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

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 Khosroutiz, 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 Min 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 Peyrol, 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 23

3:30 3DP0396
Secure high capacity data hiding for 3D meshes, Vincent Itier1, Adrian Bors*, William Puech*, and Jean-Pierre Redonay; "URVWI (France), "University of York (United Kingdom), and 3*STRATEGIES (France) 15
3:50 | 3DIPM-397
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Point cloud compression using depth maps, Arnaud Bletterer1, Frédéric Payan1, Marc Antonini1, and Anis Meftah1; 1Laboratory I3S, University of Nice - Sophia Antipolis and CNRS (France) - UMR 7271 and “Cintoo3D (France) 22

4:10 | 3DIPM-398
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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
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Depth assisted composition of synthetic and real 3D scenes, Santiago Cortes, Olli Suominen, and Atanas Ganchev, Tampere University of Technology (Finland) 34

4:50 | 3DIPM-400
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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.

Efficient filling of disparity holes using resolution decoupling, Sypko, Maha El Choubassi, and Oscar Nestares, Intel Corporation (USA) 43

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

Cavern halos: Exploring spatial and nonspatial cosmological data in an immersive virtual environment, Carlos Uribe, University of Illinois at Chicago and EVL (USA) N/A

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

Depth estimation algorithm for color coded aperture camera, Ivan Patchenko, Vladimir Paramonov, and Victor Biecha, Samsung R&D Institute Russia (Russian Federation) 64

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

High-fidelity Time-of-Flight edge sampling using superpixels, Thomas Hoch1, Sascha Knob2, and Johannes Steurer1; 1Arnold & Richter Cineotechnik and “Hochschule RheinMain (Germany) 70

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

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
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
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Shadow detection on 3D point cloud, Shuyang Sheng and B. Keith Jenkins, University of Southern California (USA) 93

11:10 | 3DIPM-045
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Im2Fit: Fast 3D model fitting and anthropometrics using single consumer depth camera and synthetic data, Qiaosong Wang1, Vignesh Jagadeesh1, Bryan Ressler2, and Robinson Paarmuthu2; 1University of Delaware and “f2ey Research Labs (USA) 98

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

11:50 | IPAS-047
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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
3D Image Processing, Measurement (3DIPM), and Applications 2016

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

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 Kasugai1, Sang-Man Han1, Hanh Trang1, Toshi Takasawa1, Satoshi Asyama1, Keita Yasutomi1, Keiichiro Kagawa1, and Shoji Kawahito1; 1Shizuoka University and 2Brookman 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 Nguyen1, Taichi Kasugai1, Keigo Isobe2, Sang-Man Han1, Toshi Takasawa1, De Xing Lio1e, Keita Yasutomi1, Keiichiro Kagawa1, and Shoji Kawahito1; ‘Shizuoka University and ‘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) 1

3:00 3DIPM-051
Towards automated, high resolution 3D scanning of large surfaces for cultural heritage documentation, Robert Sitnik1, Eryk Bunsch2, Grzegorz Maczkowski1, Wojciech Zaluski1, Krzysztof Lech1, Jakub Michalski1, Jakub Klesiński1, and Piotr Foryś1, Warsaw University of Technology and ‘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 Maleš, Dariusz Napłoszek, Krzysztof Kuczynski, and Paweł 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 Ohita, and Kazuhito Murata, NEC Corporation (Japan) 134

4:50 Closing Remarks