

# Digital Buddhology

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Buddhist studies in the digital age is faced with immense opportunities, challenges, and problems both old and new. By using the word 'Buddhology', we encourage readers to think of not only text-based Buddhist studies but a cross-disciplinary field where art, architecture, and material culture are an integral part of the term in question.

In this issue's 'China Connections', we invite readers to look at the exciting development of digital Buddhology in present-day China. Highlighted here are recent digitization projects by Peking University, Zhejiang University, and the research institutes at the world heritage sites of Dunhuang, Yungang, Longmen, and Dazu, some involving international collaborations such as with the Getty Center and Harvard University.

Conservators, researchers, curators, and educators from around the world work toward the common aim of preserving Buddhist cultural heritage – texts, images, objects, monuments, and entire sites – by exploring and adopting, all the while pushing the forefront of, digital technologies. Contributors of this issue demonstrate how Buddhist canonical work and manuscripts in multiple languages and media have been made available through open-access online databases; how Buddhist monasteries and

their ancient wooden buildings and century-old murals are recorded and experienced through Virtual Reality; and how rock-cut cave temples with their monumental statues are captured using laser-scanning or photogrammetry and reconstructed for conservation as well as education purposes. The benefits of the application of digital tools are immediate, certain, and manifold: they make quick and precise documentation, allow (in some instances) for a greater accessibility to and searchability of

Buddhist materials, and provide excellent research and educational materials.

The very practice of digitization forces us to reconsider the very meaning and significance of the 'cultural heritage' itself. Concerns have been made as to how much a digitally recorded or reconstructed piece of work can be considered an extension to that heritage and the protection thereof, while much of the 'aura' of the original has been lost during the process of digitization. On the other hand, some have advocated for the 'digital life' or 'digital afterlife' of Buddhist art and architecture, as Buddhist practitioners actively engage themselves with all kinds of digital tools and platforms in their religious routines. We hope that you find some answers, but more importantly further questions, from the five essays presented in the following.

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## Center for Global Asia at NYU Shanghai

The Center for Global Asia at NYU Shanghai serves as the hub within the NYU Global Network University system to promote the study of Asian interactions and comparisons, both historical and contemporary. The overall objective of the Center is to provide global societies with information on the contexts for the reemerging connections between the various parts of Asia through research and teaching. Collaborating with institutions across the world, the Center seeks to play a bridging role between existing Asian studies knowledge silos. It will take the lead in drawing connections and comparisons between the existing fields of Asian studies, and stimulating new ways of understanding Asia in a globalized world.

## Asia Research Center at Fudan University

Founded in March 2002, the Asia Research Center at Fudan University (ARC-FDU) is one of the achievements of the cooperation of Fudan and the Korean Foundation for Advanced Studies (KFAS). Through the years, the center is making all the efforts to promote Asian Studies, including hosting conferences and supporting research projects. ARC-FDU keeps close connections with the ARCs in mainland China and many institutes abroad.

## Digital heritage, cyber-archiving and education

Wu-Wei Chen

When discussing heritage conservation, authenticity is the guideline of the process. To maintain the original status of the heritage, paying attention to details and reversibility helps to prevent further damage to the cultural properties when applying materials or methods. Contemporary conservators embrace digital technologies such as photogrammetry, laser scanning, CT (MRI), Inferred and X-Ray scanning in the process. These technologies provide non-intrusive monitoring to collect and share data. The data further helps to analyze the status of the material within and enables the establishment of visualizations and replicas as references. In some cases, replicas further become part of the heritage object after restoration or even replace the original cultural object.

In China, the restoration of the Thousand-Armed Bodhisattva Guanyin, which is part of the Chongqing Dazu Rock Carvings, showcases the usage of 3D printing for heritage conservation. The 3D printed model, made in 1:3 proportion to the original, became the reference for the restoration team during the process. Some 3D-printed parts were also blended with the authentic heritage item (fig.1).

Projection mapping, along with restoration, can be further utilized in creating engaging narratives and messages for cultural heritage. yU+co, one of the sponsors of the exhibition of the 'Cave Temples of Dunhuang' in 2016, created a projection-based installation at the opening ceremony of the exhibition at the Getty Center in Los Angeles. According to Garson Yu, founder and creative director of yU+co, this projection "gives a more volumetric or immersive experience than regular VR, using a special 360-degree dome shader. It was a year-long process to merge the 2D photographs and merge them into the 3D geometry for the entire cave." Collaborating with the Getty Conservation Institute on the narrative, yU+co has created a "fluid experience" in the physical environment other than the heritage site. In this case, projection mapping, along with VR, stimulates public interest in and care



Fig. 2: Animation film directed by Chen Haitao and Chen Qi. Image courtesy Dunhuang Academy.



Fig. 1: Restoration of the Thousand-armed Bodhisattva Guanyin in progress. Image courtesy 3ders.org

for cultural restoration. It also reveals the fluidity of digital heritage across cultures, regions, and identities.

Even with the collective devotion, cultural heritage continues to face the threat of human activities ranging from vandalism to theft and wars. Education is key to raising and cultivating the awareness for preservation. With the joint efforts of academia, governmental organizations and industry, the finalized projects can be transformed into education materials. Digital storytelling, computer-aided drawing, and cyber-archiving can be integrated into the STEAM curriculum (Science, Technology, Engineering, Arts, and Mathematics) to help students comprehend the intangible values of heritage (method, techniques, context) and further cherish the existing yet endangered tangible cultural properties.

Good practices of conservation, from cultural objects to architecture and the entire heritage sites, can be further revitalized by digital narrative and storytelling. The latest

animation released by the Dunhuang Academy was inspired by the digitized painting in Cave 254. Mr. Chen Haitao and Mrs. Chen Qi, the directors of the animation, integrated the rich imageries of the Buddhist stories of 'The Great Departure' and 'The Attack of Mara' from the Mogao Cave 254 into animated infographics (fig.2). Their interpretation of the cave painting and artistic recreation has given the piece more profound meanings. The follow-up premiere and workshops at Beijing in late 2016 further revitalized the original painting and contributed to public and higher education.

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### Note

- 1 Aréchiga, F. 'Bringing the Ancient Theater of the Silk Road to Los Angeles'; <https://tinyurl.com/ancienttheater>