

**Report of ISPRS workshop 3D-ARCH 2011**  
**2-4 March 2011, Trento, Italy**

From March 2<sup>nd</sup> to 4<sup>th</sup> 2011, the 4<sup>th</sup> 3D-ARCH international workshop on "3D Virtual Reconstruction and Visualization of Complex Architectures" was held in Trento, Italy. The workshop was jointly organized by the 3D Optical Metrology (3DOM) unit of the Fondazione Bruno Kessler (FBK) Italy and the Dept. of Architecture, Carleton University, Canada. The conference chairs were Fabio Remondino (FBK) and Sabry El-Hakim (Carleton Univ.). The event was the fourth in a series, following the events in Venice 2005, Zurich 2007 and Trento 2009. The workshop was sponsored by Leica and ShapeQuest, supported by ISPRS and CIPA and held as an event of the ISPRS Working Group V/4 "Image-based and range-based 3D modeling".

The workshop featured 132 participants from 22 different nationalities. 92 articles, selected from 108 submitted abstracts, were presented. All accepted articles are published in the International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XXXVIII-5/W16.

The workshop was organized in 16 technical sessions, some of them parallel, with topics like "Range-based 3D modeling", "Image-based 3D modeling", "3D modeling with integrated techniques", "Sensors, algorithms and comparisons", "3D for Virtual Museums, Conservation and Communication", "Digital heritage sites". 15 papers were presented in two poster sessions, 77 papers were presented in the oral sessions. Three special sessions were organized and devoted to "Automated orientation of image sequences", "Procedural modeling" and "Interactive online 3D models".

Each of the three workshop days started with a keynote talk. The first day was introduced by Thomas Kersten (HafenCity University Hamburg, Germany). He gave his keynote on "Beyond automation - Precise and detailed 3D modeling using photogrammetry and terrestrial laser scanning". The talk gave a great overview of the status, problems and efforts in 3D modeling applications. The second day started with Jean-Philippe Pons (ACUTE3D, France) with a talk on "High-resolution large-scale multi-view stereo". The keynote presented his latest developments in automated image matching with excellent results from terrestrial and low-altitude images. The third day started with Livio De Luca (MAP-Gamsau CNRS, Marseille, France) with a talk on "A semantic based approach for the digital analysis of architectural heritage". The presentation described the segmentation and semantic annotations of reality-based 3D models for architectural and archaeological applications.

The workshop conclusions highlighted the mandatory sensor and data integration for large and complex site recording and 3D modeling but a lack of powerful and reliable software for the processing and fluent visualization of large data sets. The incompatibility of software systems, file formats and appropriate knowledge in the 3D domain was noted, leading to some data being lost in transfer or difficulties in handling 3D models by non-experts. On the positive side, the workshop showed the great interest in the topic of 3D modeling from many different disciplines such as architecture, archeology, mining, cultural heritage, virtual reality, etc. The presence of many young researchers and participants

raises the hope that many of the aforementioned problems will be addressed and solved in the coming futures and research projects.

The social program included a visit of the Buonconsiglio castle in Trento while on the last day many participants joined the organized skiing tour.

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