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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
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