UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO

FACULTAD DE INGENIERÍA | DIVISIÓN DE INGENIERÍA ELÉCTRICA

Final Project

User Manual

Computación Gráfica e Interacción Humano – Computadora

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**Navigation and Environment Exploration**

The navigation system allows the user to move freely through the museum rooms using a standard combination of keyboard and mouse. For physical camera movement, both alphanumeric keys and directional arrows are enabled: pressing the W key or the Up Arrow moves the user forward in the viewing direction, while the S key or the Down Arrow allows moving backward.

For lateral movements, the A key or Left Arrow moves left, and the D key or Right Arrow moves right. Simultaneously, the viewing orientation is controlled by mouse movement; the system captures the cursor position to allow the user to look in any direction (360 degrees) smoothly while navigating through the environment.
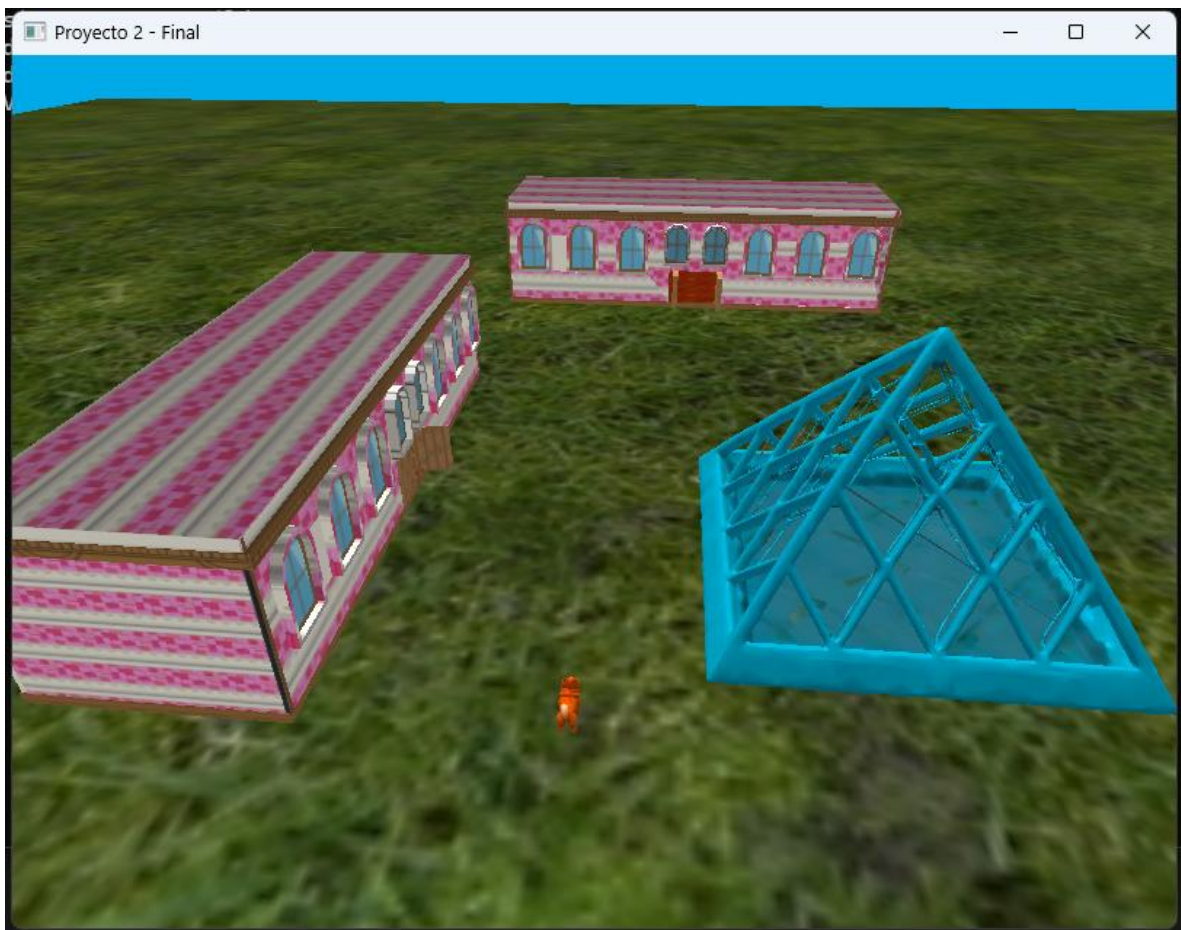
Animations

The tour includes interactive elements that the user can activate on demand to observe the dynamic behavior of the models. In the Egyptian Antiquities Hall, interaction with the sarcophagus and the mummy is central: by pressing the N key, a complex cinematic sequence begins, opening the sarcophagus lid and making the mummy emerge into the hallway; this animation goes through several automatic phases until the mummy returns and the sarcophagus closes. Additionally, the M key allows toggling a specific leg movement animation for the mummy.
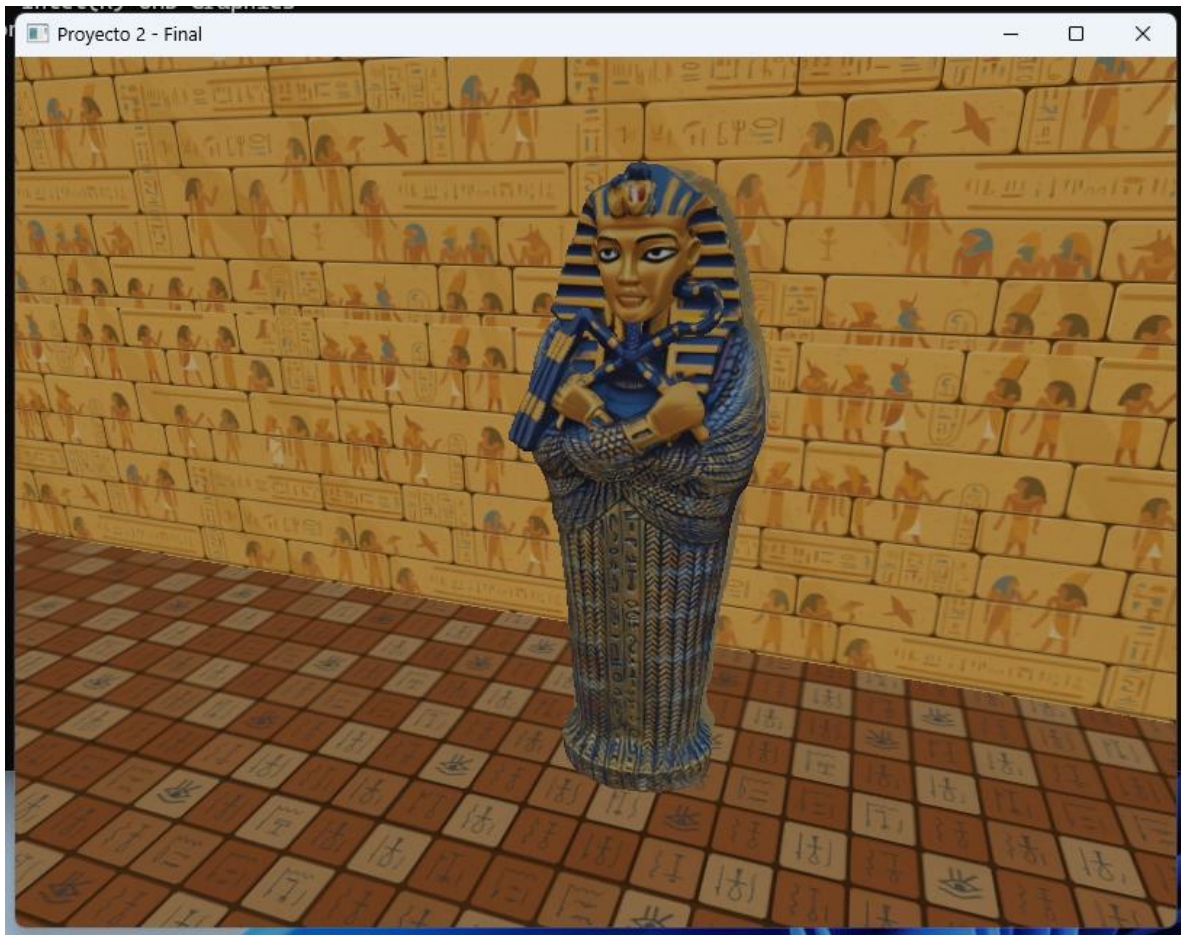
On the other hand, to interact with the statue of Anubis (the dog), the user must press the P key, which toggles its autonomous roaming cycle around the hall, including the articulated movement of its legs and tail.
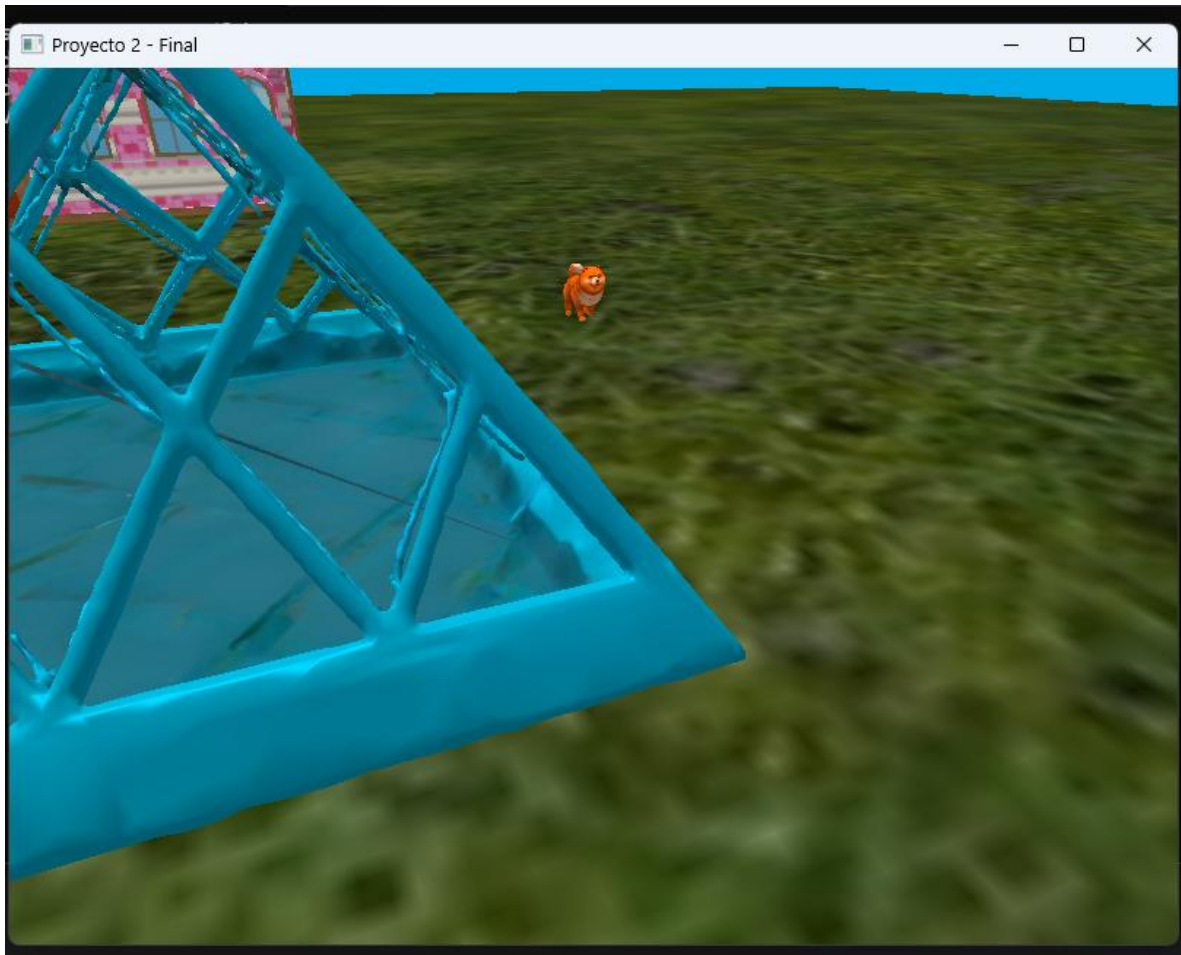
Real-Time Lighting Control

For technical demonstration purposes and model appreciation, the user has direct control over a point light source within the scene. By pressing the Space key, this dynamic light can be turned on or off. If the light is active, the user can manipulate its position in three-dimensional space using a specific set of keys: T and G move the light along the X-axis (left/right), Y and H control its height on the Y-axis (up/down), and U and J allow moving the light closer or farther along the Z-axis (depth). This enables observation of how shadows and specular materials react under different angles of incidence.

Application Management

The system is designed to run in continuous windowed mode. At any point during the tour, if the user wishes to end the session and exit the application, they simply need to press the ESC (Escape) key. This action will send the close signal to the graphics window, stop all rendering processes, and safely release the memory resources used by the program.