Design

When designing an environment to inducing awe using ancient architecture like Petra, there are several key points in the model that must be considered before the actual development. These include how realistic we want the model to be, the trade-off between quality and frame rate, and how are we going to induce awe in the users. The model must ensure that the design respects and represents the ancient architecture of Petra.

Why Petra

Petra, often referred to as the ‘Rose City’ due to its pink appearance of its sandstone cliff, and was well known for its spectacular tombs, monuments, and houses that was carved into sandstone cliffs.

For past centuries, the lost city was little known in the western world due to the limitations of technology and how information travels. Today, many have read and seen pictures of this magnificent architecture, but few have experienced it in person. Through this VR project, we aim to build a model of Petra, allowing users to experience Petra as they are in person and enabling them to immerse themselves into this truly awe-inspiring experience.

Awe-Inducing Elements

When it comes to induce awe, designing the model around vastness is very important and certain elements stand out, especially in virtual reality. Two of the elements are emphasized during development are its size and intricate details.

Size

Petra’s

Details

Experiment and results

In the user study (n=10), we tested whether grand ancient architecture like Petra has an effect on awe elicitation in a virtual environment. All participants went through the same process from the tutorial to the completion of the virtual environment. The tutorial is 5 minutes long with the main environment being 10 minutes. The participants are allowed to end the tutorial and main environment early if they want to.

There are two measurements taken during the experiment, objective measures such as heart rate (HR), respiratory rate (RR) and Respiratory Sinus Arrhythmia (RSA) and subjective measures being the survey participants took before the experiment and questionnaires after conducted the experiment. The objective analysis was calculated by taking the average HR, RR, and SCL after 3 minutes of the immersion until the end of it, removing the possibility of measuring the awe effect from the VR experience rather than the environment.

The objective results reviewed minor different between the HR and RR, which can be negligible. However, RSA showed that the Petra do have an effect that could be awe on participants. The sample size is too small make definitive claims.

The subjective measures did show that participants experienced awe in the experiments, followed by amusement and joy. The scores for questions that is linked to awe emotion score mostly within the medium high to high spectrum (7+/10).

Conclusions

The environment made can be considered successful in eliciting awe due to positive result for RSA and subjective measure. However, we cannot make a conclusive station about this project due to limitation in sample size and objective measures (n=10). More testing and validations are required to make the results be significant to make a definitive claim that participants experienced awe during the experiment.

Trigger: The primary focus of the environment was creating a awe-inducing environment. To trigger awe in participants, the environment is mainly designed around 2 triggers, immense size and quality in details, which was proven to be effective by studies around the world .

Scaling wonder

One of the unique features of Petra is its mix of grand structure and small, intricate carvings. From vast structures like the Bab Ai Siq to the tiny details on the sculptures on the treasury building. This model will ensure that users can experience both the grandeur and the detailed artistry that defines Petra.