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Tomb 70 3D Reconstruction

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TOMB 70 3D RECONSTRUCTION

by

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A thesis submitted in partial fulfillment of the requirements
for graduation with Honors in the Art, Studio

Bjorn Anderson
Thesis Mentor

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All requirements for graduation with Honors in the
Art, Studio have been completed.

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TOMB 70 3D RECONSTRUCTION

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Bjorn Anderson

School of Art and Art History

Through my studies of 3D Design and International Studies I have developed an interest in applying my knowledge to reconstruction of destroyed or deteriorated antiquities. After speaking with Björn Anderson, a professor in Art History, I decided to apply my 3D modeling skills to the reconstruction of a heavily damaged Nabatean sculpture on a tomb (known as Tomb 70) that date back to the 1st century BCE/CE. Because of the damage, archeologists are unable to fully understand how this tomb originally appeared and whether, indeed, it was a tomb at all. Anderson believes that the sculpture above the pediment on the north façade of the tomb is the key to understanding this structure's purpose in ancient Nabatean society; however, the damage has made the sculpture unrecognizable. In order to assist in his research, I created a model of the sculpture as it appears today so that he can more closely analyze its form. To further understand the sculpture in context, I created a scaled replica of the tomb itself showing how I believe it would have appeared in its prime.

Professor Anderson provided me with his measurements and photos of Tomb 70 and the sculpture, as well as a 3D file he created of the sculpture using PhotoScan. I began by analyzing Anderson's 3D model of the sculpture. This file gave me an accurate model of the sculpture as it appears today, yet lacked a thickness needed to be 3D printed. To remedy this issue I imported the file into another 3D software to add the necessary thickness. I then began to model the tomb to scale starting by drafting an initial layout of the building in AutoCAD. I took these schematics and modeled the initial structure in 3Ds Max. Then I studied the pictures of Tomb 70 in comparison with other structures in Petra to infer how the details that are heavily worn would have originally appeared. I then added these details to my 3D model resulting in a scaled replica of how I believe the tomb would have appeared. The final step was to have both finished models 3D printed. I choose to print the Tomb in powder in a color similar to sandstone, to match the texture and color of the original structure. The sculpture I had printed in ABS plastic, which is much more durable than powder, so that the model could be handled for close research of its form. Finally, I created various renders of both models to be used as quality illustrations for publication.

My goal is that these models will assist Professor Anderson in understanding the original structure and analyzing what the sculpture represents. Through the process of recreating ancient structures, I learned how to apply my technical skills and knowledge of 3D modeling to analyze a deteriorated building and perform research of similar structures to recreate what the structure might have looked like in history as accurately as possible. Modern processes such as 3D printing can provide researchers with physical models of ancient objects that would not have been possible otherwise. I believe that I could use 3D modeling to recreate ancient artifacts, buildings, and even entire cities. Overall I hope to continue using my skills to assist in furthering our research and understanding of the people and places lost to us in history.