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Cultural Preservation Using Game Architecture

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This talk is an overview of the Lahore Fort Digital Preservation Project, which offers a new approach to the field of Digital Preservation of Cultural Heritage Sites by using game technology. The resulting digital preservation technique will allow us to preserve historic sites and objects in a manner that is scientifically appropriate but also accessible to general audiences, regardless of economic and geographic restrictions.

Digital Preservation is recognized as an essential endeavor on a global scale. Multiple agencies and companies around the world are racing to preserve and digitize locations before they are wiped out, either by war or by climate change. Countries where such efforts are underway include Canada, Israel, India, Australia, and the Middle East. Museums are actively working to digitize collections using laser scanning and photogrammetry to create VR spaces. While several organizations are exploring using 3D modeling technology to preserve historic sites and artifacts, interactive game technology is still not being utilized as fully as suggested in this project.

Fig. 1. An image of the Naulakha or Queen's Pavilion, a monument inside the Lahore Fort. It's dilapidated condition speaks to the challenges faced during physical restoration

Modern day preservation methods use heavy equipment, large-scale scanners, LiDAR equipment, and 360 photography to preserve monuments. The results of this research culminate in data-cloud collections and scans of buildings/objects that are so large that it is almost impossible to do anything with them on modern-day computers.

If these collections are made publicly available, the visual impact of the space is dissipated when presented as a gallery of images on a web page.

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The Lahore Fort Digital Preservation Project uses the processes currently employed to make CG video games. Video games are all about managing high-quality content in as efficient a manner as possible. Entire worlds are created, and existing cities have been replicated to a high degree of fidelity. The projected advantages of using this method are to acquire this data more efficiently and preserve this monument in appropriately hi-resolution detail for future research.

It is easy to foresee a number of catalogs of information; what materials were used in the buildings, the variety and significance of patterns used, the implications of sculptural elements incorporated and other elements such as blueprints, etc.. Using a modular building approach common to CG creation practices will also create the first database of Islamic architectural components and pave the way to the creation of more diverse locations in the future.

The early stages of development are focused on exploring a new preservation workflow that meets standards of scientific inquiry and parses it into this new medium. The next phase will focus on gathering visual data with the aid of educational institutions already engaged in both fields. Bringing students of museum sciences together with students of animation in a real-time creative experiment will explore new applications of CG and VR technology and highlight the importance of preserving significant cultural sites in more accessible formats.

The Lahore Fort Digital Preservation Project will allow audiences to virtually interact with a monument that represents the attitudes, aesthetics and technologies of Islamic culture in the 16th and 17th centuries. The collaborative process of building it stands to enable positive interactions with modern Pakistani culture.

Preserving history is about more than learning from the mistakes of our past, it is about placing our society in a continuous context and providing us with insights into ourselves and others.

The Lahore Fort Digital Preservation Project stands to re-imagine the field of Digital Preservation in new and exciting ways, not just as a new application for gaming, but also as a conduit for cultural outreach.