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Overview and assessment of unity toolkits for virtual reality applications

Kenneth A Ritter III

University of Louisiana, USA

As the interest in Virtual Reality (VR) increases, so does the number of software toolkits available for various VR applications. Given that more games are being made with the Unity game engine than any other game technology, several of these toolkits are developed to be directly imported into Unity. A feature and interaction comparison of the toolkits is needed by Unity developers to properly suit one for a specific application. This paper presents an overview and comparison of several virtual reality toolkits available for developers using the Unity game engine. For comparing VR interaction a scene is created in Unity and tested at the three-sided Cave Automatic Virtual Environments (CAVE) at Rougeou VR Lab. In the testbed scene, the user must disassemble the major components of the Electrotherm Green Machine at the Virtual Energy Center. The three toolkits that met the criteria for this comparison are getReal3D, MiddleVR, and Reality-based User Interface System (RUIS). Each of these toolkits can be imported into a Unity scene to bring VR interaction and display on multi-projection immersive environments like CAVEs. This paper also provides how-to guides which can easily assist users to install and use these toolkits to add VR applications to their Unity game. A comparative analysis is given on performance, flexibility and ease of use for each toolkit regarding VR interaction and CAVE display. MiddleVR was found to have the highest performance and most versatile toolkit for CAVE display and interaction. However, for some display applications such as CAVE 2, the getReal3D toolkit maybe better fitted. Regarding cost, RUIS is the clear winner as it is available for free under the Lesser General Public License (LGPL) Version 3 license.

kar4499@louisiana.edu

The complexity of level design

Andrew Raabe

Deep Silver Volition, USA

The topic that I would like to discuss is that of meaningful design, be it overall level flow or such simple things as Set Design. The goal of most games is immersion, to get the player to feel like they are a part of this world. When the player encounters such things as level imbalance or inconsistent level flow it breaks from this immersion and takes away from the gameplay. So your goal as a designer should not be to just create a level, or to create a scene but to create a balanced level in which the player can enjoy a comfortable level of play that is both challenging and enjoyable. So how do we go about this? What would we as designers, artists and programmers have to do to create one of these masterful levels? I have divided these pieces of art. into three parts from a design perspective which will be discussed in this talk; they are as follows - Flow, Set Design, and Engagement. A level needs to lead the player to where they are intended to be, but give the player the sense that they are discovering this path on their own, that they have found something even if it was intended as the main path. This is what is called Level Flow. Every game has it in different amounts and the best games have it in large portions. But how does one setup level flow? How do you achieve this synergy between player and development team?

andrewraabe@gmail.com