yasutomi[1], Keiichiro Kagawa[1], and Shoji Kawahito[1]; [1]Shizuoka University and [2]Brookman Technology (Japan)*   N/A

2:20   IMSE-049
Design, implementation and evaluation of a TOF range image sensor using multi-tap lock-in pixels with cascaded charge draining and modulating gates, *Trang Nguyen[1], Taichi Kasugai[1], Keigo Isobe[2], Sang-Man Han[1], Taishi Takasawa[1], De XIng Lioe[1], Keita Yasutomi[1], Keiichiro Kagawa[1], and Shoji Kawahito[1]; [1]Shizuoka University and [2]Brookman Technology (Japan)*   N/A

2:40   3DIPM-050
Markerless motion capture with multi-view structured light, *Ricardo Garcia and Avideh Zakhor, University of California, Berkeley (USA)*
114

3:00   3DIPM-051
Towards automated, high resolution 3D scanning of large surfaces for cultural heritage documentation, *Robert Sitnik[1], Eryk Bunsch[2], Grzegorz Maczkowski[1], Wojciech Zaluski[1], Krzysztof Lech[1], Jakub Michonski[1], , Jakub Krzesłowski[1], and Piotr Foryś[1], Warsaw University of Technology and [2]Museum of King Jan III's Palace at Wilanów (Poland)*   121

3:20 – 3:50 pm   Coffee Break

3D Industrial Applications

Session Chair: William Puech, University of Montpellier (France)

3:50 – 5:00 pm
Golden Gate 6/7

3:50   3DIPM-409
Mobile version of Digital Image Correlation for deformation measurements of engineering objects, *Marcin Malesa, Dariusz Naploszek, Krzysztof Kuczynski, and Pawel Skrzypczak, Warsaw University of Technology (Poland)*   128

4:10   3DIPM-410
Structural internal deterioration detection with motion vector field image analysis using monocular camera, *Hiroshi Imai, Masahiko Ohta, and Kazuhito Murata, NEC Corporation (Japan)*   134

4:50
Closing Remarks