IS&T International Symposium on Electronic Imaging Science and Technology 2018

3D Image Processing, Measurement (3DIPM), and Applications 2018

Burlingame, California, USA
28 January – 1 February 2018

Editors:

William Puech
Robert Sitnik

3D Image Processing, Measurement (3DIPM), and Applications 2018

Wednesday, January 31, 2018

10:00 am – 4:00 pm   Industry Exhibition

Depth Sensing JOINT SESSION

Session Chair: Calvin Chao, Taiwan Semiconductor Manufacturing Co. Ltd. (Taiwan)

10:50 – 11:50 am
Cypress A

This session is jointly sponsored by: Image Sensors and Imaging Systems 2018, and 3D Image Processing, Measurement (3DIPM), and Applications 2018.

10:50   IMSE-325
Mobile 3D imaging using handheld lens array sheet and single camera, *Shoaib Soomro[1], Osman Eldes[1], Kaan Aksit[2], and Hakan Urey[1]; [1]Koç University (Turkey) and [2]NVIDIA Research (United States)*

11:10   IMSE-326
A distance measurement method using a time-of-flight CMOS range image sensor with 4-tap output pixels and multiple time-windows, *Kohei Yamada, Akihito Komazawa, Taishi Takasawa, Keita Yasutomi, Keiichiro Kagawa, and Shoji Kawahito, Shizuoka University (Japan)*

11:30   IMSE-327
3D CMOS image sensor based on white pixel with off-center rectangular apertures, *Byoung-Soo Choi[1], Sang-Hwan Kim[1], Jimin Lee[1], Chang-Woo Oh[1], Seunghyuk Chang[2], JongHo Park[2], Sang-Jin Lee[2], and Jang-Kyoo Shin[1]; [1]Kyungpook National University and [2]Center for Integrated Smart Sensors (Republic of Korea)*

11:50 am – 2:00 pm   Lunch

Plenary Session

2:00 – 3:00 pm
Grand Peninsula Ballroom D

Ubiquitous, Consumer AR Systems to Supplant Smartphones, *Ronald T. Azuma, Intel, Corp. (United States)*

Dr. Ronald T. Azuma, researcher and augmented reality pioneer, shares his vision for achieving ubiquitous, consumer AR systems. Recent large investments in augmented reality reflect the commercial interest in its inherent potential to replace current smartphone technology, but much remains to be done. In his talk, Dr. Azuma gives a vision for achieving this goal, which requires not just solving numerous technical challenges but also determining new, compelling AR experiences that will establish AR as a new platform and novel form of media.

Dr. Azuma leads a team in Intel Labs that designs and prototypes novel experiences and key enabling technologies to enable new forms of media. These technology areas include computational imaging and photography, computational displays, and head-worn displays. Dr. Azuma is recognized as a pioneer and innovator in augmented reality, and has held prominent leadership roles in that research area, including leading and implementing research projects and demonstrations in areas such as AR, visualization, and mobile applications. Dr. Azuma received his BSc (1988) in electrical engineering from University of California, Berkeley, and MS (1990) and PhD (1995) in computer science from University of North Carolina, Chapel Hill. Prior to joining Intel, he was a research leader at Nokia Research Center Hollywood, and a senior researcher at Hughes Research Laboratories.

3:00 – 3:30 pm   Coffee Break

Symposium Interactive Papers (Poster) Session

5:30 – 7:30 pm
The Grove

Meet the Future: A Showcase of Student and Young Professionals Research

5:30 – 7:30 pm
The Grove

Thursday, February 1, 2018

10:10 – 10:40 am   Coffee Break

3D Data Processing

Session Chairs: William Puech, University of Montpellier (France) and Robert Sitnik, Warsaw University of Technology (Poland)

10:40 am – 12:00 pm
Regency C

10:40   3DIPM-423

Blind mesh quality assessment based on convolutional neural network, *Ilyass Abouelaziz[1], Aladine Chetouani[2], Mohamed El Hassouni[1], and Hocine Cherifi[3]; [1]LRIT, Mohamed V University (Morocco), [2]University of Orléans (France), and [3]LE2I UMR 6306 CNRS, University of Burgundy (France)*   1

11:00   3DIPM-424 [no paper]

Stereo analysis by matching cliques of points, *Frederick Stentiford and Ade Bamidele, University College London (United Kingdom)*

11:20   3DIPM-425

Holostream: High-accuracy, high-speed 3D range video encoding and streaming across standard wireless networks, *Tyler Bell, Jan Allebach, and Song Zhang, Purdue University (United States)*   6

11:40   3DIPM-426

Synchronizing 3D point cloud from 3D scene flow estimation with 3D Lidar and RGB camera, *Hiroki Usami[1], Hideo Saito[1], Jun Kawai[2], and Noriko Itani[2]; [1]Keio University and [2]Fujitsu Laboratories Ltd. (Japan)*   12

12:00 – 2:00 pm   Lunch

3D Scene Sensing and Object Recording JOINT SESSION

Session Chairs: William Puech, University of Montpellier (France) and Robert Sitnik, Warsaw University of Technology (Poland)

2:00 – 4:00 pm
Grand Peninsula Ballroom BC

This session is jointly sponsored by: 3D Image Processing, Measurement (3DIPM), and Applications 2018, and Image Processing: Algorithms and Systems XVI.

2:00   3DIPM-460

An accurate and robust algorithm for tracking guitar neck in 3D based on modified RANSAC homography, *Zhao Wang and Jun Ohya, Waseda University (Japan)*   18

2:20   3DIPM-461

Skeleton-based dynamic hand gesture recognition using 3D depth data, *Dan Zhao, Yue Liu, Guangchuan Li, School of Optoelectronics, Beijing Institute of Technology (China)*   24

2:40   IPAS-462 [no paper]

Combining local and global optical flow for RGB-D point cloud alignment, *Sunho Kim and Yo-Sung Ho, Gwangju Institute of Science and Technology (Republic of Korea)*   N/A

3:00   IPAS-463 [no paper]

Discrimination of active dynamic objects in stereo-based visual SLAM, *Ihtisham Ali, Olli Suominen, and Atanas Gotchev, Tampere University of Technology (Finland)*   N/A

3:20   IPAS-464

Error correction for time-of-flight images using validity classification, *Yunseok Song and Yo-Sung Ho, Gwangju Institute of Science and Technology (Republic of Korea)*   N/A

3:40   3DIPM-465

How to capture aesthetic features of complex cultural heritage objects – active illumination data fusion, *Grzegorz Maczkowski[1], Eryk Bunsch[2], and Jakub Krzeslowski[1]; [1]Warsaw University of Technology and [2]King Jan III Museum Palace at Wilanow (Poland)*   32