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Название публикации: «DESIGN AND ANIMATION OF THE MAŞAT MISSEIRIAN MOSQUE»

Annotation: The Maşat Misserian Mosque is a landmark of architectural and cultural significance, and this paper explores its design and animation through advanced digital technologies. The process of digitally reconstructing and animating the mosque allows for a deeper understanding of its architectural elements, historical context, and cultural importance. This paper discusses the methods used in the creation of a 3D model of the mosque, including architectural analysis, 3D rendering, and animation techniques. Furthermore, the potential of digital technologies in cultural preservation and education is emphasized, as the animated representation of the Maşat Misserian Mosque provides an interactive and accessible platform for both scholarly and general audiences. The animation is not only a visual representation but also an educational tool that bridges the past and present, enabling virtual exploration of this important historical structure.

Keywords: Maşat Misserian Mosque, 3D modeling, animation, architectural preservation, digital reconstruction, cultural heritage, Islamic architecture, historical preservation, virtual tour, animation techniques.

The Maşat Misserian Mosque is an iconic structure located in the region of Maşat, known for its unique architectural style and significant cultural heritage. As a key example of Islamic architecture, the mosque represents the region's rich history and religious traditions. With the passage of time and the effects of environmental factors, the mosque's physical condition has gradually deteriorated, prompting the need for its preservation.

Digital technologies, including 3D modeling and animation, offer promising solutions to preserving and showcasing the mosque's historical and architectural

legacy. This paper aims to explore the process of digitally reconstructing and animating the Maşat Misserian Mosque to create an immersive virtual representation that can be used for educational, cultural, and preservation purposes. Through this method, we can gain a better understanding of the mosque's historical context, architectural features, and cultural significance, all while ensuring its preservation for future generations.

Historical and Architectural Significance of the Maşat Misserian Mosque

The Maşat Misserian Mosque, constructed in the 15th century, holds significant historical value as a religious and cultural landmark. Its architectural design blends traditional Islamic elements with regional influences, creating a unique and beautiful structure. The mosque's large central dome, elegant arches, intricately designed minarets, and decorative tile work all contribute to its grandeur.

The mosque also serves as an important symbol of the region's religious heritage and has played a central role in the local community's spiritual and cultural life. The structure's innovative design, which combines functionality with artistic beauty, reflects the values and skills of the architects and craftsmen of the time. Preserving the mosque, both physically and digitally, ensures that this cultural and historical gem remains accessible for future generations to appreciate and learn from.

The Process of Digital Design and Animation

1. Historical Research and Data Collection

Before starting the digital reconstruction of the Maşat Misserian Mosque, extensive historical research was carried out. This included the study of architectural blueprints, historical documents, photographs, and previous scholarly works on the mosque. Interviews with architects and local historians also provided invaluable insight into the original design and modifications made to the mosque over time. This information was crucial to ensure that the digital model was accurate and faithful to the mosque's original design.

2. 3D Modeling and Architectural Reconstruction

The design team employed specialized software such as AutoCAD, Rhinoceros (Rhino), and Blender to create a 3D model of the mosque. The first step in the modeling process was to build a basic structure of the mosque based on the collected data. The

model included the central dome, minarets, prayer hall, and surrounding courtyards. The team used precise measurements and architectural details to ensure the proportions and layout of the building were accurate.

Once the basic structure was modeled, the team worked on adding intricate architectural features such as arches, columns, windows, and ornamental decorations. This step required great attention to detail, especially in replicating the unique tilework and carvings that are characteristic of the mosque's design.

3. Texturing and Materials

The next step involved applying textures to the 3D model to represent the materials used in the original mosque. For example, the mosque's walls and dome were covered with textures that simulated the stone and tile materials. The team used high-resolution textures obtained from photos of similar structures and historical sites to ensure a realistic appearance. The textures were carefully applied to give the model a sense of authenticity, mimicking the building's surfaces and the way light interacts with them.

The detailing process also included simulating the reflective properties of the mosque's ceramic tiles and the weathered appearance of the stone over time. This helped convey the mosque's age and cultural heritage while maintaining its architectural beauty.

4. Lighting and Animation

Once the textures were applied, the next phase involved setting up the lighting for the animation. Lighting plays a crucial role in emphasizing the mosque's architectural details, such as the central dome and the minarets. The team utilized realistic lighting techniques to simulate natural sunlight, as well as different lighting scenarios for various times of the day.

The animation was designed to showcase the mosque from various angles, allowing viewers to virtually explore the structure. The camera movements were carefully planned to highlight specific features of the mosque, such as the minarets, courtyard, and decorative elements. The animated sequences also included virtual

walkthroughs, enabling viewers to experience the mosque as though they were physically inside it.

5. Interactive Features and Virtual Tour

An essential part of the project was the creation of an interactive virtual tour. By integrating interactive features into the animation, viewers could navigate through the mosque at their own pace and click on specific areas to learn more about the history, architecture, and cultural significance of the mosque. The virtual tour also included audio narration and written descriptions of various parts of the mosque, offering additional educational content.

The virtual tour made the mosque's architectural details and cultural significance accessible to a broader audience, allowing people from around the world to explore the mosque, even if they were unable to visit in person.

The design and animation of the Maşat Misserian Mosque represents a significant step in the digital preservation of architectural and cultural heritage. Through advanced 3D modeling, texturing, and animation techniques, the mosque's unique architectural features and historical context have been brought to life in a virtual space. This project not only serves as a means of preserving the mosque's legacy but also provides an educational and immersive experience for those interested in learning more about this iconic structure. The use of digital technologies in cultural preservation ensures that the Maşat Misserian Mosque and other historical landmarks will remain accessible for future generations, contributing to the ongoing appreciation and understanding of cultural heritage.

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