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Fabio Remondino
Mark R. Shortis
Editors

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Contents

v	<i>Authors</i>
vii	<i>Conference Committee</i>
ix	<i>Introduction</i>

SESSION 1 ACCURACY OF SYSTEMS

10332 02	Development of a high-accuracy multi-sensor, multi-target coordinate metrology system using frequency scanning interferometry and multilateration (Invited Paper) [10332-1]
10332 03	Rigorous accuracy assessment for 3D reconstruction using time-series Dual Fluoroscopy (DF) image pairs [10332-3]
10332 04	Accurate characterisation of hole geometries by fringe projection profilometry [10332-4]

SESSION 2 CALIBRATION AND MATCHING

10332 05	Optical aberrations in underwater photogrammetry with flat and hemispherical dome ports [10332-5]
10332 06	Determining the beam directions for the laser illumination calibration [10332-6]
10332 07	Out of lab calibration of a rotating 2D scanner for 3D mapping [10332-7]

SESSION 3 3D SENSING

10332 0B	Novel short-pulse laser diode source for high-resolution 3D flash lidar [10332-11]
10332 0C	Methods for linear radial motion estimation in time-of-flight range imaging [10332-12]
10332 0D	Unsynchronized scanning with a low-cost laser range finder for real-time range imaging [10332-13]

SESSION 4 OPTICAL SENSING

10332 0F	Comparison of calibration strategies for optical 3D scanners based on structured light projection using a new evaluation methodology [10332-15]
10332 0G	A photogrammetric technique for generation of an accurate multispectral optical flow dataset [10332-16]

10332 OH **Localisation accuracy of semi-dense monocular SLAM** [10332-17]

SESSION 5 MOBILE SENSING

10332 OI **Investigation of indoor and outdoor performance of two portable mobile mapping systems**
[10332-18]

10332 OJ **A generic point error model for TLS derived point clouds** [10332-26]

10332 OK **Precision analysis of triangulations using forward-facing vehicle-mounted cameras for augmented reality applications** [10332-20]

10332 OL **Real-time localization of mobile device by filtering method for sensor fusion** [10332-21]

SESSION 6 APPLICATIONS

10332 OM **Stereo vision for fully automatic volumetric flow measurement in urban drainage structures**
[10332-22]

10332 ON **Detecting imperceptible movements in structures by means of video magnification**
[10332-31]

10332 OO **Lidar-based individual tree species classification using convolutional neural network**
[10332-24]

10332 OP **Accuracy evaluation of structure from motion surface 3D reconstruction** [10332-25]

POSTER SESSION

10332 OQ **Construction of a measuring vehicle for recording basic data of roads** [10332-19]

10332 OR **Depth image super-resolution via semi self-taught learning framework** [10332-27]

10332 OU **Work modeling of the scanning type laser radar in real-time** [10332-30]

10332 OV **Image fusion and enhancement using triangulated irregular networks** [10332-32]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five 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.

Akca, Devrim, 0J	Notni, Gunther, 0F
Al-Durgham, Kaleel, 03	Novikov, Anatoly I., 06
Böttcher, Lena, 07	Nüchter, Andreas, 07
Bräuer-Burchardt, Christian, 0F	Ölsner, Sandy, 0F
Cabo, Carlos, 0N	Ordóñez, Celestino, 0N
Campbell, M. A., 02	Ozendi, Mustafa, 0J
Candl, Celine, 0B	Pesic, Igor, 0M
Cao, Zhiguo, 0R	Rabot, Olivier, 0B
Dantanarayana, Harshana G., 04	Rätsch, Matthias, 0H
Deserno, Thomas M., 0M	Remondino, Fabio, 05, 0I
du Plessies, Pieter G., 0H	Rodríguez-González, Pablo, 0I
Fritsch, Dieter, 0K	Ronsky, Janet, 03
Fuse, Takashi, 0L	Sablina, Victoria A., 06, 0U
García-Cortés, Silverio, 0N	Sattler, Marcus, 0M
Hartmann, Peter, 0Q	Satzger, Matthias, 0M
Hartmann, Tommy, 0Q	Scarama, G., 0V
Hatipoglu, Isa, 0D	Schmid, Stephan, 0K
Häupl, Ronny, 0Q	Schreve, Kristiaan, 0H
Hughes, B., 02	Schwehn, Patrick, 0M
Huntley, Jonathan M., 04	Sirazitdinova, Ekaterina, 0M
Inoue, Tsuyoshi, 0O	Song, Hyuk, 0M
Ishii, Akira, 0O	Streeter, Lee, 0C
Jahrsdörfer, Maximilian, 07	Takamatsu, Hisashi, 0O
Kay, N., 02	Topan, Hüseyin, 0J
Kniaz, V. V., 0G	Toschi, Isabella, 0I
Knyaz, Vladimir, 0P	Trommer, Malte, 07
Koch, Rainer, 07	Weingärtner, Dorothea, 0M
Kohl, Andreas, 0B	Wetzel, Dominik, 0Q
Kolchayev, Dmitry A., 0U	Wittig, Marcus, 0Q
Kühmstedt, Peter, 0F	Wu, Yuxiang, 04
Kühn, Wolfgang, 0Q	Xian, Ke, 0R
Kuntze, Gregor, 03	Xiao, Yang, 0R
Laugustin, Arnaud, 0B	Yue, Huimin, 04
Lazzarini, G. M., 02	Zhang, Xiaodi, 0R
Lehmann, Ringo, 0Q	Zhao, Furong, 0R
Lewis, A. J., 02	Zhel'tov, Sergey, 0P
Li, Ruibo, 0R	
Lichti, Derek D., 03	
Maier, Johannes, 07	
May, Stefan, 07	
Menéndez, Agustín, 0N	
Menna, Fabio, 05, 0I	
Mizoguchi, Tomohiro, 0O	
Muratov, Yevgeniy R., 0U	
Nagara, Keita, 0L	
Nakamura, Hiroyuki, 0O	
Nakhmani, Arie, 0D	
Nikiforov, Michael B., 06, 0U	
Nocerino, Erica, 05, 0I	

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Session Chairs

- 1 Accuracy of Systems
Fabio Remondino, Fondazione Bruno Kessler (Italy)
- 2 Calibration and Matching
Gabriele Guidi, Politecnico di Milano (Italy)
- 3 3D Sensing
Takashi Fuse, The University of Tokyo (Japan)
- 4 Optical Sensing
Fabio Remondino, Fondazione Bruno Kessler (Italy)

- 5 Mobile Sensing
Gabriele Guidi, Politecnico di Milano (Italy)
- 6 Applications
Takashi Fuse, The University of Tokyo (Japan)

Introduction

The Videometrics, Range Imaging, and Applications XIV conference is the sixteenth in a series started in 1991 by Sabry El-Hakim. Under the auspices of the SPIE from the beginning, the first conference on Industrial Vision Metrology was held in Winnipeg, Canada. Based on the success of this first venture into an emerging discipline, the conference was renamed Videometrics, and held in conjunction with the SPIE Photonics East series of conferences held in Boston and Philadelphia during 1992–1995. Videometrics was then re-located to become part of SPIE Photonics West, held annually in California. The conferences were held once in San Diego in 1997, then twice in San Jose in 1999 and 2001 (given the longer title of Videometrics and Optical Methods for 3D Shape Measurement), then moved to Santa Clara in 2003 and moved back to San Jose in 2005 and 2007. More recently, Videometrics became part of the SPIE Optics + Photonics program track on Image and Signal Processing within the Optical Engineering and Applications conferences in San Diego in 2009. The conference was renamed to Videometrics, Range Imaging, and Applications to reflect the changes in contemporary practice.

Throughout all of this period the attendance from North America was slowly declining, and the participation from Europe and Asia had strengthened, despite the impact of the global financial downturn. Therefore in 2011 it was decided to move the Videometrics series to Munich, Germany, to be part of the SPIE Europe conference on Optical Metrology, co-located with the World of Photonics conference and exhibition. The general theme of Optical Metrology resonates very well with videometrics, and the majority of authors and presenters from Europe confirmed the correct decision to relocate the conference.

Irrespective of the location, for more than 25 years the Videometrics conference series has been providing a unique forum for optical metrology, computer vision, image processing, and photogrammetry researchers and practitioners to present the latest advances in precise 3D measurement and modeling from imaging and range sensors. This conference was originally focused on the metric performance of image sensors and algorithms to produce the most accurate and reliable geometric measurements and models. Topics such as sensor calibration, performance evaluation, and accurate object reconstruction were predominant. This has now been expanded to encompass all phases of 3D optical imaging, range imaging, and modeling of real scenes, including automation of data collection and processing, improving the visual quality and realism, visualization, animation, and data management for real-time manipulation. This is in response to the sustained increase in interest in 3D imaging and modeling technology, and the increased demand of these models in applications such as rapid product development, virtual museums, documentation of monuments and architecture

for cultural heritage, marketing and tourism, human body modeling, medicine, and exploration of remote and hazardous sites, to name just a few.

In 2017 Videometrics, Range Imaging, and Applications demonstrates the continuing broad interest in 3D optical imaging, with sessions encompassing all aspects of the field, from performance evaluation to 3D modeling and applications. The two invited speakers reinforced this span of interest: Professor Ben Hughes, Principal Research Scientist at the National Physical Laboratory in the United Kingdom, presented on the development of a high accuracy multi-sensor, multi-target coordinate metrology system using frequency scanning interferometry; and Dr. Max Ruffo, CEO of Terabee in France, presented on optical sensors for robotics and automotive applications: an industrial perspective. Videometrics embraces new and innovative techniques but the classical issues of precise measurement and sensor technologies are well represented. The proceedings of Videometrics always contain something of interest for all practitioners involved in the 3D optical imaging field.

The chairs recognize and acknowledge with gratitude the efforts of the conference committee, especially a number of new members participating in the committee for the first time, and the contributions from the invited speakers, authors, presenters, and audience in maintaining the high level of interest in the Videometrics series of events. We acknowledge and appreciate all contributions to the success of the conference from everyone involved in Videometrics.

Fabio Remondino
Mark R. Shortis