



Lucarelli, Rita, Joshua Aaron Roberson, and Steve Vinson (eds). *Ancient Egypt, New Technology: The Present and Future of Computer Visualization, Virtual Reality, and Other Digital Humanities in Egyptology*

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Julia Budka

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This volume presents the outcome of an international conference held in 2019 at Indiana University on case studies of the use of new technologies in Egyptology, especially projects in 3D modelling, virtual and augmented reality, game technology, digital pedagogy, database projects, computational and corpus linguistics, and E-publications. The book “offers a **snapshot** of the sorts of digital projects operating within the field of Egyptology” (p. x) and fills a lacuna. The editors hope that it will contribute to the establishment and application of new technologies in Egyptology. With some of the presented case studies being showcase projects like the Giza Project at Harvard University (Chapter 16) this is indeed likely.

The snapshot of projects presented is focused on US projects but includes international ones as well. The volume comprises 23 chapters which are, Chapter 1 excluded, organized in alphabetic order according to author name. Chapter 1 by W. Wendrich discusses “Ethics in Digital Representation in Egyptology”—it represents the backbone for the other studies in this volume and is a very useful, theoretically sound introduction. As a colonial field by its origin and content, Egyptology faces several ethical concerns, especially considering recent developments

concerning decolonization, postcolonial theory, aspects of diversity, inclusion, and information access.

Following this introduction to an ethical digital Egyptology, it would have been useful for the reader if the volume had been structured and organized based on contents. There are many contributions discussing photogrammetry, but also digitization, epigraphy, and philology—structuring the book in thematic sessions would have provided easier access for the reader. This seems a missed opportunity given the volume is based on a conference, and the structure could have followed the different sessions. What is, nevertheless, made abundantly clear is the large variety of digital projects in Egyptology. This is hardly surprising given the field includes a wide range of sources covering four millennia, from archaeology to texts and cultural heritage. In the following, I will highlight some of the chapters in order to give an overview of the main topics and the applied technologies.

Within the projects applying photogrammetry, Chapter 2 by M. Abdelaziz and M. Elsayed outlines the potential of digital modeling techniques of an underwater site (illustrating the rich potential of Egyptian archaeology also in the field of underwater archaeology) and virtual reconstructions of fragmented statuary including 3D scanning of “invisible” inscriptions (showcasing the extraordinary richness of the Egyptian record with monumental buildings, statues and inscribed objects).

J. Budka (✉)
Ludwig-Maximilians University Munich, Munich,
Germany
e-mail: Julia.Budka@lmu.de

Another case study of photogrammetry is Chapter 8 discussing the 3D digital documentation of a monumental shaft tomb in Saqqara by the Saqqara Saite Tomb Project. The chapter aims to highlight advantages and disadvantages of the 3D documentation of the tomb and the excavation process. The authors present the differences between laser scanning and the standard image-based (IBM) approach for these particular contexts—a worthwhile contribution, as IBM approaches have become part of the standard technologies of excavations but are still not published enough in terms of their research potential in Egyptian archaeology. Despite the assertion by the authors, Shaft K24 is not the first Egyptian tomb recorded in 3D in all phases of excavations—for example, the project Life Histories of Theban Tombs applied both laser scanning and photogrammetry for excavating tombs (see <https://lht.philhist.unibas.ch/> and Gojcic et al., 2021). An integrated 3D documentation system with an IBM approach was already used for a rock-cut tomb on Sai Island from 2015 to 2017 (Fera & Geiger, 2018). During this project, the efficiency of an external flash for the camera in the burial chambers was already proven and published (supporting the “experiments” carried out in Saqqara, see p. 200).

Chapter 18 discusses the use of Unmanned Aerial Vehicle (UAV) on the famous Hypostyle Hall of the temple of Karnak and other aspects of digital epigraphy. Unlike archaeology in other countries such as Sudan, Turkey, and central Europe, UAV or drone photography is rarely conducted in Egypt (due to restricted permissions on the sites). This makes the case study especially relevant, and hopefully, we will see an increased use of UAVs in Egypt in the future.

In general, one might add to the applications of photogrammetry discussed in this volume the emerging field of digital methods for sensory archaeologies (see Landeschi Betts, 2023). Virtual reconstructions of ancient monuments, e.g., real-time photorealistic visualization and immersive virtual experiences created by software such as Unreal Engine (see Banfi, 2020; also discussed for ancient Egyptian settlements by Budka et al., 2023), can add an experiential dimension which can significantly contribute to improving our understanding of the past.

An Egyptology-specific digital approach, but with relevance beyond the field (since it compares Egyptian with the Sumerian and ancient Chinese scripts),

is outlined in Chapter 6 with the project *iClassifiers*. H. Harel and colleagues present the digital platform designed to collect and analyze classifiers in the Egyptian script as “emic categories in the ancient Egyptian mind” (p. 130). Workflow guidelines for data input and the research emphasis of this tool as a collaborative digital research environment are described, comprising network analysis maps with a sample lemma.

R. Lucarelli and M.-J. Nederhof present in Chapter 10 “The Book of the Dead in 3D.” This innovative project uses photogrammetry and 3D annotations to allow the user of the 3D model of Egyptian coffins to interactively read transcriptions, translations and transliterations of the hieroglyphic magical texts known as the Book of the Dead. This is an excellent case study to illustrate the benefits of new technologies for both scholars to study objects and the wider public to interactively engage with cultural heritage.

Chapter 23 describes “Cleopatra: The Artificial Intelligence Egyptology Platform.” H. Wilbrink and J.A. Roberson present an online platform designed for “smart” searching through large numbers of museum objects by text, image, and location for which AI can provide photos of similar artefacts. One important aspect of this chapter is that it discusses financial sustainability—a topic relevant for most digital platforms and databases discussed in the volume. Since Chapter 23 includes no references but only links in footnotes, it is worth mentioning the recent contribution of one of the authors (Wilbrink, 2023) in which she discusses more broadly the use of AI in digital Egyptology.

As is typical for conference proceedings published some years after the event, some of the contributions could have benefited from new references and updates (in the bibliographies, several “in press” references are now published and could have been updated). Some of the case studies discussed have also been partially published elsewhere, such as Chapter 11 (Mainieri et al., 2022). Given the subject of the conference and the rapid development and advances of digital technologies, this volume would have benefited from either a faster publication (despite of all the challenges this brings) or updates by the authors and editors.

The general index at the end of the book is useful but also shows some small inconsistencies (e.g., both the old name Agisoft PhotoScan Pro and the current

one, Agisoft Metashape Pro, are used in the volume). This is perhaps a good example of an attempt by the editors to employ a relatively “light touch.”

To conclude, this highly useful volume is an important contribution and closes a gap regarding Egyptological applications of new technologies—most of which have become by now state-of-the-art and standard procedures in digital archaeology and digital humanities, illustrating the rapid development of technology and digital tools. As welcome as an open-access monograph like this volume is, a hybrid form of publication with online (supplementary) resources and digital elements would have been desirable for this topic. Some of the illustrations are printed in a small scale and would have benefited from hybrid solutions; the latter would also have allowed to include 3D elements.

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