

VOLUMETRIC VIDEO FOR PRESERVATION

Exploring the Possibilities and Challenges for Immersive BIPOC Storytelling

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Abstract - This panel explores the possibilities and challenges of volumetric video capture for digital humanities research and pedagogy, particularly in terms of documenting and representing the stories of BIPOC Americans who have lived through historical eras of global conflict. The panel will focus on the panelists' experiences working with volumetric video and their work on a multi-institutional National Endowment for the Humanities-funded project. Panelists will offer perspectives on the benefits of volumetric video and its preservation challenges.

Keywords - volumetric video, immersive media, digital storytelling, inclusion, preservation

Conference Topics - Digital Accessibility, Inclusion, and Diversity; Immersive Information

I. INTRODUCTION

Volumetric video techniques offer new possibilities for immersive storytelling, producing an experience of realistic presence of people and objects in augmented reality (AR) and virtual reality (VR). This emerging technology has the potential to transform research and teaching for a range of areas, including cultural heritage preservation, oral histories, and spatial understanding of historical spaces and people [1, 2].

Volumetric video is one of the most recent media formats to be considered for use by digital humanities (DH) scholars, historians, and digital

media producers. It has emerged at a time when VR, AR, and XR (extended reality), are becoming increasingly affordable for scholarly use and cultural heritage preservation [3, 4, 5]. Volumetric capture produces 3D content that has a time-based, cinematic dimension. Each frame of volumetric video is a 3D model of the subject, which enables full rotation and viewing of the subject in space [6], enhanced presence of the subject and engagement for a variety of potential users and applications. Using an array of multiple depth-sensing cameras arranged around the subject, volumetric video captures visual and depth data. The resulting assets can be integrated into XR environments [7]. Investigating volumetric capture from a DH perspective entails both exploring its possibilities for humanities research, digital storytelling, and cultural heritage preservation, as well as interpreting how volumetric video, integrated as it is into other media, such as feature-length Hollywood films or the AR apps on our smartphones, shapes our lived experiences in the 21st century.

This panel will focus on panelists' experiences with volumetric video and their partnership on a multi-institutional project funded through a grant from the National Endowment for the Humanities (NEH) - Digital Humanities Advancement Program

(with University of Arizona, Williams College, and the company Volucap, GmbH). The project team is exploring how volumetric video can be used to uniquely preserve narratives and cultural memories of BIPOC (Black, Indigenous, & People of Color) World War II era American veterans, as well as developing best practices for capturing and preserving more inclusive digital histories.

II. PANEL STRUCTURE

Each of the four panelists will speak briefly about their role in the project and their experiences working with volumetric video as an immersive medium. The audience will be brought into the conversation through a moderated discussion with panelists, guided by audience-supplied questions.

A. *Volumetric Video for Immersive Digital Humanities Storytelling (Dr. Bryan Carter)*

Volumetric video technology is still very expensive; however, recent prosumer level hardware and software now make it possible for humanities researchers with a medium-sized budget to use. This talk explores the hardware, software and knowledge base necessary to make use of volumetric video capture for digital storytelling.

B. *Connecting Black World War II Memories to Black Futures through Volumetric Video Capture (Dr. Rashida K. Braggs)*

This talk will consider questions, insights and challenges that have arisen in interviewing African American WWII veterans and family members for this digital storytelling project, asking: Which narratives will resonate most with young American students in danger of their multicultural histories being erased from their curricula? What are best practices for ensuring authentic representation of their stories? How can immersive technologies be used to explore these questions?

C. *Volumetric Video Capture from the Film Industry Perspective (Sven Bliedung von der Heide)*

Sven Bliedung von der Heide will discuss Volucap's work on *The Matrix: Resurrections* and the narrative possibilities for volumetric technology. Volucap is known for its volumetric studio in Potsdam, Germany, where it has developed novel approaches to capture cinema-quality 3D images of actors moving on real sets. Applications also lie in new forms of interactive storytelling for representing history in immersive and engaging ways.

D. *Challenges of Curating and Preserving Volumetric Video (Dr. Zack Lischer-Katz)*

Digital curation and preservation guidelines are still being developed for volumetric video. This talk extends recent research on the preservation challenges of VR and 3D data [8, 9, 10] to explore its digital preservation and curation challenges, including file formats, appraisal and selection criteria, legal and ethical issues, and repositories.

III. CONCLUSION

Volumetric video is being “democratized” through decreasing costs and increasing use in humanities research [1]. By starting a discussion in the preservation community, this panel hopes to encourage further research on best practices for the curation and preservation of volumetric video.

IV. REFERENCES

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