BOOK, CONFERENCE AND EXHIBITION REVIEW   Open Access

'digital cultural heritage: FUTURE VISIONS, a landscape perspective' International Conference Report

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Introduction

The third 'digital cultural heritage: FUTURE VISIONS' conference was jointly convened by the School of Architecture at the University of Queensland and the College of Architecture and Urban Planning (CAUP) at Tongji University, who also hosted the event at its Siping Road campus in Shanghai, China, between 23rd and 24th November 2019. The conference convenors Professor Feng Han and Dr. Chen Yang from Tongji University, who conduct pioneering cultural heritage landscape research and conservation in China, and Dr. Kelly Greenop and Associate Professor Chris Landorf from The University of Queensland, who research the innovative application of digital technologies to the sustainable management of cultural heritage, were ably supported by CAUP volunteers and peer reviewers.

The conference was co-organised by ICOMOS-IFLA International Scientific Committee on Cultural Landscapes (ISCCL), and supported by two leading research institutions, the UNESCO World Heritage Institute of Training and Research for the Asia and the Pacific Region (Shanghai) (The WHITR-AP, Shanghai) and the UNESCO International Centre on Space Technologies for Natural and Cultural Heritage (HIST), and two other ICOMOS Scientific Committees, the International Scientific Committee on Interpretation and Presentation of Cultural Heritage Studies (ICIP), and the International Committee for Documentation of Cultural Heritage (CIPA).

Like its two predecessors, the 2019 Shanghai conference sought to explore the application and impact of digital technologies, such as three-dimensional laser scanning, virtual environments and interactive multimedia, to the conservation and management of cultural heritage. In Shanghai, however, the aim was to explore the application of digital technologies at a landscape rather than an artefact or building scale. The specific challenge of cultural landscapes being the need to capture not only their physical, but also intangible heritage attributes, such as oral traditions, social practices and craftwork, and to capture those attributes across cultural, spatial and temporal dimensions.

The conference attracted 42 academic presenters and around 160 registered delegates from 10 countries and regions, including Australia, Canada, China, Italy, New Zealand, Switzerland, the UK, Japan, Singapore and the USA. The presentations in Shanghai not only showcased the application of digital technologies for archiving and conservation work, some also invited debate about the theoretical challenges of such technologies for cultural landscapes. If there was one criticism, it was that too many technically descriptive projects were presented rather than papers that tackled the more critical questions that the conference aimed to address, such as how can digital technologies contribute beyond the level of representation to debate about the relationship between the cultural past, present and future; what is it that we capture, commodify and experience using digital technologies and why; how should dynamic cultural landscapes be interpreted, negotiated and represented and for whom; when should cultural landscapes be protected for future generations; and how can they best be valued and managed sustainably in the present. Despite this criticism, the conference represented a refreshing encounter between technical application and theoretical debate, and facilitated a welcome East-West exchange between students, academics and practitioners.

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Overview of the conference series

'digital cultural heritage: FUTURE VISIONS' has evolved from an initial conference convened in April 2017 by Kelly Greenop and Chris Landorf in Brisbane, Australia (Greenop and Landorf 2018), followed in September 2017 by a symposium held in London in association with University College London's Bartlett Real Estate Institute (Greenop and Landorf 2019). In April 2018, Greenop and Landorf chaired a session on Digitising Architectural Heritage at the annual Society of Architectural Historians conference in St Paul.

The convenors rely on the dedication of colleagues and the support of their respective institutions to organise and manage each event. This has served the series well thus far, generating a succession of innovative programs and varied locations within an informal format. The vitality of the series is maintained through the enthusiasm of the convenors, the diversity of participants and the specifics of each location. The diverse mix of participants, small scale and informality make the 'digital cultural heritage: FUTURE VISIONS' conferences collegial and productive venues for sharing and testing research in this exciting field. The conference aims to become a multi-disciplinary biennial event attracting current and emerging academics, practitioners and government representatives with a passion for digital cultural heritage theory and practice.

digital cultural heritage: FUTURE VISIONS, a landscape perspective

The 2019 conference theme, 'digital cultural heritage: FUTURE VISIONS, a landscape perspective', sought to examine the connections between two fields of research currently located at the margins of an expanding understanding of what constitutes heritage. The first field is acknowledged in the 2003a UNESCO *Charter on the Preservation of Digital Heritage*. Primarily a response to the concerns of institutions appointed to maintain repositories of public knowledge, the Charter acknowledges the opportunities presented by digital technologies to broaden access to historic resources and recognises the risks posed by technological obsolescence (de Lusenet 2007). However, it presents too narrow a view of what is a rapidly evolving digital environment. It also fails to emphasise the need for value judgements about what is preserved. This year's conference, therefore, aimed to not only explore the diversity of digital cultural heritage technologies and their various applications, but to also question what should be preserved and why.

Cultural landscapes, the second field of research examined at the conference, were first adopted as a distinct category of World Heritage in 1992 and defined as sites that are 'illustrative of the evolution of human society and settlement over time' (Mitchell et al. 2009, 20). This was followed by the *Convention for the Safeguarding the Intangible Cultural Heritage* in 2003b, and the *Recommendation on the Historic Urban Landscape* in 2011 (Bandarin and van Oers 2012). The latter two UNESCO instruments were primarily a response to concerns about a world-wide loss of the cultural capital that provides communities with a unique sense of identity and continuity. Cultural landscapes are 'living' environments that present unique preservation, presentation and sustainability issues associated with their dynamic spatial, temporal and intangible heritage qualities. Like digital heritage, the concept can also be criticised, in this case, for a failure to articulate the evolutionary nature of cultural heritage and what that means for the management of values over space, time and cultures. The result is that the concept remains essentially preservation-driven and lacking the descriptive precision necessary to position cultural landscapes within mainstream planning and development frameworks. This year's conference, therefore, aimed to examine how digital technologies were being applied to the dynamic qualities of cultural heritage at a landscape scale.

The six conference sub-themes were: (1) digital cultural heritage recording and analysis; (2) digital cultural heritage monitoring and management; (3) digital conservation of intangible cultural heritage; (4) heritage assessment and restoration with innovative technologies; (5) cultural heritage interpretation and knowledge dissemination; and (6) innovative data application and heritage conservation. The themes were flexible enough to capture a range of innovative technical projects and provocative theoretical examinations. The former experimenting with the use of digital technologies to record, analyse and manage heritage, and the latter exploring how digital technologies can contribute to debate about the relationship between the cultural and natural past, present and future. The themes were also subtle enough in scope to maintain a coherent thread within each session.

Venues and events

The conference delivered a stimulating two-day program that included four keynote speakers, 34 peer-reviewed and four invited papers across six sessions, a 10-member roundtable forum and a walking tour along Shanghai's historic riverfront. Two keynotes were delivered each morning of the conference in Tongji University's Bell Hall (Fig. 1). Four organisations were also invited to showcase their work in an exhibition of contemporary digital cultural heritage research and practice. The exhibition was mounted in the Bell Hall lobby under four themes: (1) Digital cultural landscape conservation and practices provided by the Innovation Team of Cultural Landscape Conservation of the Department of Landscape Architecture, CAUP of Tongji University; (2)

Innovative Digital Cultural Heritage Survey Technologies provided by Shanghai Tongfan Tech Co., Ltd.; (3) Virtual Reality Technologies in Cultural Heritage provided by Beijing Beijianda Tech Co., Ltd.; and (4) Digital Fabrication Technologies and Cultural Heritage Restoration provided by Tongji Architectural Design (Gorup) Co., Ltd (Fig. 2). Three parallel paper presentation sessions were followed by a further three parallel sessions in the afternoon of the first day in the College of Architecture and Urban Planning's Building D. The conference concluded on the afternoon of the second day with a three-hour walking tour along the Yangpu Waterfront, a revitalised former industrial precinct.

Keynote speakers

Professor Deren Li, Academician of the Chinese Academy of Science and the Chinese Academy of Engineering, and a respected expert in spatial information technology from Wuhan University, presented the first keynote address titled 'Method and Application of Digital Preserving for Cultural Heritage—From Magao Grottoes to Chi Lin Nunnery'. Referring to his digital mapping and virtual reality work at the Magao Grottoes and Chi Lin Nunnery, Li provided illustrations of various digital techniques, from drones and terrestrial laser scanners to electronic theodolites and stereo cameras. He also showed how digital technologies could provide highly accurate data to enhance both the protection of significant cultural heritage places and the creation of immersive visualisations for visitor interpretation.

The second keynote, 'The Digital Silk Roads: Heritage across Borders', was delivered by Professor Tim Winter of the University of Western Australia. Drawing on his recent publication, *Geocultural Power: China's Quest to Revive the Silk Roads for the Twenty-First Century*, Winter eloquently framed China's Belt and Road Initiative as geopolitical ambition housed within a carefully curated narrative of inter-continental trade, cultural

Fig. 1 Conference opening ceremony in Bell Hall, Tongji University, 23rd November 2019 (Source: Hai Bai)

Fig. 2 Conference delegates testing virtual reality using headsets in the Bell Hall lobby, 23rd November 2019 (Source: Hai Bai)

exchange and heritage diplomacy. Focussing on China as an emerging Digital Civilisation, Winter examined the close relationship between diplomacy and regional development, and the expanding opportunities for digital Silk Road heritage projects as a result.

The third keynote was presented by Dr. Tom Brigden of Purcell, a UK-based architecture, master planning and heritage consultancy practice. Titled 'Digital Tools for Heritage Management and Construction', Brigden's address examined the use of digital technologies in the delivery of two significant heritage projects: the refurbishment of Elizabeth Tower at the Palace of Westminster, London, and the digital recording of Grytviken Whaling Station, South Georgia. The former showing how digital mapping and analysis, combined with software development, could be used to support traditional building restoration techniques and management practices. The latter revealing how digital technologies could be used to record a complex, remote and abandoned industrial heritage landscape. While highlighting the use of digital technologies at varying scales and for different purposes, questions were also raised about the need for historical analysis and narrative to accompany what might otherwise be viewed as a set of seductive digital images.

The final keynote, 'Harnessing Digital Workflows for the Understanding, Promotion and Participation in the Conservation of Heritage Sites by Meeting both Ethical and Technical Challenges', was from Associate Professor Mario Santana of Carleton University, Canada. Using examples drawn from his work at a variety of historic sites, he argued for the unique capacity of digital technologies to provide quick insights into the damage caused by natural disasters and human conflicts, present information through virtual and augmented reality, and assess structural behaviour through performance simulation. He concluded with several challenges for the field, including authenticating provenance, maintaining sustainable data quality, ethics and policy in digital cultural heritage, and the threat of digital colonialism.

Concurrent sessions and roundtable panel discussion

The closing ceremony provided an opportunity for each sub-theme chair to summarise their respective session. From Session 1, Digital Cultural Heritage Recording and Analysis, Professor Qingping Zhang reported on six papers that showcased the capacity of digital mapping techniques to enhance documentation and interpretation at varying scales. Professor Fulong Chen summarised three key issues from the six papers presented in Session 2, on monitoring and management. These were to understand heritage (1) as an evolving practice born across rather than created at a single point in time; (2) as an inseparable combination of intangible and tangible characteristics; and (3) as a commitment to preserving knowledge for all humanity. In Session 3, Professor Jianzhong Jia chaired seven papers on the digital conservation of intangible cultural heritage that highlighted the difficulty of conserving intangible cultural heritage and the need for digital research methods to be expanded accordingly. In Session 4 on heritage assessment and restoration, Professor Yuning Cheng synthesised two common issues from the seven papers presented. Firstly, the need for greater interpretive decision-making transparency, and secondly, the risk of technological obsolescence. From Session 5, Dr. Yan He described seven papers that explored aspects of digital cultural heritage interpretation and dissemination ranging from alternative approaches to public participation to surveys of emerging technologies. In Session 6 Associate Professor Hongjun Zhou chaired six papers on innovative data application and heritage conservation that focused on approaches to valuing and protecting non-human and intangible cultural heritage.

The concluding event on the first day of the conference was a roundtable forum involving Fulong Chen, Yan He, Mario Santana, Yuning Cheng, Feng Han, Tim Winter, Patricia O'Donnell, Simone Ricca, Cari Goetcheus and Tom Bridgen, and chaired by Kelly Greenop who prompted debate around four themes. With reference to what needed more discussion, panellists reflected on non-human heritage and the need to consider digital technology beyond three-dimensional scanning. In relation to what the concept of landscape could bring to digital cultural heritage, issues of scale and linkages between systems, boundaries and buffer zones and, closer to the conference aims, deeper reflection on what is recorded and why were raised. Alternative views were heard in response to involvement in advocacy with some suggesting benchmarking and interpretation already contributed in this area, while others argued that more could be done, citing a lack of predictive modelling for tourism and climate change as areas of concern. The panel concluded with reflections on what digital technologies currently contributed to the field of cultural heritage and what the aspirations should be for the future. There was agreement that digital technologies improved precision for the recording, interpretation and management of cultural heritage, but there was a need to decrease the cost, develop capacity, manage obsolescence and reduce inequality through access to technology. Final comments bought us back again to the conference aims and the need to question what digital technologies are doing to conserve heritage values.

Closing summary

The 2019 conference sought to explore conceptual implications and emerging challenges at the nexus between new technologies and the evolving concept of cultural landscapes. The theme demanded intellectually agile interpretations that linked conventional, project-based descriptions with theoretical questions about what is captured and why, rather than practical issues around how. While the program was dominated by case-based technologically descriptive projects, conference participants were party to keynote addresses, a roundtable discussion and motivating sessions that touched on this challenging theme with imaginative insight and supportive collegiality. Ultimately, if five key implications for digital cultural heritage research and practice were to be distilled from the conference, they would include future opportunities for:

- Greater synthesis between tangible and intangible heritage;
- Stronger integration of scalar and systemic thinking;
- More extensive global capacity building;
- Improved precision in values assessment;
- Enhanced predictive modelling for tourism and climate change management.

In conclusion, the conference can best be summarised as a benchmark for digital cultural landscape research. While the conference showcased impressive applications of digital technologies for archiving and conservation work, it also highlighted a lack of more critical questioning about the contribution that digital technologies can make to debates about the relationship between the cultural past, present and future. Future conferences should aim to examine what it is that we capture, commodify and experience using digital technologies and why and, perhaps more importantly, how dynamic cultural landscapes should be interpreted, negotiated, represented and valued, and for whom. Planning is currently underway for a future conference in 2021 on the theme of digital cultural heritage and the urban environment.

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