

## *Conference Report*

### 24TH CIPA HERITAGE DOCUMENTATION INTERNATIONAL SYMPOSIUM

THE 24TH CIPA (International Committee for Documentation of Cultural Heritage) International Symposium was held in Strasbourg, France, between 2nd and 6th September 2013. Organised by INSA (National Institute of Applied Sciences) under the direction of Pierre Grussenmeyer, the symposium was held within INSA's School of Engineering and Architecture which provided a fitting venue for an international symposium that aimed to focus on recording, documentation and cooperation for cultural heritage. The event attracted over 300 delegates from 42 countries, with 190 papers presented across 70 sessions that fitted into one of the following four themes:

- (1) *Recording Cultural Heritage*. Terrestrial laser scanning and 3D imaging; aerial laser scanning and 3D imaging; low-cost sensors and open-source algorithms; UAV (unmanned aerial vehicle) applications; mobile mapping applications and recording applications.
- (2) *GIS and Information Management for Cultural Heritage*. Open-source GIS (geographical information system) tools and applications; scene analysis and 3D reconstruction; applications of building information modelling (BIM); modelling methods for architecture and archaeology; animations; cloud and cultural heritage.
- (3) *Education, Training and Communication for Cultural Heritage*.
- (4) *Special Sessions*. Energy efficiency in heritage and traditional buildings; risk preparedness; stone conservation; documentation of World Heritage Sites; international cooperation in cultural heritage documentation; semantics in cultural heritage documentation; 4D historical city models; 3D digital libraries and digital heritage inventories.

Alongside the main conference sessions a complementary exhibition was held in the adjacent hall that included exhibits from Leica Geosystems, Faro, Riegl, Trimble, Photomodeler, Esri-France, Art Graphique & Patrimoine (AGP), TPLM-3D, AFT Archaeologie, 3DVEM and Breuckmann (who took the opportunity to formally announce their Bernd Breuckmann Award). Alongside the now common array of terrestrial laser and not so common structured-light, close-range scanners, it was useful to see UAVs on some stands alongside multi-image-based photogrammetric software for processing their resultant imagery. It was also refreshing to see some alternative software appearing, such as 3DVEM-Register that uses a photogrammetric orientation approach to register overlapping scans together, alongside several high-quality examples of cultural heritage recording output from several French sites including the Palace of Versailles.

Following a pre-conference tutorial on the Arches system, an open-source inventory and management system for the international heritage field developed by the Getty Conservation Institute (GCI), the symposium was formally opened in the suitably historic

setting of the Grand Salle de l'Aubette, located in the centre of Strasbourg. The opening keynote speech was provided by Fabio Remondino (FBK and ISPRS Commission V President) who discussed 3D imaging and ranging for cultural heritage recording. As well as being a generalised overview of the sensors, platforms, software and acronyms, such as UAV (unmanned aerial vehicle), SfM (structure from motion), SLAM (simultaneous localisation and mapping) and BIM (building information modelling), that are increasingly available to the digital documenter, it admirably set the scene for the rest of the symposium; it also highlighted that "photogrammetry is back".

The main conference programme commenced the following day with a plenary keynote by David Myers (GCI) and Yiannis Avramides (World Monument Fund) that discussed the Arches system in greater detail followed by three parallel sessions run throughout the remainder of the day. Alongside recurring references to laser scanning, multi-image photogrammetry, SfM and UAVs (or small unmanned aircraft (SUA) as CAA-UK prefers to call them) it was refreshing to see major progress in the development of low-cost sensors and open-source algorithms. One example was provided by Geert Verhoeven, University of Vienna, who discussed his team's use of custom software and a cheap on-camera GPS/INS (Global Positioning System/inertial navigation system) sensor to increase XYZ positional accuracy "in-flight", thus providing cost-effective exterior orientation for airborne archaeological photography. An interesting UK-based comparison of laser scanning and structure from motion was provided by David Andrews, from English Heritage, who discussed the application of both approaches at the Great Barn of Harmondsworth. The opening day finished with a lively reception in Strasbourg City Hall that included short speeches from CIPA President Mario Santana and the Deputy Mayor of Strasbourg.

The next day provided a break from formal presentations with three technical excursions laid on for all participants. One tour explored the sights of Strasbourg whilst the others provided an opportunity to temporarily leave the city and drive 40 miles south-west to visit the magnificent Haut-Koenigsbourg Castle, high up in the Vosges mountains, and a nearby wine cellar to sample the local Alsatian food and wine.

The second day of papers commenced with a plenary keynote presentation from Chen Jun, ISPRS President, who discussed the work of the society alongside that of CIPA and ICOMOS (International Council on Monuments and Sites). As well as referring to his previous mapping work on the Great Wall of China, he highlighted that "people like imagery" and that professionals are "serving society with information from imagery". He then went on to emphasise that "close collaboration with heritage people" was needed to add archaeological information to metric data. The second keynote speech came from Lena Halounova, Congress Director of ISPRS 2016 in Prague which, given its theme "From Human History to the Future with Spatial Information", allowed Lena to discuss the complementary work of ISPRS Technical Commission V (Close-Range Imaging, Analysis and Applications) and, in particular, working group WGV/2 (Cultural Heritage Data Acquisition and Processing). The final keynote presentation came from Ramtin Attar, Principal Research Scientist with Autodesk Canada, who discussed positioning heritage in a world designed around technological possibilities. Within his fascinating talk he mentioned several Autodesk products, such as 123D Catch & Recap, and research projects such as Project Dasher, that use BIM to monitor a building's function and performance in real time, alongside the "democratisation of scans". Three further parallel sessions followed including one on the Documentation of World Heritage Sites (WHS). Here a wide range of mapping approaches applied to WHS monuments were presented, including UAV-based aerial surveys in Italy, simple terrestrial photogrammetry in North Africa, and the Scottish Ten Project that includes collaborative heritage documentation work in USA, India, China,

Australia and, of course, Scotland. Some of the afternoon sessions focused on Digital Heritage Inventories and Digital Libraries, providing an opportunity for Ed Lee from English Heritage to discuss his team's work on networking heritage inventories in England. The gala dinner then followed in the evening at the splendid Pavillon Joséphine in Parc de l'Orangerie which, alongside Alsatian folk dancing and accompanying music from the Heidelberg Jazzmen, provided a memorable evening for all. This included the inaugural "CIPA Gangsta' Rap", courtesy of INSA's Eddie Smigiel (see [www.cipa2013.org/](http://www.cipa2013.org/) for the actual words!).

The last day commenced with the final three parallel sessions, again covering a range of themes and topics. These included low-cost sensors and open-source algorithms, as highlighted by the talk by Günter Pomaska (Bielefeld University of Applied Sciences) on monitoring the deterioration of stone using a range of sensors including RGB-depth cameras and multi-image photogrammetry. The session on Documentation of WHS included a paper by your reporter on English Heritage's application of laser scanning, photogrammetry and visualisation techniques to reveal the secrets of Stonehenge. The meeting was brought to a close during the final session by Pierre Grussenmeyer, who highlighted the best poster awards and the next (25th) CIPA symposium that will take place in Taipei, Taiwan, between 31st August and 5th September 2015. Given the excellent programme provided by Pierre and his INSA team, together with the high quality of papers and presentation across a variety of cultural heritage themes, this next CIPA symposium should be a very worthwhile event for anyone involved in heritage recording and digital documentation.

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